Explaining Germany's Electoral Geography

Evidence from the Eastern States

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Abstract: Partisan attachments and voting behavior in Germany today are more volatile than in the past. This article tests the enduring influence of social cleavages on voting relative to two other factors that account for party performance: path dependent forces and spatial dependence. Drawing on original data from the eastern German states, we explain support for Germany's main parties in the 2017 federal election. We find relatively weak evidence for continued influence of social divisions for the major parties, but that support for the radical right Alternative for Germany (AfD) did reflect underlying cleavage structures. Additionally, we identify reliable effects of the historical immigrant population on contemporary voting. We also see weak evidence of lock-in political effects associated with German reunification, limited only to the CDU. Most interestingly, we observe powerful and robust effects of spatial dependence for three of the four parties we examine. We conclude that the effects presented here should signal to scholars of parties and electoral politics the need to incorporate history and geography into their analytical frameworks alongside more traditional approaches, since eastern Germany may in fact be less spatialized than western Germany or other country cases because of the homogenizing efforts of the SED regime.

Keywords: 2017 Bundestag election, cleavage structures, electoral geography, path dependence, spatial analysis

Introduction

Conventional political wisdom holds that divisions within society are the primary drivers of voting behavior in democratic settings like Germany. Those deep-seated social cleavages are outgrowths of particular historical conflicts that configured and reconfigured the political landscape–divisions between Catholics and Protestants, for example, or ones that resulted from the rise of urban elites.[1] While many of those conflicts predated the onset of democratic competition, social cleavages in Western Europe were later articulated in the party system (e.g., the development of Protestant and

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Catholic parties or bourgeois parties), and for most of the twentieth century Western European party systems were structured according to these underlying social cleavages.[2] How those cleavage structures interacted with one another was likely to produce partisan winners and losers during that period.

Partisan attachments and voting behavior in Europe today are more volatile as a result of the weakening influence of social cleavages on the vote, giving rise to new party challengers on the libertarian left and the radical right and weakening the attachment of voters to the parties that dominated postwar politics.[3] That said, while weaker than in the past, social class remains a reliable predictor of the vote especially in places where it was once powerful.[4] In Germany, for example, the Social Democratic Party (SPD) is not the stalwart advocate for trade unionists that it once was, but manual workers remain more loyal supporters of the party than they are of its competitors.[5] Likewise, religious Germans remain the most reliable supporters of the Christian Democratic Union (CDU).[6] That is, while major divisions within a country's voting population may not structure the vote as it once did, social cleavages do retain important explanatory power.

Cleavages are not alone in structuring the vote, however. Recent scholarship points to two additional factors that may also account for party performance on election day. First, critical junctures and path-dependent forces may shape parties' electoral fortunes. By this logic, parties and party systems develop through sequences of key decisions that establish particular developmental trajectories for the institutions.[7] Those paths can, in turn, position parties differently vis-à-vis the electorate, meaning that path dependent forces can shape how parties perform. For example, the choices made by reformers within Eastern European communist successor parties during the initial transition period powerfully shaped their parties' prospects in elections through the 1990s.[8] As parties in that region struggled, those that had developed more robust organizations and amassed greater resources in the past also proved more resilient.[9] That is, both elite choices and organizational resources contributed to political legacies that affected party performance.[10]

In addition to cleavages and broader historical forces, variation in party support may be accounted for by geography and spatial factors. Spatial dependence is a regular feature in any election where vote totals are contained within areal units.[11] It is hardly uncommon for parties in democracies to perform better in some distinct regions and less well in others. Yet, spatial dependence is too rarely taken seriously by scholars of parties and electoral competition. One of this study's aims is to illustrate the utility of adopting modeling strategies that account for this dependence. Spatial dependence in elections can come from one of two (not mutually exclusive) sources.

First, neighboring districts may exhibit similar voting patterns because they are exposed to some explanatory variable that does not align with district boundaries. Spatial dependence occurs due to "common exposure"[12] or "place-based"[13] effects. In the eastern German context considered here, these could include key economic or political developments, such as the interwar industrial corridors stretching through Saxony and Saxony-Anhalt often referenced by German politicians and political analysts.[14] Place-based effects might also be associated with the distribution of ethnic German minorities with particular political identities–interviews oftentimes turned to the persistence of communities of Sorbians in some Saxon regions, Slavic pockets in Brandenburg, Sudeten German expelled after 1945 from what is now the Czech Republic, and East Prussians in Mecklenburg-West Pomerania.

Secondly, spatial dependence may result from processes of diffusion. In this case, neighboring districts in an election might express similar levels of support for a party because voters interact more frequently with those from nearby districts or because a campaign rally held in one district influences voters drawn from its neighbors. One might expect these sorts of effects to result from migration patterns as well–either within states or between them. While significant political attention has been paid recently to Muslim migration into Germany, the eastern region has also featured significant outmigration toward the west as well as urbanization and depopulation of rural areas–perhaps as much as one-quarter of the youth in some areas.[15]

While it is not possible to be certain about which process is most responsible for any observed spatial dependence, spatial econometrics offers tools that help determine which process is most likely responsible and to account for that process in regression modeling. Recent work in political science exhibits a new awareness of the need to integrate spatial analysis into the study of electoral competition.[16] For that reason, below we use spatial econometric techniques in addition to Ordinary Least Squares (OLS) analysis to test hypotheses.

Postreunification East Germany

In this article, we examine the power of cleavage structures, critical junctures, and spatial effects on voting in Germany, specifically the regions of the former German Democratic Republic (GDR). It makes analytical sense to ask these questions there because despite being embedded within a larger political system, eastern Germany is a coherent political unit featuring a distinct subnational party system today, as it has since reunification. As in the

western regions of the country, the CDU and SPD are the dominant parties, but the liberal FDP and the Greens are largely absent in the east while the successor party of the East German Socialist Unity Party (SED), now called Die Linke (The Left Party), is the region's third political force. In the 2017 federal elections, the radical right Alternative for Germany (AfD) emerged as a particularly strong contender in the east as well.

In addition, social cleavages across eastern Germany are quite similarly subdued. The East German SED regime sought to weaken organized religion as a rival ideology to Marxism-Leninism, and it was largely successful. Levels of religious affiliation across the region today are quite low: Thuringia in 2011 had the highest overall level (31 percent total, with 24 percent Protestant and 7 percent Catholic) and Brandenburg has the lowest (20 percent total, 17 percent Protestant and 3 percent Catholic).[17] By comparison, significant portions of Bavaria, Baden-Württemberg and regions surrounding Cologne have Catholic memberships upwards of 70 percent and central Germany's Protestant corridor features membership rates of more than 40 percent, according to the 2011 census.[18] Class divisions were also muted by the regime, which glorified the proletariat while seizing assets of propertied classes and redistributing them. State-level unionization data collected by the German national labor federation (Deutsche Gewerkschaftsbund, or DGB) suggest only a loose pairing of union membership and state-level SPD support in the east, and in fact there was evidence of an unexpected association after reunification between labor organization and CDU vote share (i.e., more industrialized areas featuring higher levels of CDU, rather than SPD, support). In Mecklenburg-West Pomerania and Saxony-Anhalt, there does not appear to be an association between union membership and either party's fortune, suggesting a complex interplay of cleavages and other variables.[19]

Public opinion researchers consider the eastern German electorate distrustful of political institutions and of parties,[20] something quite common in postsocialist contexts[21] and recent democratizers. Furthermore, its voters are very weakly partisan, with more than two-thirds self-identifying as weakly partisan or non-partisan.[22] Taken together, these attributes of the eastern German electorate raise important questions about what predicts actual voting behavior across the region. Are constituency-level attributes like the structure of the economy predominant? Are voters locked into particular patterns of partisan support because of historical experiences? Or do underlying spatial phenomena account for their choices on election day?

Model Specification

To test the relationships among cleavages, legacies, spatial factors and the vote, we built an original dataset based on census records, government data, and data collected from political parties themselves. Empirically, we analyze the 2017 election performance of the Christian Democratic Union, its primary competitor the Social Democratic Party, as well as the performance of the Left Party and the emergent AfD. Our observations in this analysis are at the forty-nine federal electoral districts (*Wahlkreis*) carved from the territory of the GDR (Brandenburg, Mecklenburg-West Pomerania, Saxony, Saxony-Anhalt, and Thuringia). While the German census agency collects county (*Kreis*) level data on most of the indicators that we consider here, the occasional redistricting of county lines made analysis at that level impossible without losing entire states in our sample.[23]

Social Cleavages

Given the socialist regime's efforts to dampen divisions within the eastern German population, we expect relatively modest effects of contemporary class and religious cleavages across the east. That said, some areas within the east demonstrate high levels of religious or labor mobilization (as in the Catholic Eichsfeld region of Thuringia). Cleavages there, as elsewhere in Germany, may still structure the vote.

Measuring social cleavages is a complex endeavor.[24] In this case, we use data aggregated at the level of the electoral districts (*Wahlkreise*) used in the 2017 federal elections.[25] To tap into the class cleavage, we draw on the proportion of the workforce covered through the social insurance programs for agricultural and industrial workers, respectively, in the German welfare state. As an operationalization of the class cleavage, this is imperfect because it does not capture organizational dynamics like bargaining power that union density implies. It does, however, capture the overall economic structure of a locality, and in a context like eastern Germany where union density rates are low overall, those data themselves may misrepresent the nature of the class cleavage. Operationalized as such, we expect that districts with higher levels of agricultural employment will have higher levels of support for the CDU and should be less likely to support the SPD. For industrial employment, we expect the opposite relationship. In our examination of Left Party and AfD support, we do not have clear *ex ante* hypotheses. As an alternative operationalization in earlier models, we considered the GDP contributions of agriculture and industry. Both were highly correlated with insurance data and did not produce significantly different results in the OLS

models below.[26] To approximate the religious cleavage, we rely upon the proportion of a district's population that identifies as neither Catholic nor Protestant. While traditional analyses of that cleavage were premised on the cleavage between Catholics and Protestants, German (and especially eastern German) politics today are more marked by a secular-religious conflict, making this operationalization sensible. In addition to these three structural variables, and in recognition of the fact that they are limited in their ability to capture various elements of cleavage structure, we also control for unemployment levels. The addition of further variables to the model is, unfortunately, not possible given the small number of cases.

We also incorporate a variable that measures the proportion of the district population that is from what the German government considers a "migration background." We add this variable because of the presence of the refugee crisis in the media and campaigns heading into the 2017 contest and the importance of Chancellor (and CDU leader) Angela Merkel's openness to refugee resettlement. The variable itself measures immigrant and nonimmigrant foreigners who moved to Germany after 1949 and those with at least one parent who immigrated after 1949. As such, we acknowledge that this variable does not capture the impacts of the recent migration patterns that were central to the 2017 contest; electoral district data on those migrant flows are not available. We include the variable nonetheless because it may capture how xenophobia and cultural difference affect party support, if those effects are in fact related to exposure (i.e., in communities with higher numbers of migrants, we might expect higher AfD support). Alternatively, in German communities with longstanding migrant populations, contact may in fact decrease feelings of difference, and thus drive the vote away from the AfD. For the other parties, the direction of potential effects is less clear.

Legacies

The upheaval that eastern Germany experienced in 1989-1990 was the sort of transformative moment that could produce enduring alignments of voters and parties. For that reason, we hypothesize that local-level political constellations from the transition period shaped how electoral politics unfolded afterward. In some areas, the SED regime had a strong infrastructural presence, while others operated with relative independence from the regime, leading to the emergence of a particular geography of protest across the region prior to reunification. This activism, concentrated in Berlin and the state of Saxony, was notably absent in Brandenburg, which interview participants suggested was a function of the density of party functionaries living

just outside Berlin. Where it was stronger, activism shaped the formation of party organizations in the reunification period, in turn, driving election results not just through the 1990s but today as well.[27] Given these legacies, we control for turnout in the models presented below.

In order to study the effects of those transition-era forces on local politics, we examine the bloc CDU, an opposition party the SED regime sanctioned and tightly monitored during its decades in power.[28] Though the bloc CDU did not offer the possibility of contesting power in the GDR system, it did offer a reprieve to those opposed to the regime—an organizational space to which they could retreat. In a very few regions, the bloc CDU was even allowed to govern locally. Regions (in this case, electoral districts) with higher densities of bloc CDU members were more independent of the regime, and more likely to engage in protest when movements began prior to 1989.[29] We expect that areas with higher concentrations of bloc CDU members in 1990 will have higher, more resilient levels of CDU support today. To capture that effect, we use local membership in the bloc CDU in 1990, on the eve of the only democratic election of the GDR Parliament. We draw on primary documents collected at the Konrad Adenauer Foundation archive to calculate federal electoral district-level CDU membership in 1990. The GDR government carefully monitored the activities and memberships of local bloc CDU organizations, leaving behind documentary evidence in the form of maps featuring membership data. We overlaid those (*Stadtkreise* and *Landkreise*) data on a contemporary electoral district map to "scale up" those membership data.

Spatial Effects

The data generating processes that determine the outcomes social scientists study do not always respect territorial boundaries, and so spatial dependence is likely to be a feature in the analysis of any electoral data based on areal units. With georeferenced data, testing for spatial dependence and building better fit models that account for that dependence is straightforward. In the ensuing analyses, we model elections in the former East Germany using, where appropriate, models with spatial error terms ("spatial error models") and models with spatially lagged dependent variable included as a regressor ("spatial lag models"). Doing so will produce models that better explain outcomes and also allow us to call attention to where those models are most and least effective.

Methods and Results

In each of the four models we estimate below, we begin with a straightforward ordinary least squares (OLS) model using the forty-nine federal electoral districts of the former East Germany in federal elections. The dependent variable for each model is the level of electoral support received by the party in question. Due to Germany's mixed voting system, we use party support in the second of the two votes cast (the *Zweitstimmen* or second PR list vote). As predictor variables, we include the independent variables discussed earlier: agricultural and industrial insurance participation, percentage of the district neither Catholic nor Protestant, the percentage of the district from a migration background, bloc CDU membership from 1990, unemployment, and voter turnout. Along with each OLS model, we report a full range of spatial diagnostic measures with each OLS model, following Luc Anselin and Sergio J. Rey.[30] We report Moran's I, a measure of spatial dependence, for each regression's residuals. Statistically significant Moran's I's suggest that there is unexplained spatial dependence in the model; unsurprisingly, all of the models we estimate below exhibit spatial dependence.

Following Anselin and Rey, we use Lagrange Multiplier (LM) diagnostics determine whether a spatial respecification of the OLS model is appropriate. These tests indicate whether the spatial dependence in the OLS models is more likely to be the result of place-based processes (a common exposure to a causal factor not in the model) or propagation-based processes (diffusion).[31] In the former scenario, a spatial error model is the most appropriate spatial specification. In the latter case, a spatial lag model is more appropriate. For each OLS model we estimate, we run the spatial model recommended by the Lagrange Multiplier statistics. We specify a spatial weights matrix based on the principle of "queen contiguity." In other words, each electoral district is considered to be a neighbor to all electoral districts with which it shares any length of its border. Our results, presented below, demonstrate the extent to which modeling spatial dependence in areal data can significantly improve model fit. In the final section, we explore the spatial dynamics of our results and their potential implications in more detail.

Table 1 below first presents results for an OLS model of the effects of cleavages and legacies on CDU support along with the spatial regression diagnostics. In this first model, the class and religious cleavage variables do not have a significant effect on CDU vote, though the relative size of the migrant population has a very significant and negative effect on support for the CDU. The legacy variable was also (weakly) statistically significant, suggesting that political configurations at the time of the transition augur well

for the CDU long term. Voter turnout was a strong negative predictor of CDU support, which was not unexpected given the defensive position the party and Chancellor Merkel were in during the campaign.

Table 1: 2017 Federal Elections (Electoral District)
Dependent Variable: Percent CDU Vote

Independent Variable	Cleavage, Legacy, and Migration Model	Spatial Lag Model
Constant	.000	-.047 ^
	(.085)	(.063)
Agriculture Insurance	.064	.030
	(.118)	(.086)
Industry Insurance	-.127	-.076
	(.114)	(.084)
% Not Catholic or Protestant	-.182	-.168
	(.128)	(.094)
CDU Membership (1990)	.183 ^	.132
	(.102)	(.076)
% Migrant Population	-.422 *	-.403 ***
	(.156)	(.115)
% Turnout	-.387 **	-.218 *
	(.130)	(.102)
% Unemployment	.115	.057
	(.108)	(.079)
Spatial Lag Term (ρ)	_ _ _	.538 ***
Moran's I (error)	3.986 ***	
Lagrange Multiplier (lag)	19.557 ***	
Robust LM (lag)	10.862 ***	
Lagrange Multiplier (error)	9.093 **	
Robust LM (error)	.398	
N =	49	49
R-Squared (Adjusted or Pseudo)	.644	.806

^ $p < .10$
* $p < .05$
** $p < .01$
*** $P < .001$

The Lagrange Multiplier tests for both error (place-based) and lag (diffusion or propagation-based) are statistically significant, indicating that indeed spatial effects are at play. In an effort to select the most appropriate corrective model specification when both LM tests are statistically significant, Anselin

and Rey suggest looking next to the robust forms of these two test statistics.[32] Here, the robust form of the error model is not significant, suggesting that the spatial lag model is appropriate.

Table 2: 2017 Federal Elections (Electoral District)
Dependent Variable: Percent SPD Vote

Independent Variable	Cleavage, Legacy, and Migration Model	Spatial Lag Model
Constant	.000	.004
	(.096)	(.058)
Agriculture Insurance	.619 ***	.218 *
	(.133)	(.088)
Industry Insurance	-.198	-.033
	(.129)	(.078)
% Not Catholic or Protestant	-.075	-.036
	(.145)	(.087)
CDU Membership (1990)	.115	.010
	(.115)	(.071)
% Migrant Population	.707 ***	.430 ***
	(.177)	(.110)
% Turnout	-.658 ***	-.348 ***
	(.146)	(.091)
% Unemployment	-.425 **	-.264 ***
	(.122)	(.073)
Spatial Lag Term (ρ)	_ _ _	.701 ***
		(.086)
Moran's I (error)	3.803 ***	
Lagrange Multiplier (lag)	26.066 ***	
Robust LM (lag)	19.249 ***	
Lagrange Multiplier (error)	8.131 **	
Robust LM (error)	1.314	
N =	49	49
R-Squared (Adjusted or Pseudo)	.546	.835

^ $p < .10$
* $p < .05$
** $p < .01$
*** $P < .001$

Respecifying the model to include a spatial lag produces only a small change in substantive results, in that the legacy variable is no longer significant at even 90 percent confidence. Only migration background and bloc

CDU membership are significant predictors, both in the same direction as in the OLS model. The strong propagation effects in the model are captured by the ρ parameter, which is positive and statistically significant. The inclusion of the spatial lag term increases the explanatory power of the model, raising the adjusted R-square from .644 to .806.

In our second set of models, we examine the capacity of our independent variables to account for SPD support. We expect to encounter inverse relationships in these data: weaker support in more agricultural districts, stronger in industrial ones, greater support in more secular regions, and a negative effect for CDU membership. In terms of the migration variable, while we do not have an *a priori* expectation, given the strongly negative effect of higher density of immigrant populations on the CDU we expect that a positive relationship may hold for the SPD.

The results in Table 3 confounded many of those expectations. The OLS model shows positive and statistically significant effects for agricultural employment and migrant population and negative effects for turnout and unemployment. One might explain the agricultural effect by reflecting on standards of living in rural areas in the east, many of which are significantly depressed; support for such an explanation would require additional research. And support for the CDU in districts with higher percentage of immigrants and/or second-generation Germans likely relates to urbanization–those populations and SPD support are strongly anchored in Germany's major cities. Turnout and unemployment both have negative and statistically significant effects on SPD support. These variables speak to the challenging position of the SPD in contemporary German politics. As the country's historical mass party, it should be helped by turnout, not hurt by it, and would have prided itself on support for the unemployed. Yet, recent elections have seen a secular decline in SPD support, from near 40 percent nationwide in the 2002 federal elections to just 20 percent in 2017. It is not succeeding in offering a promise to Germany's working class.

Both LM tests (error and lag) are statistically significant. In comparing the two robust versions of the tests, however, we again observe that the robust test for spatial lag is statistically significant, while the robust test for spatial error is not. Once again following Anselin and Rey, we opt to model the spatial dependence in this model using a spatial lag specification, which is reported in the second column. In terms of significant predictors and directions of effects, nothing changes here other than the relative magnitudes of those effects. As before, the spatial lag term is positive and statistically significant and the pseudo R-squared for the model is significantly higher than the adjusted R-squared in the non-spatial model (.835 vs. .546).

Table 3: 2017 Federal Elections (Electoral District)
Dependent Variable: Percent Left Party Vote

Independent Variable	Cleavage and Legacy Model	Spatial Error Model
Constant	.000	.084
	(.105)	(.264)
Agriculture Insurance	-.032	.315 *
	(.145)	(.141)
Industry Insurance	-.456 **	-.521 ***
	(.141)	(.106)
% Not Catholic or Protestant	.133	.199
	(.158)	(.123)
CDU Membership (1990)	-.052	-.074
	(.126)	(.095)
% Migrant Population	.250	.391 **
	(.193)	(.150)
% Turnout	-.198	-.008
	(.160)	(.150)
% Unemployment	-.024	.048
	(.133)	(.096)
Spatial Error Term (λ)	_ _ _	.693 ***
		(.111)
Moran's I (error)	3.352 ***	
Lagrange Multiplier (lag)	3.417 ^	
Robust LM (lag)	.311	
Lagrange Multiplier (error)	5.993 *	
Robust LM (error)	2.887 ^	
N =	49	49
R-Squared (Adjusted or Pseudo)	.458	.682^

^ p < .10
* p < .05
** p < .01
*** P < .001

Our third model considers the performance of the Left Party, which won 9.2 percent of the vote nationally. As noted earlier, we did not have clear expectations for the bases of Left Party support because while it sits on the left, as the successor party to the East German Socialist Unity Party, it has a complicated political identity. We did note, though, that compared with the other three parties, it does have a fairly comprehensive organizational

structure across the region because of its history. In our OLS model, industry insurance is the only significant predictor, with a negative coefficient. In areas with higher concentrations of industrial workers, the Left Party does worse. This is consistent with a different legacy argument: that industrial workers captured for decades by the SED would be reluctant to support the successor. That logic certainly held in the first decades after reunification, and we see some evidence for that here.

Unlike in the models for the CDU and SPD, the diagnostic statistics for this model suggest that a spatial error (common exposure) specification would be the most appropriate way to model the spatial dependence lurking in these data, since only the LM test for error is significant at the 95 percent confidence level. The second column of Table 3 presents the results of the spatial error model. In this model, in which the spatial dependence is modeled as the result of the areal units' common exposure to some factor or factors not in the model, both of the economic cleavage variables are significant. Agricultural insurance positively, though weakly, predicts support for the Left Party, whereas industry insurance remains a negative predictor. The migration variable is positive and statistically significant, so districts with higher concentrations of migrants were more likely to support the Left Party–the same as the SPD and the inverse of the CDU, suggesting that the campaign's focus on migration did exert an influence on voting. Lambda, the spatial error term, is positive and significant as expected, and respecifying the model in this way boosted its R-squared value from .458 to .682.

Our fourth and final model consider the performance of the Alternative for Germany, which surged to 12.6 percent of the national vote in the 2017 federal elections. How well does our model account for the AfD's performance, and what is the relative power of cleavage, legacy, and spatial factors in accounting for its success?

Our OLS results in the first column of Table 4 demonstrates that social cleavages shaped AfD performance. Districts with higher levels of agricultural insurance were less likely to support the AfD, while areas with more industrial workers were more likely to. Districts with higher proportions of migrants were far less likely to vote AfD, and voter turnout was a strong and positive predictor of AfD success.

The LM test statistics suggest that a spatial lag specification is appropriate. The second column shows the results for the spatial lag model, which as in the other cases has significantly improved explanatory power over the OLS model. In addition to the powerful spatial lag term, cleavage effects are muted while migration and turnout both remain significant.

Table 4: 2017 Federal Elections (Electoral District)
Dependent Variable: Percent AfD Vote

Independent Variable	Cleavage, Legacy, and Migration Model	Spatial Lag Model
Constant	.000	-.091
	(.103)	(.080)
Agriculture Insurance	-.336 *	-.029
	(.142)	(.094)
Industry Insurance	.315 *	.151 ^
	(.138)	(.085)
% Not Catholic or Protestant	.083	.064
	(.155)	(.094)
CDU Membership (1990)	-.163	-.029
	(.123)	(.076)
% Migrant Population	-.687 ***	-.466 ***
	(.189)	(.117)
% Turnout	.498 **	.194 *
	(.156)	(.095)
% Unemployment	.137	.056
	(.130)	(.079)
Spatial Lag Term (ρ)	_ _ _	.767 ***
Moran's I (error)	4.544 ***	
Lagrange Multiplier (lag)	22.053 ***	
Robust LM (lag)	9.821 **	
Lagrange Multiplier (error)	12.355 ***	
Robust LM (error)	.123	
N =	49	49
R-Squared (Adjusted or Pseudo)	.482	.805^

^ p < .10
* p < .05
** p < .01
*** P < .001

Discussion

Taken together, these models tell us a lot about support for the CDU and its competitors in Germany's eastern regions. For the governing party, variables related to the economy were not significant predictors of the vote for the past federal election; nor was the religion or religiosity of the electorate. In fact, the district-level sociodemographic variable that best accounted for CDU vote share was the immigrant population share. Given the centrality of

the migrant issue in the 2017 contest, it is not surprising that Merkel's party was punished in areas with higher proportions of migrants. Those weak social foundations also held in the case of the SPD, where only agricultural employment significantly affected its vote share in 2017. Germany's two major parties showed little evidence of institutionalized bases of support in the electorate. In startling contrast, one of the most compelling findings here was that the upstart AfD had capitalized on social divisions in that contest, a particularly concerning harbinger for the mainstream parties.

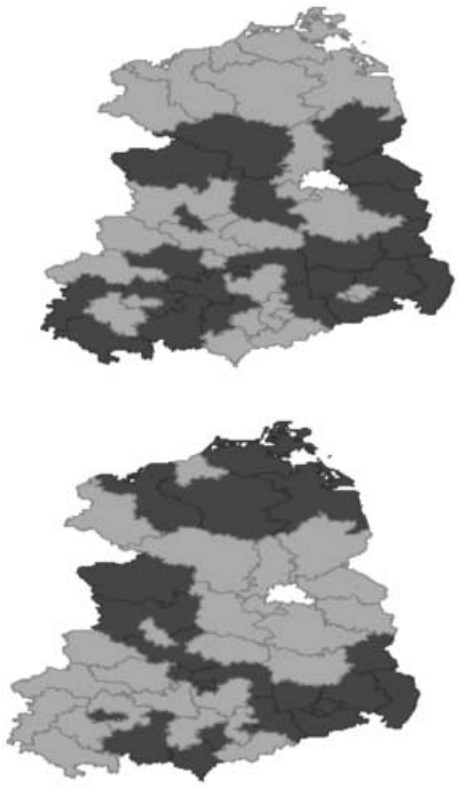
Our results show statistically significant and negative effects of migrant populations on CDU and AfD support, and statistically significant and positive effects on SPD and Left Party support. These are not straightforward effects to interpret, given the expectation that migration would affect the CDU and AfD differently, and that it would result in higher levels of AfD support. We suspect that this variable may in fact be tapping into urbanization-related dynamics. The AfD's support is lower in districts with higher concentrations of historical migrants (i.e., urban areas), while in areas with lower numbers of historical migrants (i.e., rural areas), it performs better. That the CDU fares better in more rural districts is fairly conventional logic in German politics. Likewise, the SPD's and Left Party's support in areas with higher numbers of migrants is not surprising in light of an urban interpretation. In the end, despite how robust the effects of this variable are, we cannot say conclusively whether the migrant populations themselves play a role here, or if the effect is a spurious one.

Our legacy variable, bloc CDU membership, is consistently weak across our models, influencing only the CDU vote in 2017. Recall that we argue that this variable represents a measure of the anti-regime presence during the SED period. Localities with higher bloc-CDU membership were typically either bastions of Catholic culture (like the Eichsfeld region), peripheral areas in the GDR that were less subject to direct state control (as compared to Berlin and Brandenburg, for example, where the regime was based), or sites of protest through the 1980s (as in the contemporary state of Saxony). In these cases, we suggest, localized cultures of resistance were created that may continue to mark party politics today, at least the CDU.[33]

Finally, the models show a consistent spatial effect in support for all of the political parties we examined. Whether utilizing a spatial error model (to account for place-based effect)) or a spatial lag model (addressing propagation effects), the spatial terms in our models were uniformly statistically significant and improved model fit. We also observed how modeling the spatial structure of our data resulted in different inferences about the relative import of our independent variables.

Why would the inclusion of these spatial factors have such a pronounced effect on model fit? The short answer is simply that party building as a process is highly territorialized, governed by parties' goals of winning office. While electoral districts (our unit of analysis) are one site of competition for parties, party leaders also focus their organizational energies on *Land*- and *Kreis*-level party building as well as their municipal presence.[34] To the extent that those other party-building efforts are affecting how German voters mark their ballots, they manifest as spatial effects in our model. Interviews with party leaders suggest other spatial factors that might drive how eastern Germans vote: proximity to the border with western Germany or the Czech and Polish borders; the distance from Berlin; and even the structure of media markets through which parties and politicians reach out to voters.[35]

Figure 1: Residuals from OLS Model Predicting 2017 CDU Vote Share (*upper*) and SPD Vote Share (*lower*), 49 Electoral Districts)



Lighter = Positive Residuals (model underpredicted CDU or SPD vote)
Darker = Negative Residuals (model overpredicted CDU or SPD vote)

The simple exercise of mapping the residuals from of our spatial models accomplishes two related goals. First, it brings the territoriality of party support into sharp visual relief. Secondly, it can serve as the foundation for the generation of conjectural hypotheses as to the potential sources of that territoriality. Imke Harbers and Matthew Ingram note that while quantitative spatial error and spatial lag models identify the *type* of spatial dependence that exists in a dataset, they do not tell their users anything about the sources of common exposure (as in a spatial error model) or the nature of the vectors of diffusion that produce propagation effects across adjacent units (as in a spatial lag model). They argue that quantitative analysis such as those presented here can be used to set the agenda for future research.[36]

Figure 1 present choropleth maps of regression residuals, with lighter shades representing positive regression residuals (districts where observed support for a party in 2017 was higher than predicted by the regressors in the model) and darker shades representing negative residuals (districts where observed support for a party in 2017 was lower than predicted by the regressors in the model). Below, we use these maps as the basis to offer some thoughts about the sources of spatial dependence in the 2017 election for the mainstream parties, the CDU and SPD, and the AfD because of its surge in the election.[37]

In these first maps of residuals, both images show clear evidence of state-level spatial effects: in the state of Mecklenburg-West Pomerania (Merkel's home state) the CDU substantially outperforms the expectations of the model in all electoral districts, while in much of Brandenburg, where the CDU is considerably weaker organizationally (the upper map), it does poorer than the model expects. The SPD's performance in Mecklenburg-West Pomerania and Brandenburg mirrors that: overperforming in its western bastion of Brandenburg and underperforming in the northern state. A state-level story is less evident in the residual analysis for Saxony, Saxony-Anhalt, and Thuringia, however, so those state-level effects are not hard-wired. That is surprising in the case of Saxony given the hegemony of the CDU for almost all of the postreunification period there, though our consideration of the AfD below offers some insights on that.

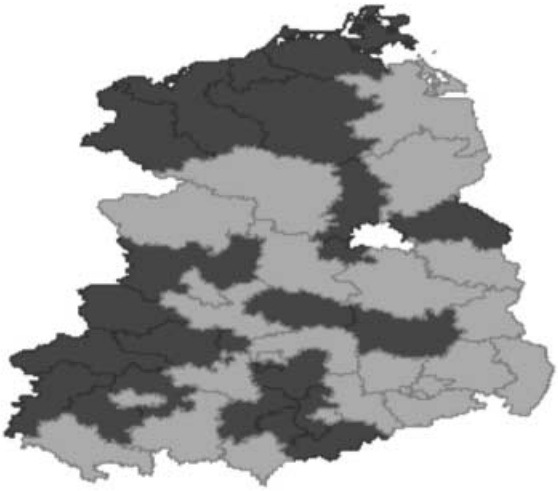
There does appear to be evidence of border effects: the southern corridor of Thuringia (bordering Bavaria) and the Czech and Polish border corridors in Saxony and Brandenburg are areas where the CDU did not perform as well as expected by the model. That is, in areas that are vulnerable to migrant flows or perhaps perceived as such, traditional models of voting do not work as well, though not in a predictable direction since the CDU both outperforms or underperforms the model's expectations. We see some related evidence

for the SPD in the eastern portions of Saxony and Mecklenburg-West Pomerania, near the Czech and Polish borders. While we would not expect strong SPD support in a state where the CDU has been so strong, it bears mentioning that neither of the region's dominant parties performed well in those zones. Again, the AfD's performance offers some potential insights.

There are also some isolated pockets worth noting, especially in the case of the CDU. In the Eichsfeld region in the north of Thuringia and the Erzgebirge region of Saxony, the CDU showed considerable electoral resilience by strongly outperforming the expectations of our model. Those regions are particular historical strongholds for the party, though, so the resilience is not too surprising.[38] Interestingly, the overperformance of the CDU here is not accounted for by either the CDU's transition-era membership or the religious variable we test in the model, even though both are regions considered more religious and in the Eichsfeld's case had a strong bloc CDU organization throughout the GDR period.

Finally, Figure 2 presents the residuals from our analysis of AfD support.

Figure 2: Residuals from OLS Model Predicting 2017 AfD Vote Share, 49 Electoral Districts)



Lighter = Positive Residuals (model underpredicted AfD vote)
Darker = Negative Residuals (model overpredicted AfD vote)

The areas with larger positive residuals (those cases where the model underpredicted AfD support) are pockets toward the eastern half of the map, with strong AfD regions near Dresden and the border region of Gör-

litz. We also see comparatively strong AfD performance both in regions recently dominated by the CDU (eastern Saxony, eastern Mecklenburg-West Pomerania) and by the SPD (much of Brandenburg). That distribution should not surprise, as populist right parties often are the beneficiaries of anti-party sentiment.

Negative residuals are scattered across the region, but there are concentrations in western Mecklenburg-West Pomerania, in Thuringia, in western Saxony, and in districts surrounding Berlin. There is also evidence in Figure 2 of effects of localized party building processes. Earlier, we noted that the CDU champions its resilient organizational structures in Thuringia and the Erzgebirge region of Saxony; the AfD underperformed relative to the model in exactly those regions, suggesting that deeper party organizations may be able to resist populist challengers.

The residual maps suggest that AfD support (like the CDU's) may be related to proximity to regional borders. To the east, we observe in Figure 2 that the AfD's performance is substantially underpredicted by the model—precisely the inverse of the CDU's case. Interestingly, in regions bordering western Germany the AfD underperforms. Taken together, those effects suggest that the populist right's performance may have been shaped by perceptions of economic threat (to the east) and opportunity (to the west), raising questions about economic divides within Germany's eastern region.

These examples confirm visually what our statistical analysis above demonstrated: that alongside structural and historical foundations of Germany's electoral geography, there are important underlying spatial dynamics, and that our explanations are better when we acknowledge and model them.

Conclusion

In recent German federal elections, cleavages structures did not shape electoral outcomes, at least for the historically dominant parties in the region, the CDU and SPD. Their negligible effect on vote choice may be a result of their weakening hold on the German electorate more broadly, or perhaps more narrowly an effect of the GDR's totalitarian interlude which dampened social divisions. Only the radical right upstart AfD's support seemed attached to social cleavages, suggesting that the potential remains for a vote structured by structural divisions in society but also highlighting that the primary German parties are not drawing on them.

The effect of migrant populations was also mixed across the parties, positively affecting SPD and Left Party support while undercutting CDU and AfD

support–though this may have more to do with where migrants have settled historically (i.e., urban areas in Germany) than the presence of migrants themselves or the politics around recent migrants in the 2017 campaign. We also considered how historical legacies shaped voting, but our legacy variable was significant only for the CDU and only in the traditional OLS model. Indeed, migration aside, the most robust variable in our OLS models was introduced as a control: turnout was an important predictor of support for all but the Left Party (negatively affecting the CDU and SPD, and positively affecting the AfD).

Unlike most of our other predictors, spatial variables were robust and powerful determinants of support for the CDU and its competitors, substantially improving the explanatory power of all four models. The consistency of effects presented here should signal to scholars of parties and electoral politics the need to incorporate geography into their analytical frameworks. Eastern Germany may in fact be less spatialized than other country cases because of the homogenizing efforts of the SED regime, yet our results show that across elections the effects of spatial dependence outweigh both cleavage and historical effects; they are dramatically powerful predictors of CDU, SPD, Left Party, and AfD support. If that is the case in eastern Germany, controlling for structural and historical factors, it is likely to be an even more powerful predictor of political outcomes in western Germany and other countries with pronounced traditions of territorial politics like Belgium, Spain, and the United Kingdom.

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Notes

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35. Interviews with Kurt Biedenkopf, CDU leader and former Saxon minister-president, September 2012; Lorenz Caffier, Deputy Minister President and CDU Member, Mecklenburg-West Pomerania, October 2012; Thomas Webels, Landesvorsitzender, CDU-Thuringia, December 2012; Georg Milbradt, CDU-Saxony leader and former Minister-President, September 2012; Eckhardt Rehberg, CDU -Mecklenburg-West Pomerania leader and Landtag member, September 2012.
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37. We exclude the Left Party from this portion of the analysis. Its performance is less strongly spatialized than for the other parties, evident in the comparatively low Moran's I reported earlier. That makes sense since unlike the CDU and SPD, which had to build party organizations following reunification, as the successor party to the Socialist Unity Party (SED), the Left Party inherited a territorial structure. Mapped residuals for the party's performance in 2017 also showed less clear geographic patterns and smaller overall residuals. Data available from the authors upon request.
38. Interviews with Flath; Manfred Grund, CDU Federal Legislator from Eichsfeld, June 2013; CDU leaders from Eichsfeld Rolf Berend and Kerstin Sommerfeld, July 2013.