Should we talk about the weather? How party competition and coalition participation influence parties' attention to economic issues

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Abstract

Media narratives of political campaigns paint a complex picture of parties carefully selecting communication strategies in response to the current social and economic climate as well as the strategic choices made by rival parties. Current empirical efforts based on simple ordinary least squares, however, fail to honor those complexities. We argue that ignoring the spatial and temporal dynamics at play produces misleading inferences about parties' behavior. In an application of German parties' attention to economic issues in official communications, we demonstrate that once scholars test the theories with a method that honors the inherent complexity of the process, the inferences about parties' degree of responsiveness change. Indeed, proper specification of the model shows that scholars who ignore spatial dependence tend to *overstate* the degree to which parties are responsive to changing conditions (such as public opinion or economic indicators) and *understate* the role of other constraints. Most notably, we find that parties have varying levels of path dependence, parties emulate the strategies used by ideological neighbors, and coalition partners appear to coordinate their strategies. These findings have implications for understanding variation in parties' messaging strategies and how voters perceive parties' positions.

Introduction

Why do political parties prioritize some issues over others? Parties' policy priorities are strongly linked to the public's preferences, so answering this question is at the heart of representative democracy. Citizens weigh individual issues, evaluate which party best matches their preferences, and then cast a vote for that party. Thus, parties have a "mandate" to enact policies which appeal to the majority of voters (Klingemann et al., 1994). The Downsian framework extends mandate theory to the spatial context, suggesting that vote-maximizing parties take positions on a set

of issues and tailor those positions on the preference continuum, usually understood as an ideological spectrum (Downs, 1957). Additionally, parties strategically emphasize issues to different degrees based on the parties'

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perceived electoral dominance on that issue (Budge and Farlie, 1983; Petrocik, 1996).

Parties often choose to emphasize issues based on what has been successful in the past. Parties are also clearly influenced by the incentive to respond to issues emphasized by other parties. Together, this means that issue competition is the end result of a wide range of overtime and cross-party influences and that failing to model the temporal and spatial dependence results in a distorted picture. Most notably, empirical patterns that show parties responding to the electorate may actually be parties continuing their previous strategies, competing with rivals, or coordinating with coalition partners.

This complex web of responsiveness—what Erikson et al. (2002: 383) call a "statistical nightmare of causal feedback"[1]—is largely intractable in a nonspatial empirical analysis. Unfortunately scholars have principally used ordinary least squares (OLS) regression to model issue competition among parties, which imposes a series of restrictive assumptions that enforce an overly simplistic portrait of issue competition. These models force parties to respond to other parties' actions with a delay (often one election) and thus omit theory-driven elements of issue competition such as endogenous and simultaneous movements of parties. These approaches also restrict parties to only respond to an action by a focal party, thereby eliminating potential subsequent actions by its neighbors (known as *global effects*). Perhaps most seriously, OLS models mischaracterize the temporal and spatial dynamics at work which produces serious inferential errors regarding the impact of changing conditions on party strategy. We use a spatial model that is superior to OLS because it properly accounts for the strategic nature of issue competition by allowing for endogenous and simultaneously determined party actions. We explore an innovative data set of monthly party emphasis of the economy derived from 40,000 press releases published by the four main German parties from 2001 to 2010 (Kluver and Sagarzazu, 2016, 2017). The results reveal that parties' economic emphasis is the result of a relatively complex process of responsiveness to changing conditions, party-specific path dependence, competition with ideological rivals, and coordination with coalition partners.

These findings provide three implications for the study of issue competition. First, we show that more complex models lead to more novel inferences. We continue the tradition of employing spatial econometrics to model behaviors where the outcomes (in this case, emphasis of economic issues) are clearly dependent on the outcomes in other observations (in this case, other parties' emphasis of economic issues) (Adams and Somer-Topcu, 2009; Bohmelt et al., 2016; Williams, 2015). Properly modeling the temporal and spatial dynamics requires careful interpretation, but scholars' investment is rewarded with more nuanced and reasonable portrayals of the causal process.

Second, this project moves beyond the question of *whether* parties are responsive and instead addresses *which* parties are responsive. It is clear that parties face incentives to be responsive (Stimson et al., 1995), but some parties cannot enact responsive communication strategies because they are hamstrung by serious constraints. Most notably, we find that parties are heavily constrained (though to different extents) by their actions in the past, their ideological positions, and the actions of their coalition partners. The latter constraint is particularly interesting because it runs counter to coalition parties' natural incentive to distinguish their ideology from their partners (Sagarzazu and Kluver, 2017) and it identifies another explanation for the tendency of voters' perceptions of government parties to converge (Fortunato and Stevenson, 2013). Third, our understanding of the extent to which parties are actually responsive may be too generous in favor of the normative idea of the responsible party model (Dalton, 1985). One explanation for this overly optimistic picture is that studies have neglected various spatial influences. As a result, studies that ignore the role of previous actions and the actions of other parties—both competitors and coalition partners—will falsely infer that parties are much more responsive to shifts in public opinion or deteriorating economic conditions than they actually are.

In the next section, we briefly explore the tendency for parties to be responsive to public concerns and then more thoroughly discuss the temporal and spatial influences on responsiveness. From these various influences, we derive four hypotheses. After that we demonstrate how the predominant empirical approach has dealt with these statistical challenges ineffectively and show how spatial econometric models successfully address those challenges. The Results section tests the hypotheses and illustrates how responsiveness occurs across time and space. We conclude by raising a number of implications for research on party competition.

Party responsiveness and issue competition

The central underlying feature of the delegate model of representation is that elites are responsive to the changing demands of the electorate. A wide range of studies support this relationship and clearly demonstrate that parties act in accordance with the public's preferences (e.g. Page and Shapiro, 1992; Stimson et al., 1995; Wlezien, 1995). The relationship between preferences and policies is strengthened when political contestation increases, as it incentivizes both rhetoric responsiveness (i.e. speeches) and effective responsiveness (i.e. budgetary output) (Hobolt and Klemmensen, 2008). Campaign messages (either as official communications or advertising) are more persuasive if parties emphasize issues that are both salient and accessible to voters. As an issue becomes more important on the public's agenda, parties will "ride the wave" and focus on that issue

(Ansolabehere and Iyengar, 1994: 337). This is not, however, universal because the level of responsiveness depends on ownership of that issue (Petrocik, 1996), the severity of the issue combined with incumbency (Vavreck, 2009), internal divisiveness of the issue (Kluver and Spoon, 2017), control of the executive and the finance ministry (Williams et al., 2016), the direction of the shift in preferences (Adams et al., 2004), among others. Based on the idea that parties should respond to the changing demands of the electorate, we offer the following hypothesis:

Responsiveness Hypothesis: growing public concern about an issue will increase parties' emphasis of that issue.

We argue that temporal, spatial, and spatial–temporal dynamics make it increasingly difficult to disentangle the various motivations (such as responsiveness) for parties' actions. However, the often contradictory nature of these motivations illustrates the gap between theoretical arguments relating to issue emphasis and their empirical tests. We highlight a few theories that suggest that parties may be limited in their ability to respond because of previous actions (temporal), other parties' actions (spatial), and other parties' previous actions (spatial–temporal dynamics).

As political parties make strategic calculations regarding communications, their past behaviors heavily influence their strategic planning. Scholars have revealed temporal stability in parties' issue competition across elections, or *path dependence*, in a number of cross-national studies. Informed by the agenda-setting literature (e.g. Baumgartner et al., 2008), Green-Pederson and Mortensen (2010) argue that once an issue has become prominent, parties will consistently emphasize that issue in successive periods. Empirically, Green-Pederson and Mortensen (2010) demonstrate that individual parties do not alter the party-system agenda and their issue emphases from election to election, indicating that parties face strong pressure to maintain the course.

Parties may exhibit different degrees of path dependence, based on whether the party owns the issue and whether the issue currently occupies a high place on the public agenda. For instance, issue ownership theory suggests that political parties selectively engage in issues with strong records of performance (Petrocik, 1996). Similarly, Budge and Farlie (1983) argue that parties emphasize those issues where they have a perceived competence or credibility advantage. The goal is to strategically increase the salience of that issue in campaign debate or dialogue (Riker, 1993). Once parties have discovered an electoral advantage from emphasizing an issue, they are likely to pursue a similar strategy in the future. While all parties likely feel the shadow of the past, this pressure varies across parties due to issue- or party-specific considerations.

Conditional Path Dependence Hypothesis: the degree of path dependence varies across parties.

The past may also weigh heavily on the present by shaping how parties respond to other parties' actions. There may be some issues that parties must emphasize or fear disillusioning voters due to their salience. *Issue engagement* suggests that parties observe what others have discussed in the past and then engage with those issues in the present. For example, Spoon et al. (2014) find that non-environmental parties increasingly emphasize environmental issues following elections where green parties performed well. Exactly *which* parties trigger responses, however, depends on ideological similarity. Scholars have shown that political parties shift their policies in the same direction as their rival parties' shifts during previous elections (Adams, 2001; Adams and Somer-Topcu, 2009; Williams, 2015). This idea is rooted in Downsian formal models where parties tend to converge, so any unilateral shifts will invite shifts in the same direction from competing parties. Each party's vote share is heavily contingent upon the actions of the ideologically proximate parties, so vote-seeking parties are forced to adjust their tactics according to the tactics that their family parties took in the past. The inverse of the issue engagement strategy can be understood as *issue avoidance*. As mentioned above, parties selectively engage with issues on which they have electoral advantages (i.e. issue ownership and issue saliency) but avoid issues where they see no such benefits (Sigelman and Buell, 2004). Another strategy is to combine both issue engagement and issue avoidance. Riker's (1993) "dominance and dispersion" strategy suggests that the aim of campaign messaging is to highlight the salience of issues over which the parties have competency and reputation, but not to engage the opposition in debate or dialogue.

Parties also tend to respond to actions made by other parties concurrently, which is a process we call *strategic emulation*. In the case of highly salient issues, parties may be forced to address those issues to remain competitive. Sigelman and Buell (2004) demonstrate that candidates in US presidential elections appear to emphasize issues that are most frequently identified with their competitors during elections. Parties that fail to discuss issues raised by other parties "risk failing to make an appeal to new voters and to dishearten older supporters by displaying the party's irrelevance to modern developments" (Klingemann et al., 1994: 29). *Strategic emulation* suggests that responsiveness operates through both direct and indirect mechanisms: first, parties respond *directly* to the changing concerns of the public (Ansolabehere and Iyengar, 1994), and second, parties respond *indirectly* to other parties' efforts to be responsive (Williams et al., 2015). Both mechanisms are likely to be stronger for those parties that directly compete with each other over a similar bloc of ideological voters (Adams and Somer-Topcu, 2009; Williams, 2015). We, therefore, offer the following hypothesis:

Strategic Emulation Hypothesis: parties' issue emphasis will be positively influenced by their ideological neighbors' issue emphasis.

We also expect that parties in coalition governments face strategic incentives to coordinate the issues that they emphasize, either due to the process of coalition formation itself or the potential electoral accountability that follows. Parties that have the power to propose coalition alternatives, or formateur parties, are likely to select ideologically similar parties (Martin and Stevenson, 2001). In addition to reducing the level of policy disagreements, ideologically connected coalitions produce policy outcomes that are closer to the parties' preferred policies and ensure more stable coalitions (Warwick, 1994). Potential coalition partners negotiate over policy in the government formation process, so the coalition agreement may institutionalize some coordination on messaging (Muller and Strom, 2000). For example, postelection coalition agreements have grown more common in Germany, and the coalition treaty between Social Democratic Party (SPD) and Greens in 1998 explicitly laid out "portfolio allocation, basic rules of coalition governance, and the mechanisms of conflict management" (Saalfeld, 2000: 59). Moreover, since coalition partners will likely face a similar fate at the next election for poor economic performance (Duch and Stevenson, 2008), coalition partners face similar incentives to either emphasize or deemphasize the economy (Williams et al., 2016). For these reasons, we hypothesize that coalition partners will coordinate their issue emphasis.

Coalition Coordination Hypothesis: parties' issue emphasis will be positively influenced by their coalition partners' issue emphasis.

All of these strategic decisions about issue emphasis take place in the spatial as well as temporal context. If parties' strategies are temporally and spatially linked, this has important implications for the effects of shifting economic and political conditions on issue emphasis. Most notably, any shift in issue emphasis by one party will necessarily influence other parties, which will feedback to influence the initial party. Moreover, these effects are not isolated in one-time period but instead reverberate throughout the system and over time.

In the next section, we argue that previous empirical research largely uses methods (including OLS) that are unable to properly model the temporal and spatial dynamics of issue competition.

Issue competition in practice

We argue that OLS regression—especially in those cases where scholars ignore the temporal dynamics of the process—imposes a series of overly restrictive assumptions about party strategies. Without honoring the temporal and spatial determinants of issue competition, it becomes impossible to properly gauge parties' responsiveness to economic conditions or public opinion. At best, scholars will falsely infer that responsiveness occurs immediately. At worst, scholars might observe similar patterns of issue emphasis and infer that parties are being responsive when they are actually just responding to other parties' actions.

Conventional methods of testing theories of issue competition demonstrate a lack of appreciation of the temporal dynamics at work. Party strategies are often quite path dependent, which suggests that previous strategies ought to weigh heavily on current strategies. Moreover, to estimate models of issue competition, scholars must combine events, actions, or speeches at the daily level to some higher degree of temporal aggregation, such as months. There is nothing particularly meaningful about the end of the month or the beginning of the next month, so it is not reasonable to assume that parties select a new strategy on the first day of each month. Strategies that occurred in one month are likely to bleed over into the following month. For these reasons, OLS models that fail to properly model the influence of time risk biasing inferences and invalidating hypothesis tests (deBoef and Keele, 2008: 184).[2]

Above and beyond the theoretical rationale described in the previous section, there are two practical reasons why ideologically similar parties will have positively correlated strategies. First, when examining specific channels of communication (such as parliamentary speeches or press releases), parties' actions should be related because there are institutionalized channels for responses. For example, Spanish State of the State speeches allows opposition parties time to respond to the issues raised by the prime minister (Sagarzazu and Williams, 2017). Second, actions by different parties are more likely to appear simultaneous if we observe them with a longer time frame. Actions observed at a monthly level may appear simultaneous; when observed at the daily level, they may be sequential. This type of aggregation bias is never completely solved, but it will become more severe as the length of the time period increases (i.e. from months to years to election cycles).

Studies of issue competition can be divided into three general categories with regard to how they address spatial dependence. The first approach simply ignores the spatial dependence and estimates a nonspatial OLS. The consequence of such an approach is well-known because it is analogous to omitted-variable bias (Franzese and Hays, 2007). If the direction of spatial dependence is known (as in the case of issue competition), then the consequences are easy to anticipate. When scholars omit spatial dependence parameters in the presence of positive spatial dependence, the coefficients for the party- and country-specific variables are biased upward so that they are larger than they are in the spatial model. This is because the nonspatial OLS coefficients incorporate both the effects related to that variable *and* the spatial competition effects.

The second approach employs corrective techniques (such as robust standard errors) to "fix" these issues instead of explicitly modeling the temporal and spatial dependence. While certainly appealing because of its ease, these

attempts to treat spatial dynamics as a "nuisance" still lead to biased inferences (Ward and Gleditsch, 2008). To fully understand these biased inferences, consider that these corrective techniques assume strict exogeneity across parties' strategies. OLS models without an explicit specification of the spatial component restrict a variable's influence to be either limited to a specific party or identical across all parties. Moreover, a strategic action by party i has no *concurrent* effect on the behaviors of other parties. This assumption is made so that models do not violate the endogeneity assumption (Adams and Somer-Topcu, 2009). Now contrast this restriction underpinning OLS models to basic notions of issue competition from formal models. Holding the voter distribution constant, an action by one party (i.e. the "focal party") along the left–right dimension affects all the other parties, first, by incentivizing an action by the contiguous parties[3] (first-order neighbors) and then a subsequent action by the neighbors of the contiguous parties (second-order neighbors) as they find the strategy that maximizes their vote share. All of the parties' responses following the initial shift by the focal party are known as *indirect effects* and can be divided into both *local effects*—those shifts that occur among first-order neighbors—and *global effects*—those shifts that occur among higher order neighbors, including the originator of the shift (known as *feedback effects*) (Whitten et al., forthcoming). Unless the model is specified in a manner that connects the parties across time and space (see below), the OLS model eliminates this crucial stage of strategy adjustment from formal models of issue competition.

The third approach models the spatial–temporal dynamics within the OLS framework. These studies (such as Adams and Somer-Topcu, 2009) include "average" shifts of other parties in the previous time period as an explanatory variable. Including these temporally lagged spatial-lag (TLSL) variables is a step in the right direction for appreciating the dynamics at work. However, even these more advanced models impose some temporal restrictions on the causal process that may not be appropriate. For example, including the TLSL variables (such as measuring previous shifts by all parties and parties in the same family) means that parties only respond to other parties' shifts with a one-time period delay (Adams and Somer-Topcu, 2009). Since OLS models cannot model endogenous relationships, Adams and Somer-Topcu are left to assume that party A observes party B's shift in position from election $t - 2$ to $t - 1$ and adjusts accordingly, but effectively ignores all shifts in position in the current election cycle (from $t - 1$ to t). This assumption may in fact be true (potentially because manifestos often take 2–3 years to write, see Adams and Somer-Topcu, 2009: 832) but is one that should be tested against a reasonable alternative hypothesis of concurrent effects.

Each of these approaches comes with significant drawbacks and risks of misleading inferences. In the next section, we introduce an estimation strategy that overcomes these problems and properly models the underlying dynamics.

Research design

The German case between 2001 and 2010 is ideal for examining the spatial and temporal dynamics of issue competition. Germany has a relatively diverse ideological landscape of four main parties, with Greens to the far left, SPD as the main leftist party, the Free Democrats (FDP) as a centrist liberal party, and the Christian Democrats (CDU/CSU) as the main rightist party.[4] There are opportunities to examine different types of strategic interactions between the parties: SPD and CDU battle to win the largest vote share, coalition partners may coordinate with each other, and both mainstream parties have to fend off the advances of the smaller parties. There are four different cabinets during this time period, featuring chancellors from the two largest parties: SPD and Greens from 1998 to 2002 and from 2002 to 2005, CDU and SPD from 2005 to 2009, and CDU and FDP from 2009 to 2013.

We use an innovative data set of economic issue emphasis derived from 40,000 press releases published by German parties (Kluver and Sagarzazu, 2016; Sagarzazu and Kluver, 2017). Press releases provide an unfiltered channel for parties to communicate directly with voters, and parties use them to emphasize issues without being constrained by the parliamentary agenda (Kluver and Sagarzazu, 2016: 382). Kluver and Sagarzazu (2016: 386–388, for an in-depth description of their data collection procedure) use the Bayesian expressed agenda model (Grimmer, 2010) to group communications into distinct issue categories. They then determine the number of issue categories by first estimating models with varying numbers of issue categories and second by assessing the validity of those categories.[5] Our unit of analysis is each party's monthly emphasis of the economy.

We focus our analysis on the economy since it is consistently the most salient issue in this period. Figure 1 shows the percentage of press releases devoted to the economy by each party from 2001 to 2010 (*economic emphasis*), as well as a measure of the salience of the economy (*issue attention*, described subsequently). On average, the parties devote about 10–20% of their press releases to economic issues, and this percentage tends to be relatively stable. Short-term shocks sometimes disrupt these long-term patterns, but the series typically returns to its pre-shock value rather quickly. These shocks can take the form of shifts in the salience of economic issues to the public (such as the spikes in emphasis following the increase in mid-2002) or responses to other parties' messages (such as the sharp decline in emphasis at the end of 2005). Furthermore, the plot at the bottom of the figure shows that the economy is typically the most important problem for respondents, so
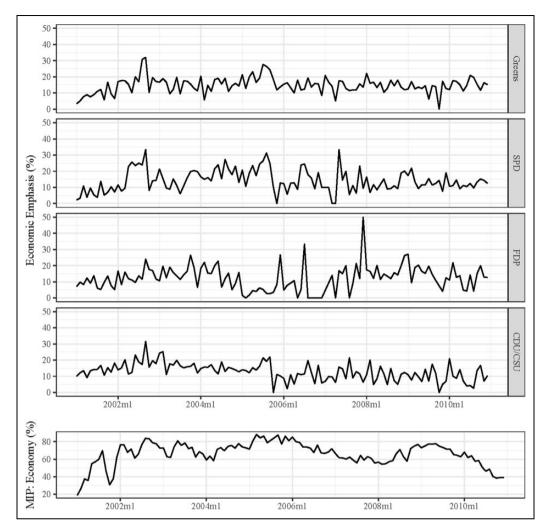
Figure 1. Parties' economic emphasis and the public's concern for the economy. *Note:* Economic emphasis data come from Kluver and Sagarzazu (2016) and economic importance data come from the Politbarometer.

parties have electoral incentives to carefully manage their communication strategies on economic issues.

Model specification

We theorize that German parties' attention to economic issues is a function of responsiveness to changing conditions (*Responsiveness Hypothesis*), party-specific path dependence (*Conditional Path Dependence Hypothesis*), competition among ideological rivals (*Strategic Emulation Hypothesis*), and coordination among coalition partners (*Coalition Coordination Hypothesis*). To test these four hypotheses, we estimate the following spatial Durbin model (SDM)[6]:

$$y_{i,t} = \rho \mathbf{W}_1 y_{i,t} + \phi_G y_{i,t-1} + \phi_{SPD} y_{i,t-1} + \phi_{FDP} y_{i,t-1} \\ + \phi_{CDU} y_{i,t-1} + \theta_1 \mathbf{W}_1 y_{i,t-1} + \theta_2 \mathbf{W}_2 y_{i,t-1} + \mathbf{X}_{i,t}\beta + \epsilon$$

where i indexes each of the four German parties, t indexes the month, and

- $y_{i,t}$ is the percentage of press releases devoted to the economy; this coding follows Kluver and Sagarzazu (2016: 388). We then demean each party's economic emphasis to account for differences in the average emphasis across parties. In addition to removing the party-specific levels, it centers each party's economic emphasis at 0.[7]
- $\rho \mathbf{W}_1 y_{i,t}$ is a spatial lag representing how parties' strategies are concurrently linked across space. $\mathbf{W}_1$ is a simple, row-standardized contiguity weights matrix based on parties' positions on a left–right dimension (see description subsequently). ρ represents the strength of the spatial autocorrelation, and we expect it to be positive indicating that ideologically contiguous parties have positively correlated strategies.
- $\phi_i y_{i,t-1}$ represent party-specific lagged-dependent variables. Since we believe that parties have different tendencies to be path dependent, these

parameters allow each party's economic emphasis to rely on the past to different degrees.

- $\theta_1 \mathbf{W}_1 y_{i,\,t-1}$ is a TLSL variable, and it reflects how much party i's economic emphasis at time t is related to its neighbors' economic emphasis at time $t - 1$, and neighbors are identified in $\mathbf{W}_1$.

- $\theta_2 \mathbf{W}_2 y_{i,\,t-1}$ is another TLSL variable, with the only difference being that $\mathbf{W}_2$ is a row-standardized matrix identifying coalition partners.

- $\mathbf{X}_{i,\,t}\beta$ is the matrix of explanatory variables. First, we measure the relative issue salience of the economy for the public since scholars have found that parties tend to talk about those issues high on the public's agenda (Ansolabehere and Iyengar, 1994). We calculate the percentage of respondents who identified an economic problem as the "most important problem" of all those who identified a problem using monthly Politbarometer surveys. Since we believe that it takes some time for parties to respond to the public's shifting concerns, we lag *issue attention* by 1 month.[8] Next, the incentive for parties to discuss the economy is intimately tied to the public's perceptions of economic performance. As voters become more optimistic about the economy, its salience as a pressing problem decreases, and parties have less incentive to discuss the issue in press releases. To capture the public's shifting optimism or pessimism about the economy, we calculate Δ*Consumer Confidence* as the percentage change in the Consumer Confidence Index from the previous month (Organisation for Economic Co-operation and Development). We also include variables measuring those months where European Parliament elections took place (June 2004 and June 2009; *EP Elections*), and for the 2 months prior to the general elections (*General Elections*). Because we expect that government parties face varying incentives to emphasize the economy during general elections, we interact a *Government* dummy variable with *General Elections*.

A strength of the SDM is that three more common models are nested within it. Estimating this more general model, therefore, allows scholars to test the accuracy of these restrictions instead of falsely imposing them on the data at great risk of misleading inferences.[9] More specifically, if there is no spatial dependence in the observables (i.e. $\theta_1 = \theta_2 = 0$), the model collapses to a spatial autoregressive model; if there is no spatial dependence in the outcomes (i.e. $\rho = 0$), the model collapses to a spatial-X; if there is no spatial dependence in the observables or outcomes (i.e. $\theta_1 = \theta_2 = \rho = 0$), then the model collapses to a nonspatial OLS (see Cook et al., 2015).

Interparty connectedness

We theorize that issue competition forces parties to respond to issues raised by their competitors. Of course, how responsive parties are to each other depends on the strength of connections they share. In the first of two specifications, we connect the parties through their relative ideological positions. The left-right ideological dimension structures party competition in Germany (Huber, 1989) and, therefore, seems appropriate for placing the parties in space. We create $\mathbf{W}_1$, which is a row-standardized contiguity weights matrix based on left–right scores from the previous election. The Comparative Manifesto Project's (Volkens et al., 2014) "rile" measure places the parties in the following order (from left to right): Greens, Social Democrats, FDP, and CDU/CSU. The exception is after the 2009 election, at which point the SPD occupies a position farther to the left than the Greens.[10] $\mathbf{W}_2$ is a row-standardized weights matrix coded 1 if the two parties are coalition partners.

Consider how two consecutive months following the 2005 election are depicted in the weights matrices. In both cases, the ordering of observations does not change: the contiguous neighbors in $\mathbf{W}_1$ remained the same and the SPD and CDU are neighbors in $\mathbf{W}_2$ because they formed a grand coalition:

$$
\mathbf{W}_1 = \begin{bmatrix}
0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0.5 & 0 & 0.5 & 0 & 0 & 0 & 0 & 0 \\
0 & 0.5 & 0 & 0.5 & 0 & 0 & 0 & 0 \\
0 & 1 & 1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0.5 & 0 & 0.5 & 0 \\
0 & 0 & 0 & 0 & 0.5 & 0 & 0.5 & \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0
\end{bmatrix}
$$

$$
\mathbf{W}_2 = \begin{bmatrix}
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0
\end{bmatrix}
$$

In both $\mathbf{W}_1$ and $\mathbf{W}_2$, the first 4×4 submatrix along the block diagonal (rows 1–4, columns 1–4) represents the first month and the second 4×4 submatrix (rows 5–8, columns 5–8) represents the second month. The parties are ordered from left to right (i.e. Greens, SPD, FDP, and CDU/CSU) and the neighboring parties are coded 1. Two features of $\mathbf{W}_1$ and $\mathbf{W}_2$ warrant additional attention. First, note that both matrices are row-standardized, which means that each element is divided by its row total; the result is that each party is influenced by its neighbors to the same extent

Table 1. OLS and spatial Durbin results for the influence of economic conditions and public opinion on German parties' emphasis of economic issues.

	OLS		SDM	
	β	SE	β	SE
Responsiveness				
Issue attention$_{t-1}$	0.050**	0.022	0.041*	0.022
ΔConsumer confidence	−2.578**	1.034	−2.256**	1.028
Conditional path dependence				
Economic emphasis$_G$	0.111	0.110	0.036	0.114
Economic emphasis$_{SPD}$	0.243***	0.082	0.201***	0.083
Economic emphasis$_{FDP}$	0.215***	0.071	0.209***	0.070
Economic emphasis$_{CDU}$	0.156	0.105	0.138	0.104
Strategic emulation				
ρ			0.071**	0.036
Contiguity $\times$ Emphasis$_{t-1}$			−0.001	0.049
Coalition coordination				
Coalition $\times$ Emphasis$_{t-1}$			0.123*	0.071
Control Variables				
EP elections	3.104	2.111	2.758	2.075
General elections	1.400	1.476	1.210	1.453
Government	−1.270**	0.579	−1.239**	0.569
General elections $\times$ Government	6.367***	2.091	5.607***	2.073
Constant	−2.865*	1.471	−2.234	1.459
N	469		469	

Note: G: Greens; SPD: Social Democratic Party; FDP: Free Democrats; CDU: Christian Democrats; OLS: ordinary least squares; SDM: spatial Durbin model; TLSL: temporally lagged spatial lag; SE: standard error. **W** is a row-standardized contiguity matrix. The **W** for the TLSL is a row-standardized coalition partner matrix.
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Results

overall.[11] Second, in both cases, the off-block-diagonal elements (representing connections between parties at different time periods) are coded 0, indicating that parties are not connected to each other across months.[12]

In the next section, we follow common practices and first estimate an OLS model that *excludes* the spatial dynamics that we think drives parties' attention to the economy. As we will show, this is a poor strategy for modeling spatial dynamics, and it leads to incorrect inferences. We then test our hypotheses with a model that accounts for the temporal and spatial dynamics.

Results

In Table 1, we provide the OLS regression results—with party-specific lagged dependent variables—in comparison with the fully specified SDM. At first glance, there appear to be few differences across models; the coefficients are similarly signed and those that are statistically significant in one are significant in the other.[13] However, in each case, the coefficients for the explanatory variables are stronger (i.e. more positive or more negative) in the OLS model compared to the SDM. In fact, OLS coefficients are larger than they should be (Franzese and Hays, 2007); the OLS model omits the spatial effects of the covariates, which forces the coefficients to include the effects of the variable

and the effects due to spatial dependence. As a consequence, the upward bias in OLS coefficients will lead to inferences that parties are much more responsive to public opinion and the economy than they actually are.

The spatial model provides strong support for all of our hypotheses, except for the *Strategic Emulation Hypothesis*, which only receives mixed support. We find clear evidence that parties are responsive to conditions that shift priorities toward the economy (*Responsiveness Hypothesis*). The Δ*Consumer Confidence* coefficient is significant and negative, indicating that as the public gets more optimistic about the economy, parties shift their emphasis to other, more salient issues. Furthermore, as the public becomes increasingly concerned about the economy (*Issue Attention$_{t-1}$*), parties shift their attention toward the economy in their political communications.

The other three hypotheses reflect our theory that issue competition is governed by a complex process of concurrent and delayed responses to the actions of competitors as well as their own previous actions.[14] If the *Conditional Path Dependence Hypothesis* is correct and parties rely on the past to different degrees, we should observe different coefficients on the party-specific lagged dependent variables. Indeed, there is evidence of party-specific path-dependence effects, because the coefficients for *Economic Emphasis$_{t-1}$* vary from 0.036

and not statistically significant (Greens) to 0.209 and highly statistically significant (FDP).[15] The current communications strategies of SDP and FDP, and to a lesser extent the CDU, reflect previous strategies.

The *Strategic Emulation Hypothesis* suggests that parties will emulate the communications strategies of their ideological neighbors. To the extent that this sort of emulation occurs, we would expect to find that ρ (measuring current emulation) and θ_1 (measuring delayed emulation) would be both positive and statistically significant. There is positive evidence of spatial autocorrelation, as shown by the statistically significant ρ, which suggests that parties' economic strategies are positively correlated with ideologically contiguous parties. θ_1 is not statistically significant, which suggests that parties' responses to ideologically contiguous parties occur concurrently (through ρ) rather than with a one-period delay (through θ_1). The final hypothesis, *Coalition Coordination Hypothesis*, states that coalition parties will respond positively to the strategies of coalition partners. The positive and statistically significant θ_2 supports the notion that coalition partners coordinate their emphasis of economic issues, albeit with a one-period delay.

Aside from *European Parliament Elections*, the control variables influence issue competition in the expected manner. The lower order coefficients (*Government* and *General Elections*) and their interaction suggest that government parties emphasize the economy less than opposition parties during the period outside of general elections, yet increase their emphasis during general elections.

Quantities of interest

The results show that economic emphasis is the result of party responsiveness to changing conditions, party-specific path dependence, strategic emulation, and coordination with coalition partners. As such, teasing out the effects of a shock in the salience of the economy on German parties' economic emphasis requires examining how these effects ripple through time and space. We first review the effects of public opinion in the OLS model and then compare those to the substantive effects from the SDM. We do the latter in steps so that we can clearly observe how strategy shapes parties' responses to public opinion shocks.

Public opinion (*Issue Attention*$_{t-1}$)—measured by the percentage of respondents identifying an economic problem as the most important problem—is positive and statistically significant in the OLS model (Table 1), indicating that parties will emphasize the economy if it becomes more important to the public. First consider a one-standard deviation increase (13) in the percentage of respondents identifying economic issues as the most important problem in the previous month (time $t - 1$). In the OLS model, the one-period delayed response by all parties is an increase in $13 \times \beta$, or 0.7.[16] However, this response is inconsistent with our

Table 2. Effects of a one-standard deviation increase in Issue Attention (13%) at time $t - 1$ on Economic Emphasis over time and space: SPD and Greens coalition.

	Direct effect				Indirect effect			
	G	SPD	FDP	CDU	G	SPD	FDP	CDU
t	0.548** [0.027, 1.138]	0.549** [0.027, 1.139]	0.549** [0.027, 1.139]	0.548** [0.027, 1.138]	0.020* [−0.002, 0.058]	0.059* [−0.006, 0.173]	0.059* [−0.006, 0.173]	0.020* [−0.002, 0.059]
$t+1$	0.017 [−0.134, 0.171]	0.119** [0.001, 0.317]	0.128** [0.004, 0.325]	0.076 [−0.044, 0.263]	0.072 [−0.015, 0.199]	0.068 [−0.014, 0.190]	0	0
$t+2$	0.009 [−0.008, 0.060]	0.040** [0.0003, 0.127]	0.030** [0.0002, 0.101]	0.016** [0.0004, 0.081]	0.024 [−0.004, 0.078]	0.012 [−0.004, 0.052]	0	0
Long-run effects					0.704*** [0.040, 1.467]	0.873** [0.044, 1.827]	0.777*** [0.040, 1.643]	0.666** [0.032, 1.390]

Note: G: Greens; SPD: Social Democratic Party; FDP: Free Democrats; CDU: Christian Democrats; OLS: ordinary least squares; SDM: spatial Durbin model; TLSL: temporally lagged spatial lag. 95% confidence intervals are in square brackets. **W** is a row-standardized contiguity matrix. The **W** for the TLSL is a row-standardized coalition partner matrix.
*p < 0.10; **p < 0.05.

understanding of issue competition because it assumes that parties craft their strategies in a vacuum; all parties respond identically and regardless of the actions of competitors or coalition partners.

Table 2 shows that the effects of public opinion (*Issue Attention*) on issue competition (*Economic Emphasis*) in the SDM are not limited to particular parties at any one time point. Table 2 is partitioned into two sets of overall effects (and 95% confidence intervals, derived via simulation techniques), *direct* and *indirect* effects. While the direct effects depict how each party responds to public opinion, the indirect effects depict how parties respond to other parties. Each row shows how increasing public opinion at time $t - 1$ by one standard deviation (13) influences parties' strategies at subsequent time periods (in this case, t through $t + 2$). The final row depicts the long-run effects of public opinion on *Economic Emphasis*.

The first inference is that OLS does a poor job of capturing the effects of public opinion on *Economic Emphasis* for even a single time period, t, because the effect is limited in time and space to be β. The true effect of public opinion change in the previous period is a combination of both sets of values along the top row. The direct effect of a one-standard deviation increase in public opinion is simple to calculate and is $0.0412 \times 13 = 0.54$ or ($\beta \times \Delta X$). The left side of Table 2 shows the total direct effect, which includes the impact of the shock on each party (0.54), as well as a small feedback effect that results from changes in neighbors influencing the focal parties spatially.[17] The right side of Table 2 explores the effects that occur due to changes in neighbors' issue emphases.[18] For example, the public opinion shock causes each party to shift its strategies for emphasizing the economy (left panel); as a result of those changing strategies, neighboring parties (in this specification, **W** is simple contiguity on a left-right dimension) adjust their own strategies, the strength of which is determined by ρ and the number of contiguous parties. Since the SPD and FDP have two contiguous parties, the strength of their spatial effect is much larger than the two parties at the extremes of the ideological dimension. As parties' contiguous neighbors emphasize the economy more in response to public opinion, parties have the incentive to further increase the volume of their messages, which leads to more feedback. These are relatively small (and statistically significant at the 90% confidence level) effects, but are consistent with the sort of rippling effects that occur in formal models.
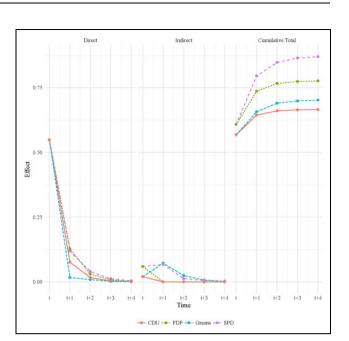
At the next two time periods (time $t + 1$ and $t + 2$), the temporal and spatial dynamics of public opinion become apparent as party-specific path dependence (ϕ_i) and coordination with coalition partners (θ_2) drive economic emphasis. While the SPD, FDP, and CDU all have similar degrees of path dependence, we are only 95% confident that the SPD and FDP truly have path-dependent strategies (i.e. $\phi_i > 0$). This is reflected in the direct effect at $t + 1$, which is

Figure 2. Dynamic simulation of the long-term direct, indirect, and total effects of a one-standard deviation increase in *issue attention* (13%) at time $t-1$ on *economic emphasis*: Social Democratic Party (SPD) and greens coalition.

calculated by taking the party-specific ϕ_i parameter and multiplying it by the total effect in the previous period. The temporally static nature of Greens' and CDU's strategies means that the direct effects of public opinion are limited to the previous period. The positive and statistically significant effects for SPD and FDP, on the other hand, are suggestive of stronger path dependence. For the SPD and FDP, positive responses to shifts in public opinion in the previous period beget additional, albeit smaller, positive responses in future periods.

The indirect effects for periods $t + 1$ and $t + 2$ shown in Table 2 demonstrate the significance of these coordination efforts for the coalition partners in this scenario, the Greens and SPD. As the Greens (SPD) respond to the increased salience of the economy by emphasizing the economy more, the SPD (Greens) echo those concerns. Indeed, these spatial effects at $t + 1$ are substantively larger than the concurrent indirect effect (shown in the first row).[19] By comparing the long-run effects (shown in the final row) to those from the OLS model (long-term effects ranging from 0.746 to 0.876), it is clear that nonspatial OLS models miss the mark in terms of characterizing the total effect of public opinion on competition over the economy. Indeed, the OLS model overstates the effect of public opinion because it eliminates the influence of competitors' actions.

As a final exploration of these effects, we present a dynamic simulation of the spatial long-term effects in Figure 2 (Williams and Whitten, 2012).[20] Figure 2 shows the direct, indirect, and cumulative effects for the

five periods following an increase in *Issue Attention$_{t-1}$*. This figure clearly illustrates three patterns. First, while all four parties are *directly* influenced by public opinion to nearly the same extent at time t, FDP and SPD experience larger direct effects at later time periods because of their stronger path dependence. Second, the two parties with more ideological neighbors (FDP and SPD) are almost three times more responsive to economic emphasis by other parties (*indirect effects*) than those with only one neighbor (Greens and CDU). Indirect effects at time $t +$ 1 are rather large for both SPD and Greens because they are coalition partners in this scenario. Third, the cumulative totals in the third panel show that the different rates of responsiveness across parties are a function of path dependence (for FDP), coalition coordination (for Greens), ideological proximity (for FDP), or a combination of the three (for SPD). Figure 2 provides an accurate representation of how the competing forces at work—such as path dependence, strategic emulation, and coalition coordination—combine to structure how parties respond to changing demands from the electorate.

Conclusion

We argue that existing empirical models offer a distorted and unrealistic view of issue competition because they have neglected the spatial and temporal interactions that govern party strategy. We illustrate this by estimating two models of parties' issue competition based on monthly emphasis of the economy in press releases by the four main German political parties from 2001 to 2010: an OLS model and an SDM. The spatial model illustrates that economic emphasis is the result of a complex process of party responsiveness to changing conditions, party-specific path dependence, strategic emulation, and coordination with coalition partners.

Estimation strategies that ignore party competition across space stack the deck in favor of finding that parties are responsive to shifting political and economic landscapes. In our exploration of the substantive effects, we find that OLS models overstate parties' tendencies to be responsive to public opinion shocks by neglecting the spatial dynamics inherent in issue competition. This is an important finding, given the long-standing beliefs that elites face considerable electoral incentives (e.g. Duch and Stevenson, 2008) to respond to the changing demands of the electorate (Page and Shapiro, 1992; Stimson et al., 1995; Wlezien, 1995). We do not argue that these factors are unimportant; rather, our findings indicate that their effects have been overstated at the expense of temporal and spatial dynamics.

A long-standing debate exists over the most effective issue emphasis strategies, among those who argue that parties ought to emphasize those issues which they own (Petrocik, 1996), those who argue that it is best to engage in the most salient issues of the day (Spoon et al., 2014), and those who think a combination is most effective (Vavreck, 2009). We do not weigh on this particular debate, but this project shows that parties are not free to pursue whichever strategy they feel is most promising. Instead, parties' strategies are heavily constrained by their actions in the past, their ideology, or the incentives to coordinate with coalition partners.

First, the FDP and SPD lean heavily on previous strategies and have patterns of economic emphasis that are much more path dependent than others. As a result, strategic actions for those parties echo through time in more meaningful ways than the other two parties. Research on how parties' organizational structures incentivize parties to respond to different actors in the electorate (i.e. mean voter, mean party supporter, etc.) may shed light on this heterogeneity (Schumacher et al., 2013).

Second, centrist parties ought to be more attuned to the actions taken by other parties in the system than more extreme parties. Our specification of the connections between parties (**W**) suggests that this occurs through ideological contiguity. Formal models of party competition have long stated that centrist parties are more cognizant of others' behavior because of the fear of being squeezed on both sides and the ideological constraints against leap-frogging. We present empirical evidence showing that spatial contagion effects are in fact greater for centrist parties.

Third, coalition partners have the incentive to coordinate their emphasis of the economy over time. This novel finding sheds light on what motivates coalition partners as well as the consequences of those strategies. Coalition coordination speaks to an ongoing debate in the coalition literature about the differing policy and electoral incentives facing coalition partners in between elections (e.g. Sagarzazu and Kluver, 2017) and shows that the incentive to maintain a consistent message through coordination outweighs the tendency to differentiate messages to maintain ideological separation. The strategy of coalition coordination provides a possible explanation for why voters perceive coalition partners as becoming more ideologically similar even if their objective party positions (i.e. manifestos) may not be converging (e.g. Adams et al., 2016; Fortunato and Stevenson, 2013). An implication of this project is that part of the reason why voters perceive this ideological congruence is at least partially due to parties coordinating their messaging during coalition government. The implication is that if voters are using coalition membership as a heuristic to assess parties' placements, they are likely getting the correct information more often than not.

Allowing spatial and temporal dynamics to vary across parties provides unique insight as to *which* parties are most responsive. A burgeoning literature has started to recognize that parties' actions are interdependent. Whether parties are influenced by domestic competitors (Adams and Somer-Topcu, 2009; Williams, 2015) or foreign role models

(Bohmelt et al., 2016), these studies have illustrated the inferential benefits from sophisticated models. Williams (2015) echoes the findings of Adams and Somer-Topcu (2009) but also shows that the emulation effects decline with ideological distance. In addition to showing that parties look abroad for examples of successful parties they can emulate, Bohmelt et al. (2016; see also Bohmelt et al., 2017) diverge from past studies (Adams and Somer-Topcu, 2009; Williams, 2015) to find that parties do not respond any stronger to their ideological neighbors relative to all parties in general. The divergence in findings might arise because their analysis assumes a delayed response (often an entire election cycle), while we show that congruence in attention to economic issues occurs in the same month (see also Williams et al., 2016). Additional research could explore whether differential response patterns (delayed and/or immediate) arise because of variations in how scholars measure ideology (i.e. manifestos vs. press releases), model specification (i.e. SDM vs. spatial–temporal autoregressive (STAR) model), or sample variability (i.e. cross-national vs. single-country). Spatial econometric models represent a way for scholars to gain leverage over the complex relationships depicted in theories of party competition.

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Notes

1. Adams and Somer-Topcu (2009: 832) also reference the phrase to characterize "situations where the analyst attempts to parse out the reciprocal relationships between parties' policy positions."
2. Ordinary least squares models can properly account for both path dependence (by including a lagged dependent variable) and delayed effects (by including lagged independent variables), but these restrictions should be tested (see deBoef and Keele, 2008).
3. In this simple illustration, we assume that parties are equally influenced by those parties that are ideologically contiguous. Correctly identifying *who* are neighbors and *to what extent* is necessary for making accurate inferences (Neumayer and Plümper, 2016; Zhukov and Stewart, 2013), so it is fundamentally important to let theory guide these decisions and then demonstrate the robustness of results to alternative specifications.

4. Ideally, we would include all parliamentary parties in these models, especially those that might trigger responses by the more centrist parties (e.g. Die Linke/PDS; see Paterson and Sloam, 2006). However, data availability limits our analysis to those four parties.
5. Kluver and Sagarzazu (2016: 386) assess the validity in three ways: "first by analyzing the internal consistency of the topics; second, by comparing the issue classification to the issue agenda of the German Bundestag; and third, by comparing the automatic classification with the classification performed by human coders."
6. Careful readers might note that this model specification looks similar to the spatial–temporal autoregressive (STAR) model found in Franzese and Hays (2007: 755). Since our model also contains two exogenous temporally lagged spatial-lag variables, the two models are quite different. We follow the terminology used by Vega and Elhorst (2015: 343; see also LeSage and Pace, 2009) and refer to this model as a spatial Durbin model (SDM). Vega and Elhorst (2015: 343) also provide a description of how the SDM differs from other prominently-used spatial econometric models and from ordinary least squares.
7. The standard deviation and ranges of *Economic Emphasis* are as follows: Greens' standard deviation is 4.96 with a range of $[-14.2, 17.8]$, Social Democratic Party's standard deviation is 6.87 with a range of $[-14.0, 19.4]$, Free Democrats's standard deviation is 7.74 with a range of $[-12.6, 37.4]$, and Christian Democrats's standard deviation is 5.38 with a range of $[-12.9, 18.7]$.
8. In a model with *Issue Attention$_t$* and *Issue Attention$_{t-1}$*, only the latter is statistically significant at the 90% confidence level.
9. This is a clear distinction between our piece and Williams (2015). Although we share common ground in using spatial econometric models, we offer the SDM as a superior way of accounting for the strategic nature of issue competition. Indeed, the results reveal patterns of endogenous party responses, which suggest that the spatial-X model (which Williams, 2015 uses) does not fully characterize German issue competition.
10. Of course, other methods of placing the parties on a spectrum (such as support for free market policies or European integration) are possible with small modifications to the weights matrix.
11. This does not mean, however, that each party influences other parties to the same extent. For example, the Social Democratic Party has all of the influence on the Greens (element $w_{1,2}$), half of the influence on the Free Democrats (element $w_{3,2}$), and no influence on the Christian Democrats (element $w_{4,2}$).
12. Of course, this does not prohibit prior actions from influencing current actions; rather, we model spatial–temporal dynamics through the inclusion of temporally lagged spatial lags rather than the specification of the weights matrices.
13. As Whitten et al. (forthcoming) illustrate, directly comparing the coefficients from the ordinary least squares (OLS) and spatial Durbin model (SDM) is not an appropriate way to

compare effect sizes. Unlike OLS models (but similar to other models estimated via maximum likelihood, such as logit and probit), the substantive effects in an SDM are not easy to discern from the coefficients. Instead, we explore the inferences via quantities of interest.

14. Simple hypothesis tests support the spatial Durbin model over rival models such as the spatial autoregression (since $\theta_2 \neq 0$), the spatial-X (since $\rho \neq 0$), and the nonspatial OLS (since $\theta_2 \neq 0$ and $\rho \neq 0$).

15. Although they differ in magnitude, χ^2 tests reveal that the coefficients are not statistically different from each other at conventional levels.

16. Each party has a unique long-term effect because of the party-specific lagged dependent variables: 0.746 (Greens), 0.876 (Social Democratic Party), 0.845 (Free Democrats), and 0.786 (Christian Democrats).

17. The feedback effect is found along the diagonal of the partial derivatives matrix, $(\mathbf{I} - \rho\mathbf{W})^{-1} \Delta\mathbf{X}\beta$.

18. The total spatial effect is calculated by adding up the off-diagonal elements of each column of the partial derivatives matrix. For instance, the total spatial effect of the shock for the Greens is the sum of the second (Social Democratic Party), third (Free Democrats), and fourth (Christian Democrats) rows of the first column.

19. These effects are quite close to being statistically significant at the 90% confidence level.

20. This is similar to the spatiotemporal impulse response paths offered by Franzese and Hays (2007: 762).

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