Dynamics of European integration: Public opinion in the core and periphery

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Abstract
The relationship between public opinion and public policy provides a potential criterion for assessing the democratic quality of the European Union. The few existing time series analyses in this area assume that there exists a European-wide public mood towards integration. Analyzing West-European series of public opinion from 1974 to 2011, this article finds considerable support for this assumption. However, the analysis also points towards a 'periphery-trend', driven by the UK, Ireland and Denmark, in contrast to a 'core-trend', driven by the founders of the European Economic Community (EEC). The analysis further shows that both opinion trends are cointegrated with public policy in this area: European integration appears to be significantly influenced, or constrained, by public opinion both in the core and periphery.

Introduction

Responsiveness to public opinion is widely held to be a defining feature of democracy. Accordingly, a considerable effort has been made to investigate the relationships between public opinion and government positions (e.g. McDonald et al., 2004; Powell, 2000), and between public opinion and actual public policy (e.g. Wlezien and Soroka, 2012). The application of time series analysis has brought this literature a significant step forward, allowing the investigation of 'dynamic representation' – a situation in which public policy tracks public opinion over

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time (Stimson et al., 1995). Dynamic representation has been examined in a number of different policy areas, but mostly in Anglo-American, majoritarian political systems (e.g. Erikson et al., 2002; Hakhverdian, 2009, 2010; Jennings, 2009; Jennings and John, 2009; Soroka and Wlezien, 2004, 2005, 2010; Wlezien and Soroka, 2011; notable exceptions are: Hobolt and Klemmensen, 2005, 2008; Roberts and Kim, 2011).

An interesting question is thus whether, and to what extent, dynamic representation can be found in other, more consensual political settings, such as the European Union (EU). At first glance, it might appear unlikely that the process of European integration would respond to public opinion, given the EU's alleged 'democratic deficit' (e.g. Hix, 2008). The notion of a democratic deficit usually involves one or more of the following claims: (1) the process of European integration involves an increase in executive power and decrease in national parliamentary control; (2) the European Parliament (EP) has been (and still is) relatively weak; (3) there are no 'European' elections, as neither national elections nor EP elections relate substantively to EU politics; (4) the EU is too distant from voters, as the institutions are too complex, unfamiliar and insulated from electoral input (Follesdal and Hix, 2006). Consequently, Follesdal and Hix (2006: 537) list as a fifth point the argument that policy drifts away from voter preferences: 'Partially as a result of the four previous factors, the EU adopts policies that are not supported by a majority of citizens in many or even most of the Member States'. If this description were accurate, it would seem overly optimistic to expect a clear impact of public opinion on European integration.

However, this picture may be too bleak (e.g. Crombez, 2003; Majone, 1998; Moravcsik, 2004). European politicians, both in the European Council and the Council of Ministers, are ultimately accountable to their constituents. As Moravcsik (2002: 612) notes, 'if European elections were the only form of democratic accountability to which the EU were subject, skepticism would surely be warranted, [but] a more important channel lies in the democratically elected governments of the Member States, which dominate the still largely territorial and intergovernmental structure of the EU'. Politicians may thus still have sufficient incentives to be attentive to public opinion on integration and to keep their constituents satisfied. This would also seem consistent with findings that the positions of national political parties towards European integration are influenced by the positions of their voters (Carrubba, 2001; Schmitt and Thomassen, 2000; Steenbergen et al., 2007). From this perspective, it appears quite plausible that European integration would be influenced by public opinion.

This issue has received little attention in empirical research. Time series analyses related to European integration are rare, and the dynamic representation framework has found little use. The key exception is Toshkov (2011), who employs a vector autoregressive model (VAR) examining public opinion and integration in a symmetric fashion, allowing for the possibility that either variable may influence the other. Toshkov finds that public opinion has an effect on the legislative output of the EU, but no strong evidence for causation in the opposite direction.

Another notable exception is Franklin and Wlezien (1997) who find that public opinion responds negatively to European integration, in accordance with Wlezien's 'thermostatic' model of public opinion (which is discussed further below). They argue, however, that this responsiveness only appeared as the issue of integration-gained public salience. More importantly, they do not assess the possible impact of public opinion on integration.

Furthermore, examining these issues requires a model of European public opinion. The time series studies mentioned above (Franklin and Wlezien, 1997; Toshkov, 2011) have assumed there is an EU-wide public mood for integration, and constructed their measures accordingly. This may be a strong assumption, however, especially given debates such as that on whether there exists a European public sphere (e.g. Downey and Koenig, 2006; Eriksen, 2005; Machill et al., 2006). The first goal of this study is thus to disaggregate public opinion on European integration and assess whether there is one or more common trends in the public opinion series of different countries. Such patterns will be interesting in themselves, teaching us more about European public opinion, but they will also facilitate subsequent analysis, reducing the number of series to consider. In practice, a completely disaggregated time series analysis, relating European integration to separate series for each country, would not be feasible – the series are too many and too similar to yield meaningful estimates.

The first analysis presented below does indeed identify a factor of similar movements in public opinion across the countries in question. However, a second factor is also found, and the two factors can be seen as representing the 'core' and 'periphery'. This result invokes the question of what influence each factor of public opinion exerts on European integration. The second part of the analysis addresses this question, and shows that both trends are strongly related to the level of European integration, although the core appears more important than the periphery. The conclusion of this article provides further discussion of these results and their wider implications.

Public opinion and European integration

There are a number of reasons why we might expect common trends in public opinion among EU countries. Most importantly, individuals in different countries may receive many of the same signals, and respond in similar ways. This appears quite plausible in light of studies arguing that a Europeanization of national public spheres is taking place (Koopmans and Erbe, 2004; Trenz, 2004). While the mass media remains national in its structure, it may increasingly be reporting on the same issues, using the same communicative styles and discourses. If this is correct, and the same signals are driving public opinion in different countries, we may expect common trends. However, if the public spheres of different European countries are largely independent, we might expect public opinion trends to be as well. If opinions in different countries respond to different factors, or respond differently to the same factors, there may be more than one trend.

While we know little about the possible effects of public opinion on European integration, a large number of studies aim to explain public opinion in this area. These studies use both cross-sectional and time series data, and individual as well as national explanatory factors. The main classes of explanations are related to national identity (Carey, 2002; Hooghe and Marks, 2004, 2005), political parties (Gabel, 1998; Ray, 2003) or individual and national interests (Anderson and Kaltenthaler, 1996; Anderson and Reichert, 1995; Eichenberg and Dalton, 1993, 2007; Gabel and Palmer, 1995; Gabel and Whitten, 1997). All of these explanations have received support, although the influence of political parties may be conditional on inter- and intraparty disagreement, issue salience and individual party attachment (Ray, 2003). It is also worth noting that several of the explanations are based on national or individual characteristics that show little variation over time, which limits their ability to explain short- or medium-term trends in public opinion. Nevertheless, these largely stable characteristics could condition the impact of external influences, and thereby still contribute to heterogeneity over time.

It is also worth noting that some countries have exhibited very different levels of support for integration. The EEC-founding countries have traditionally shown strong support, while some of the countries that joined a little later, such as Denmark and the UK, have been more skeptical. Partly as a result, the latter countries have been allowed to opt out of several aspects of European integration, causing 'differentiated integration' (e.g. Andersen and Sitter, 2006; Holzinger and Schimmelfennig, 2012; Kölliker, 2001). In fact, Denmark and the UK have historically benefited the most from differentiation, for example in the area of Justice and Home Affairs, with exemptions related to visas, asylum and migration (Schimmelfennig and Winzen, 2014). This might even have reduced some of the skepticism in these countries and facilitated a more positive development over time. In this light, we might expect public opinion within these groups of initially more and less supportive countries to behave more similarly also from a time series perspective. In short, we may expect one trend for the countries that form the core of the European integration project and another for more peripheral countries.

However, if this would indeed prove to be the case, it would complicate the question of what influence public opinion exerts on European integration. If there are several trends of public opinion, it seems likely that any influence they exert will reflect the number and size of the countries that are part of the trend, as this for example relates to their bargaining power and combined votes in the Council of Ministers. Furthermore, a trend representing countries that have historically formed the core and provided the momentum of the integration project, such as Germany and France, might play a more important role than a trend representing more peripheral countries, although skepticism in this latter group might serve to slow down the integration process. Answering the question of how different trends relate to the integration process is the second goal of this study, and calls for some further theoretical and methodological discussion.

In many of the cases where dynamic representation has been found, the public has also been found to work 'as a thermostat', responding negatively to policy

outputs (Wlezien, 1995). Wlezien introduces a distinction between the public's preferred level of policy in an area – its *absolute preference* (P^*) – and its *relative preference* (R), defined as the distance between the preferred level of policy (P^*) and the observed level (P): $R = P^* - P$. If policy moves away from the publicly desired level, the public's relative preference will respond, calling for change back in the opposite direction. If the absolute preference moves, the relative preference moves accordingly. If there is dynamic representation, this will in turn produce a change in policy.

In other words, this theoretical framework implies that the relative public preference (R) serves as the error-correction term (ECT) in an error-correction model (ECM), ensuring that policy never drifts too far from the absolute preference of the public (Engle and Granger, 1987; Johansen, 1995). If policy drifts off, the resulting discrepancy (or error) will give rise to forces bringing it back on track (correcting the error). Formally, the relative public preference (R) will predict subsequent policy changes: $\Delta P_t = \alpha + \beta R_{t-1} + \varepsilon_t$. Such error-correcting forces imply that the levels of public opinion and policy will be cointegrated – they may both show trends, retaining the full impact of previous shocks in their present values, but they will trend together, never too far apart. This process can be explicitly modelled with appropriate ECM models, but only a few studies have done so (e.g. Jennings, 2009).

The existing literature identifies two general mechanisms that may produce cointegration by making policy responsive to public opinion: first, voters may replace their representatives with others who are more in tune with their preferences, and, second, policy makers may adapt to the prevailing public mood to please their constituents and presumably increase their chances of remaining in office (Stimson et al., 1995). This illustrates why responsiveness might appear unlikely in the case of European integration: certain key policy makers (i.e. the Commission) are not elected, while others (i.e. the Council of Ministers) are only subjected to national elections normally dominated by other issues (Follesdal and Hix, 2006). Still, as mentioned, it is not entirely implausible that these institutions are responsive to the public (Moravcsik, 2002). Members of the Council may potentially face electoral consequences in the national arena if the public grows sufficiently unsatisfied, while the Commission needs the approval of the Council when producing legislation. The Commission may also want to stay in tune with the public to maintain general support, and, for example, avoid unfavourable referendum results. The Commission's concern that the EU may be losing popular support is, for example, clearly expressed in its 2001 'White Paper' on European governance (COM/2001/0428 final).

To summarize, this discussion yields the following set of research questions: are there one or several (if any) common trends of public opinion on European integration? If there are more than one, which of these are related to actual integration, and are they cointegrated with this variable? Finally, does integration policy influence subsequent public opinion on integration? If we measure the public's relative preference for integration, one might expect a negative feedback, as reported by

Franklin and Wlezien (1997), while if we measure the absolute preference, such an influence appears less likely. In the latter case, one might even find a positive feedback, if 'successful' European integration produces support for further integration. The analysis of these questions will be divided into two parts: the first examining the issue of cross-national factors of changes in public opinion and the second employing a vector error correction (VEC) model to examine the long- and short-run relationships between the relevant variables over time.

Data

These research questions call for detailed time series analysis of European integration and public opinion. The standard version of the Eurobarometer (EB), which is conducted twice a year (spring and fall), contains several items related to European integration. The question that allows the construction of the longest time series is that of whether membership in the EU is 'a good thing': 'Generally speaking, do you think that [your country]'s membership of the European Union is...? (1) A good thing, (2) Neither good nor bad, (3) A bad thing'. This measure also has the advantage of being used in previous research in this area (e.g. Toshkov, 2011), allowing the present analysis to make a cumulative contribution to the literature. Theoretically, this question is best interpreted as capturing the public's absolute preference for integration, rather than a relative preference – the answers express a level of general support, rather than calls for more or less integration. As absolute preferences are appropriate for the key purposes of the present analysis (although not for testing Wlezien's thermostatic model), the present analysis will focus on this measure. The raw data have been reversed (to give support for the EU the higher values) and rescaled to vary between 0 and 100 (but note that the analyses below transform this scale).

The Mannheim Eurobarometer Trend File 1970–2002 (Schmitt and Scholz, 2005) contains this question for an uninterrupted period from the fall of 1974 (EB 2) to the spring of 2002 (EB 57.1). It also contains answers from the European Communities Study of 1973, but these are excluded here to avoid extrapolation. For the purpose of this study, the data have been updated until the spring of 2011.[1] The data have been aggregated by country and survey, after having been imputed separately by country and survey (to ensure appropriate means for the imputed values).[2] To obtain a sufficiently long time series, appropriate for advanced modelling, the analysis will focus on the countries for which data are available throughout the whole mentioned period (1974–2011). That includes the EEC founders: Belgium, France, Italy, Luxembourg, the Netherlands and West Germany, as well as the countries that joined in 1973: Denmark, Ireland and the United Kingdom.[3] However, the issue of how more recent members fit the identified pattern is also discussed below.

Turning to European integration, it is natural to focus on the extent to which policy making is moved to the European level, requiring legislation to be standardized across the member states. This study will thus focus on directives, as these are

the most important legislative and regulatory acts of the EU. There are far fewer directives than regulations and decisions, and they take considerably longer to decide upon, because they deal with more important and controversial issues. Directives lay out general aims and guidelines that are binding to the member states, but leave some room for the states to decide on how to transpose them into national law. Nevertheless, by requiring member states to adapt their national laws, directives represent a key instrument for standardizing important areas of European law. Directives applying to new policy areas directly expand the scope of EU legislation, and a measure of such directives is thus well suited to capture the extent of European integration.

An example of a relevant directive is the 'Council Directive 94/33/EC of 22 June 1994 on the protection of young people at work', which states that member states 'shall take the necessary measures to prohibit work by children', by establishing a set of minimum standards. For example, 'the minimum employment age must not be lower than the minimum school-leaving age and, in any case, not lower than 15 years' (although this is subject to certain exemptions). This example illustrates several points: first, it shows how directives require national laws to be changed and harmonized, potentially undermining national policy making, while simultaneously affecting the everyday lives of EU citizens. Second, it illustrates how the public takes notice of certain directives, and may respond very negatively: in the UK, daily tabloid *The Sun* reported: 'Schoolchildren are to be banned from working on milk rounds under an EU crackdown on child labour ... Britain's 20,000 milkmen, who face £1000 fines if they employ children, yesterday claimed the ban was another attack on the British way of life'.[4] Such responses further illustrate why European policy makers might respond to public opinion: when the public mood is already unfavourable, the likelihood of a negative reception might be higher, and they may not want to risk introducing potentially controversial legislation.

The measure of European integration will thus be based on the number of directives adopted by the EU in each half-year period. However, following Toshkov (2011: 176), 'Commission directives' will be excluded, as these 'are implementing acts that further specify or update provisions laid down in "regular" directives and as such do not have a place in an index of important legislation'. The number of non-Commission directives will be referred to as *change in European integration* or $\Delta Integration$. The first part of this series is based on Toshkov's (2011) replication data, which have been automatically extracted from EU's legislative database EURLEX. Toshkov's data end with 2008, but these have been updated for this study to include the spring of 2011.

A crucial issue in time series analysis is whether we are measuring changes or levels, and more technically, whether the series to be analyzed are stationary, or integrated of the same order. A mean-stationary series would have a stable mean over time, and revert to this mean even when external shocks temporarily pull it away. In contrast, an integrated series of the first order, denoted $I(1)$, would fail this requirement, by perfectly incorporating previous shocks in its present values.

Measures of levels will typically have this characteristic, while measures of changes will not. Regressing integrated series on each other is normally problematic as such a 'spurious regression' may appear to yield very strong and highly significant effects that in reality are completely spurious (Granger and Newbold, 1974). The one exception in which the relationship between integrated variables can be meaningfully analyzed is when they are truly related, so that a linear combination of them is stationary (Engle and Granger, 1987). In other words, they are 'cointegrated', never drifting too far apart from each other, as 'error correcting' forces will pull them back together.

Theoretically, the measure of changes in integration, $\Delta Integration$, should not be integrated, as it captures the number of new directives in a given period. There may of course, be some degree of autoregression, as there may be times with more or less activity, but integration can largely be ruled out from a theoretical perspective. As expected, the augmented Dickey–Fuller test clearly rejects the $I(1)$ hypothesis for this variable. However, EU directives are not simply transient phenomena, but lasting pieces of legislation, and it is useful to also conceptualize a *level* of European integration. There are good theoretical reasons for analyzing not only short-term relationships between changes in public opinion and European integration but also long-term relationships between their levels. The most obvious way to measure the level of integration is to create an integrated measure based on the changes in integration – calculating the cumulated sum of the latter variable: $Integration_t = \sum_{i=1}^{t} \Delta Integration_i$. The levels measure will be nonstationary, as it is integrated, $I(1)$, by definition. More specifically, since $\Delta Integration$ cannot be negative, *Integration* will grow over time (virtually linearly). For illustrative purposes, it will therefore be detrended, while in the analyses, the more flexible option of including a linear trend will used.[5]

For aggregate public opinion series, the issue of stationarity is somewhat more complicated, as they are likely to be fractionally integrated. That is, such series may be stationary, but yet exhibit longer memory (i.e. a more slowly decaying autocorrelation function) than an autoregressive process (Granger, 1980). Thus, to obtain stationary series of pure innovations, the series have been filtered for fractional integration (FI) and autoregressive (AR) processes. The details of this filtering are reported in the online appendix. As with the integration measure, it is possible to create measures of levels from these innovations in public opinion. Figure 1 shows such integrated measures for each of the countries included in this analysis. While the series appear to show quite different trends, they also exhibit some similarities. For example, most trends increase over the five years previous to the signing of the Maastricht treaty in 1992, but some countries, such as France, West Germany and Belgium, show a steep decline soon after, while others do not. Similarly, some countries, such as Denmark, Ireland and the United Kingdom, show a slump in the mid-1980s, in contrast to the others. Finally, and perhaps unsurprisingly, all trends show a decline in support towards the very end of the series, after the 2008 financial crisis, and the onset of the subsequent recession and the European debt crisis.
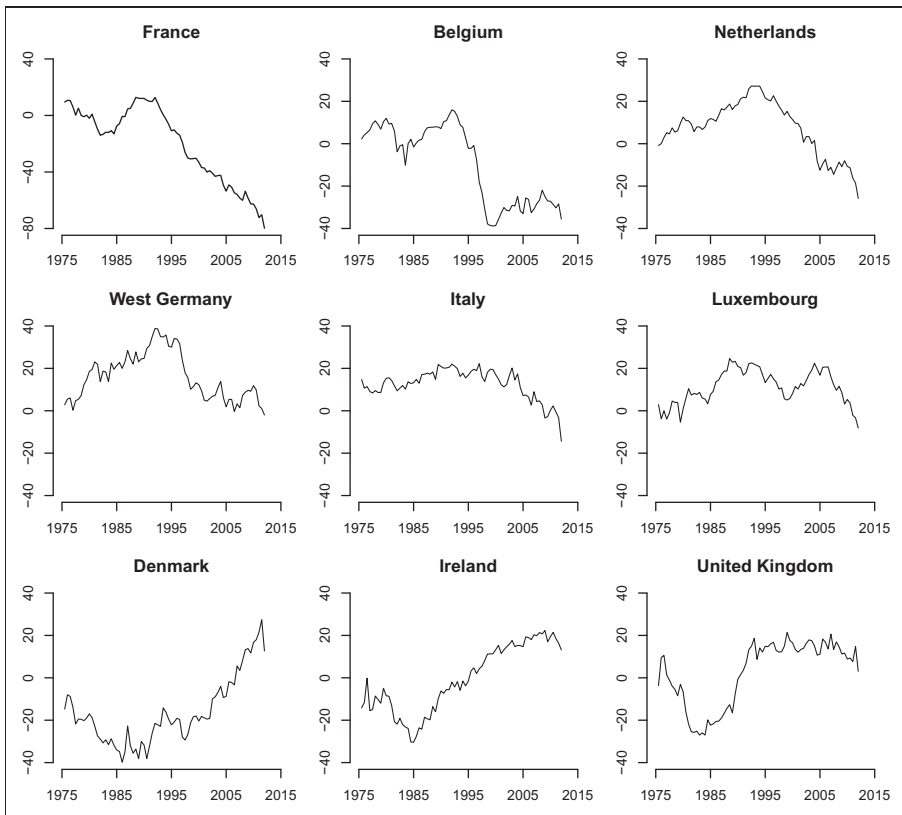
Figure 1. Trends of public support for European integration in early member countries.
Note: The trends are integrated versions of the AR/FI-filtered series of opinion innovations. The scale for France diverges to accommodate the greater range of this series.

Do European publics move together?

The first goal of this study is to assess more systematically whether there are common trends in countries' series of public opinion on European integration. Factor (or principal components) analysis makes some assumptions that are likely to be violated with time series data, most notably that the errors are independently and identically distributed. In the present case, however, the AR/FI-filtering resolves the problems of nonstationarity and autoregression, allowing a normal factor analysis to be applied. The approach used here is thus quite similar to the time series factor analysis (TSFA) approach of Gilbert and Meijer (2005), which essentially analyses differenced data. The problem with the TSFA approach for the present case is that the use of first differences would involve overdifferencing when applied to fractionally integrated data. Apart from this, the present approach

Table 1. Factor analysis of filtered public opinion innovations.

	Unrotated		Rotated (Oblimin)		
	Factor 1: '∆Main'	Factor 2: '∆Second'	Factor 1: '∆Core'	Factor 2: '∆Periphery'	Uniqueness
France	.640	−.163	.658	.057	.564
Belgium	.672	−.249	.717	−.013	.486
Netherlands	.711	−.110	.707	.131	.483
W. Germany	.721	−.183	.741	.066	.446
Italy	.561	−.160	.583	.035	.659
Denmark	.504	.356	.358	.503	.619
Ireland	.362	.502	.175	.594	.617
UK	.530	.397	.369	.550	.561
Eigenvalue	2.868	.697			
Parallel Analysis	.637	.400			
Difference	2.231	.296			

shares some advantages with the TSFA approach, such as the ability to identify common factors separate from the modelling of time series dynamics.

Table 1 shows the results of a factor analysis of the filtered data.[6] Parallel analysis demonstrates that two factors have Eigenvalues notably larger than what would be expected by chance alone (see, e.g. Ledesma and Valero-Mora, 2007), and these factors appear to capture a quite intelligible pattern. The first factor captures a considerable, general mood for European integration: all countries have loadings above .5, except for Ireland at .36. The shares of the different series accounted for by this factor are quite large, considering that this is an analysis of innovation data. In other words, there seems to be a notable European-wide mood for integration, which we may refer to as the '∆*Main*' factor. To further capture the *level* of this public mood, we can create an integrated measure from the opinion innovations (the same way as *Integration* was constructed from ∆*Integration*).

Figure 2 plots this measure, the (unrotated) *Main* public mood for European integration, along with the level of *Integration*. As can be seen, there is a very strong relationship between the two, with actual integration lagging a few years behind public opinion. Furthermore, as both measures are integrated by construction, it appears likely that they are cointegrated – an issue to be analyzed in the next section. It is also worth noting that the integration measure behaves quite like one would expect, increasing from its lows during the mid-1980s and peaking in the early 1990s, around the time of the Maastricht treaty – which required intensive policy making both before and after. Interestingly, this treaty, which was one of the most important in the history of the EU, was signed amidst unusually strong public
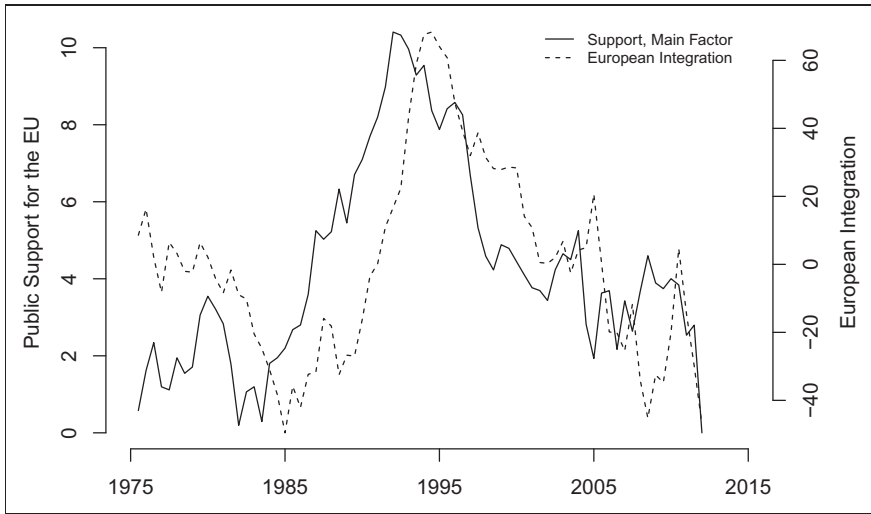
Figure 2. Levels of European integration and public support.
Note: The level of integration has been detrended for presentational purposes, while the statistical analysis below rather includes a linear trend in the cointegrating equation.

support for European integration, which may appear as more than pure coincidence.

Turning back to the factor analysis in Table 1, the single, main factor of support does not appear to capture the whole picture, however. There is also a second factor, particular to Denmark, Ireland and the UK. Applying oblimin rotation (i.e. allowing the factors to correlate) clarifies this pattern: the three mentioned countries now load more strongly on the second factor, while all of the others load strongly on the first. While even Denmark, Ireland and the UK load somewhat on the first factor – reflecting that they also share in the general, main trend of 'European' public opinion – their loadings on the second factor suggest that they follow a path that is quite different from the others. Interestingly, these countries are in a sense 'outsiders': while the other countries founded the EEC/EU in 1957, these three countries joined later, in 1973. Ireland and Denmark are small countries, on the outskirts of Europe, while the UK is known for its ambiguous and complicated relationship with the EU. In want of better terms, the factors have therefore been labelled 'Core' and 'Periphery'. Figure 3 plots the trends of these factors over time. The *Core* factor shows a gradual increase up to a peak around 1991, right ahead of the signing of the Maastricht Treaty, only to start a steady decline, while the *Periphery* factor starts by declining to a low in 1984, before starting a rapid climb that slows down somewhat after the Maastricht Treaty.

As the analysis reported above is restricted to eight early-member countries, a key question is how more recent members would fit into this picture. The reason for
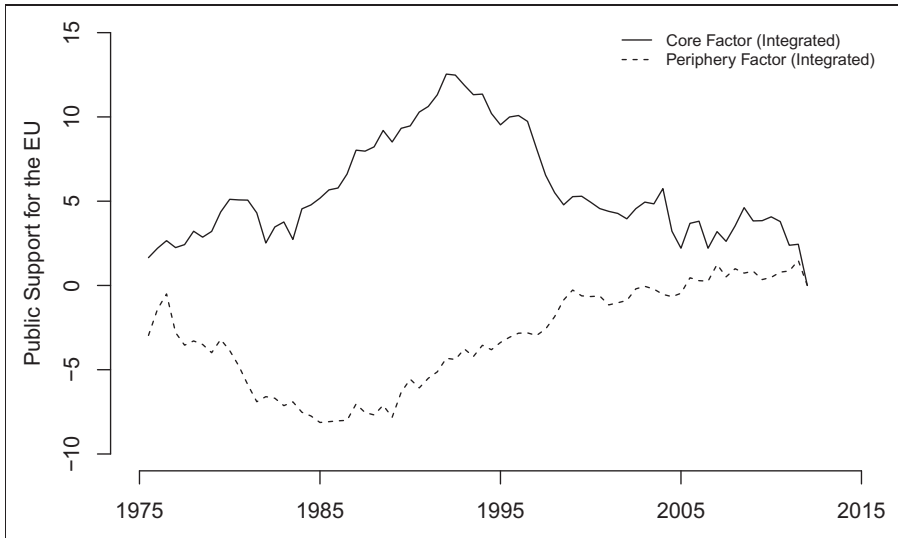
Figure 3. Trends of public support for the EU.

focusing on the earliest members is to obtain sufficiently long time series for proper modelling. Including more countries will inevitably shorten the window for which data are available, which reduces the statistical power and prevents a reliable analysis. Nevertheless, one key finding would remain even with shorter windows: there is always at least one common factor to the opinion series of EU countries. However, as the statistical power declines, it becomes less clear whether there is more than one factor or not. Judging from a parallel analysis, neither possibility can be completely ruled out. The question of how more recent members align should thus be revisited when more data become available. For now, we can only conclude that the two factors discussed above emerge when we use the full time period.

Who influences integration?

With more than one trend of public opinion regarding European integration, the question arises as to what influence each exerts on actual integration. This should be assessed together with the question of whether integration is cointegrated with public opinion, as the dynamic representation framework would predict. ECMs are particularly well suited for addressing these questions (see Kennedy, 2008: ch. 19).[7] A key part of an ECM involves one or more cointegrating equations, each reflecting an assumed long-run equilibrium state, derived from theory. In the present case, we would expect a long-run equilibrium between the level of European integration and the level of public support for such integration, maintained by the public reactions that would ensue if integration veered too far from public preferences.

A cointegrating equation is used to estimate errors, or short-run distances between the variables in the equation, understood as deviations from the long-run equilibrium. In the present case, a constant is included in the equation to accommodate the different scales of the variables. A linear trend is also included to account for the near-linear accumulation of directives in the *Integration* variable.[8] To identify the parameters in a cointegrating equation, one coefficient must be set to 1. As the main expectation is for *Integration* to be influenced by public opinion, it is natural to do this for the coefficient on *Integration*. Thus, if a single cointegrating equation were to prove appropriate, the following equation would be specified:

$$ECT_t = I_t - \beta_2 C_t - \beta_3 P_t - \beta_4 t - \theta \tag{1}$$

where *ECT* is the error-correction term, t refers to time, θ is a constant, and *Integration*, *Core* and *Periphery* are referred to by their initials (*I*, *C*, and *P*). However, having more than two variables in the model means that there could possibly be more than one cointegrating relationship. Thus, the present analysis will follow the procedure of Johansen (1995) to develop a VEC model, in which all variables are treated as potentially cointegrated and dependent on each other, and the equations are estimated jointly, by maximum likelihood.

The second part of the ECM is a model of the changes in one or more dependent variables; in a VEC model, changes in all variables are analyzed. In these equations, the lagged prediction from the cointegrating equation – the *ECT* – enters as a predictor. In the case of cointegration, this term will have a significant coefficient, reflecting the speed of error correction – a larger coefficient will reduce errors more quickly. In addition to the *ECT*, the equations may include one or more lags of the other variables in question. In the present case, the equations for changes will also include constants to parallel the linear trend in the cointegrating equation (a non-zero constant will imply a linear trend in the dependent variable). For a VEC model equivalent to a two-lag VAR model, we would specify the following set of equations (as the differencing captures one lag):

$$\Delta I_t = \alpha_{11} ECT_{t-1} + \alpha_{12} \Delta I_{t-1} + \alpha_{13} \Delta C_{t-1} + \alpha_{14} \Delta P_{t-1} + \alpha_{15} + \varepsilon_{1t} \tag{2}$$

$$\Delta C_t = \alpha_{21} ECT_{t-1} + \alpha_{22} \Delta I_{t-1} + \alpha_{23} \Delta C_{t-1} + \alpha_{24} \Delta P_{t-1} + \alpha_{25} + \varepsilon_{2t} \tag{3}$$

$$\Delta P_t = \alpha_{31} ECT_{t-1} + \alpha_{32} \Delta I_{t-1} + \alpha_{33} \Delta C_{t-1} + \alpha_{34} \Delta P_{t-1} + \alpha_{35} + \varepsilon_{3t} \tag{4}$$

The first step of the Johansen procedure is to determine the number of cointegrating equations. This also requires choosing the number of lags for the underlying VAR model. Lag-order selection statistics are fairly consistent in this case: the final prediction error, Akaike's information criterion, Schwarz's Bayesian information criterion and the Hannan and Quinn information criterion all point towards a single lag. However, a likelihood ratio test is significant for lag 4 as well. Lag 2 is

also almost significant with a *p* value of .071. With one lag, Johansen's test of the rank of VEC models gives rank 1 with 99% confidence (as well as with 95%), while with two lags, the test gives rank 1 with 99% confidence and 2 with 95%. There thus seems to be at least one cointegrating relationship, and possibly two. Theoretically, we would mainly expect one equation: the expectation is for integration to be influenced by the two public opinion trends. A model with two equations and four lags would perform quite well in terms of diagnostics, but yield results that are substantively similar to a much simpler model with only one cointegrating equation and two lags. The latter model also performs well in terms of diagnostics, showing no autocorrelation, having stationary residuals, and satisfying the stability condition. This parsimonious model is thus reported here.[9]

Table 2 reports the results for the cointegrating equation, which are as we would expect: there are highly significant coefficients on both of the public opinion measures (consistent with the hypothesis of cointegration), as well as a highly significant coefficient on the linear trend (reflecting the accumulation of EU directives). Table 3 further reports the equations predicting changes in each of the three variables. The results for the first equation, regarding *Integration*, are also consistent with the notion that cointegration is present: there is a highly significant coefficient on the *ECT* based on the cointegrating equation in Table 2. The negative sign of this coefficient is as expected, given the specification of the cointegrating equation: when *Integration* is too high relative to public opinion, it corrects down, and vice versa. The weakly negative coefficients on the lagged differences of the opinion trends imply that the effects of shocks to these variables are slightly delayed (as can be seen from the plots discussed in the next paragraph). The second equation in Table 3, predicting changes in *Core* public opinion, is less interesting. There is no sign of this variable being influenced by the others. The third equation, analyzing changes in *Periphery* public opinion, suggests there is a positive effect of *Integration*, but in practice this is quite small: it accounts for less

Table 2. Cointegrating equation.

	ECT
Integration$_t$	1
Core$_t$	−10.496*** (1.329)
Periphery$_t$	−10.184*** (1.876)
Trend$_t$	−27.013*** (0.248)
Constant	−143.756

Note: Standard errors in parentheses. The coefficient on *Integration* is restricted to 1; the parameters are exactly identified.
*$p < 0.05$.
**$p < 0.01$.
***$p < 0.001$.

Table 3. Vector error correction model of integration and public support.

	Dependent variable		
	ΔIntegration	ΔCore	ΔPeriphery
ECT_{t-1}	−0.309*** (0.058)	−0.003 (0.006)	0.004 (0.004)
$\Delta Integration_{t-1}$	0.093 (0.104)	0.011 (0.010)	0.019** (0.007)
$\Delta Core_{t-1}$	−3.878* (1.589)	0.029 (0.160)	−0.129 (0.104)
$\Delta Periphery_{t-1}$	−0.970 (1.724)	0.027 (0.174)	0.048 (0.113)
Constant	0.004 (5.455)	−0.599 (0.549)	−0.163 (0.358)
Observations	72	72	72
R^2	0.913	0.029	0.190
χ^2	693.914	1.941	15.444
$p > \chi^2$	0.000	0.857	0.009

Standard errors in parentheses.
*$p < 0.05$.
**$p < 0.01$.
***$p < 0.001$.

than 15% of the forecast error after five periods, and then the impact declines somewhat.

The effects of public opinion on *Integration* can best be illustrated graphically, as in Figure 4. The plot on the left shows orthogonal impulse response functions, reporting the effect of a shock of one standard deviation to each opinion variable. After five steps (2.5 years), a shock to *Core* opinion would have resulted in 8.3 additional directives, while the same for *Periphery* is 5.5. After 10 steps, the respective numbers are 11.9 and 7.4, and in the long run, they approximate 13.6 and 8.3. To put these numbers in perspective, the plot on the right shows a forecast-error variance decomposition for the *Integration* variable, illustrating the extent to which public opinion shocks contribute to unexplained variance (forecast errors) in this variable. After five steps, a shock to *Core* opinion explains 26.4% of the variance, while the same for *Periphery* is 14.4%. After five years, the respective numbers are 55.9% and 23.8%, while in the long run, they approximate 69.5% and 26.6%. Together, the two public opinion variables appear to exert a very strong effect, with the *Core* explaining more than twice as much variance as the *Periphery*.

Conclusion

Public opinion series from different EU countries share considerable variation over time. An important implication of this finding is that it lends credibility to studies that assume the existence of a pan-European public opinion and construct their measures accordingly. At least for the countries included in this study, it is possible
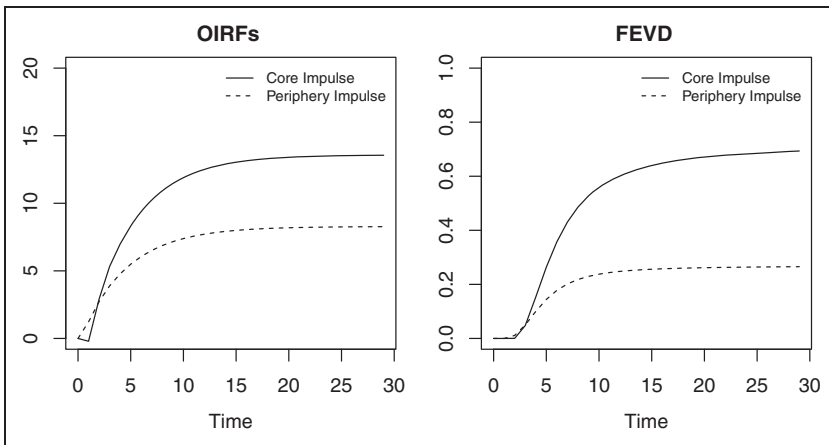
Figure 4. Response of European integration to opinion impulses.
Note: The orthogonal impulse response functions (OIRFs) show the integration variable's response to a shock of one standard deviation to the respective public opinion variables. The forecast-error variance decomposition (FEVD) reports the fraction of the integration variable's mean squared error (MSE) due to impulses in the respective variables.

to speak of a common European mood for integration. The most plausible explanation for this pattern is that citizens of different countries respond to many of the same signals, receiving similar messages through their national mass media. This would be consistent with the studies pointing towards a Europeanization of national public spheres.

However, there is also notable heterogeneity among the countries in question, and there appears to be a second, 'periphery' factor of public opinion, which is particular to the countries that joined in 1973, as opposed to the 'core' countries that founded the EEC in 1957. The analysis has also shown that the level of public support is strongly related to actual European integration – each of the two factors of public opinion has considerable ability to forecast integration. Furthermore, European integration is cointegrated with these factors: if the gap between desired and observed policy becomes too large, error-correcting forces will pull European integration back towards public opinion.

The necessary limitations of this study should also be noted, however. While public opinion in Denmark, Ireland and the United Kingdom is found to behave differently from public opinion in the EEC-founding countries, data limitations prevent a reliable assessment of how more recent members fit into this picture. This question must therefore wait until sufficient data have become available. Furthermore, the opinion measure used here may not fully capture all relevant aspects of public opinion, and future research could employ alternative measures, although the data will inevitably be even more scarce.

More importantly, while the directive-based measure of European integration is highly valid and relevant in this context, there are necessarily aspects of integration

it does not capture, and these may not show much of a relation to public opinion. The Eurozone debt crisis illustrates this clearly: the bail outs of countries with solvency issues were decided against popular majorities in key countries such as Germany and France (e.g. Bechtel et al., forthcoming). In fact, the crisis may have weakened the link between public opinion and policy making, as the task of pleasing the public has been balanced with the more pressing task of pleasing the market. Whether this is the case, and whether other forms of European policy relates to relevant measures of public opinion must remain for future research to assess.

Another key issue is whether the ability of public opinion to forecast European integration reflects a causal influence. Such an interpretation is not entirely implausible. It is, after all, an assumption underlying much of the research on preferences regarding European integration that public opinion can be decisive for integration outcomes (e.g. Hooghe and Marks, 2009). The notion of a causal influence also appears plausible given findings that party positions on European integration are responsive to the positions of their voters (Carrubba, 2001; Schmitt and Thomassen, 2000).

Furthermore, European policy makers do appear highly concerned with public opinion despite widespread worries of about the 'democratic deficit'. The Eurobarometer data used in this study represent one of the most extensive databases of public opinion in the world. By conducting multiple EBs each year and producing detailed reports about developments in public opinion, the European Commission is demonstrating a keen interest in the views of its citizens. Indeed, European policy makers might well be responding directly to the results. Moreover, the analysis shows that public opinion precedes integration, and predicts a considerable portion of the variance in integration over time – fulfilling the criteria of Granger causality (Granger, 1969; see also, Hakhverdian, 2012).

Nevertheless, we cannot confidently conclude that public opinion has a causal influence on integration. While time series analysis is a valuable tool for analyzing the relationship between variables, time series data do not ensure ignorable treatment assignment the way an experiment would. Even a cointegrated relationship, and effects fulfilling the criteria of Granger causality, need not be causal. As Campbell and Shiller (1988) note, one variable may simply be forecasting the other, without causally influencing it. More generally, there may be time-varying confounders producing similar patterns in both variables in question.[10]

This challenge illustrates a shortcoming of the dynamic representation literature, and especially the limited literature on the EU, namely an underspecification of the causal mechanisms that might produce responsiveness to public opinion – or confound it by producing a similar pattern. In the present case, some of the studies that find an effect of voter positions on party positions also find an effect (although possibly weaker) in the opposite direction (Schmitt and Thomassen, 2000; Steenbergen et al., 2007). It is thus quite likely that public opinion is not only *influencing* political elites, but is also *influenced by* these – and that the same elites largely determine integration policy. The latter mechanism would also

create a positive relationship between public opinion and integration, but it would not be a causal one. Without a detailed, high-quality, time series measure of elite positions, we cannot fully assess the role of elites in producing the relationship between public opinion and public policy. Thus, the safest strategy may be to treat the public opinion series as proxies of country-level support for integration, including support at the elite level.

From a normative perspective, the identified pattern might be desirable in either case. If elites are driving public opinion, it means they succeed in building support for their policies, effectively getting public consent before implementing their ideas. This is consistent with conceptions of representation in which representatives have a more active role than that of a mere delegate. It would fit, for example, with the model of what Mansbridge (2003) calls anticipatory representation, which leaves room for representatives to produce a correspondence between their own views and those of their constituents, not only by responding to, but also by shaping the latter. If the influence of elites on the masses were indeed to account for the larger part of the identified pattern, this would not exactly be the dynamic representation, however. It would rather be what we might call leadership, legitimation or consensus building, but would still appear desirable from a democratic perspective.

Acknowledgements

Notes

1. This update involves data from the following Eurobarometers: 58.1, 59.1, 60.1, 61.0, 62.0, 63.4, 64.2, 65.2, 66.1, 67.1, 68.1, 69.2, 70.1, 71.3, 72.4, 73.4, 74.2 and 75.3, which are all freely available from the Leibniz Institute for the Social Sciences (GESIS) at http://zacat.gesis.org/
2. The supplied inverse selection probability weights were divided into deciles (for each country and survey), and entered in a factorized fashion as the only covariates in the imputation. In practice, the imputation makes no difference, but serves as a guard against potential biases due to nonresponse.
3. For the UK, a series has been constructed as a population-weighted average of those for Northern Ireland and Great Britain. The German series must necessarily be based on West German data until 1990, after which data for the smaller Eastern population are also available (and potentially relevant). To avoid any abrupt interruption of this series, it is based entirely on West German data (also after 1990).
4. *The Sun*, 11 August, 1998, page 17. Similar stories were also published by *The Telegraph*, *The Mirror*, and *The Express*.

5. The approach of cumulating and detrending legislative output is akin to that used by Erikson et al. (2002) and Bølstad (2012) in measuring American policy liberalism.
6. Luxembourg is not included in these results as it is the country that shares the least variance with the others, while being the least theoretically relevant to the question of influence on European integration. The Eurobarometer sample size is smaller for Luxembourg than for the other countries, and this is likely to result in more measurement error, which indeed appears to be the case: as Table A1 in the online appendix shows, the series for Luxembourg has notably less serial dependency – and thus presumably more measurement error – than the other series. While it would not substantively change the results, Luxembourg is excluded for its lower reliability and limited theoretical relevance.
7. This study thus differs from Toshkov's (2011) by not only looking at short-run effects on $\Delta Integration$, but also defining a level of integration and assessing its long-run relationship with levels of public support using an error-correction model.
8. In the notation of Johansen (1995), the included trend is $H^*(r)$. The need for a trend in this equation arises from the fact that $\Delta Integration$ has a lower bound at 0, implying a positive trend for $Integration$, while $\Delta Core$ and $\Delta Periphery$ are factor scores with means of 0, implying that $Core$ and $Periphery$ are effectively detrended. Substantively, the inclusion of a trend means that we are analyzing the relationship between the level of public support and the level of European integration relative to their linear trends.
9. For the single-equation model, using one lag would yield autocorrelated errors, while using two lags resolves this issue. For the alternative two-equation models, the coefficient on $Integration$ has been constrained to 1 in both equations, while those on the two opinion trends have each been set to 0 in one of the two equations. Models with only one or two lags show signs of autocorrelation, while using four lags appears to resolve this issue. None of the two-equation models converge, however.
10. Apart from elite opinions, which are discussed below, economic factors might be the most plausible confounders of this kind. However, economic factors appear unlikely to have a strong direct impact on integration in the long run, and controlling for inflation and unemployment would indeed not change the substantive results reported here. Such analyses are not included here as the results are generally uninteresting and space is limited.

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