

## Cleavage Structures and Voter Alignments within Nations

### Explaining Electoral Outcome in Germany's Counties, 1998 to 2005

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**Abstract:** Despite its general popularity the cleavage theory has only rarely been used to explain regional electoral outcome. In this paper we examine whether a region's social structure and its electoral results are systematically linked. To analyse the political preferences of an entire regional electorate in a single step, electoral results are translated into a left-right position for each region using Gross and Sigelmann's concept of the ideological centre of gravity. We then analyse whether the left-right differences between the regions can be traced back to the socio-structural composition of regional populations. We apply this approach to the results of the 1998, 2002, and 2005 German federal elections in all of the 439 counties. Our results suggest that the church-state cleavage and the postmaterialism cleavage shape electoral outcomes in western regions considerably, but that the impact of the capital-labour divide has mostly vanished. Contrarily, eastern electorates seem largely guided by a centre-periphery cleavage that is rooted in a leftist mentality, but not much else.

**Keywords:** Cleavage theory · Centre of gravity · Policy positions · Regional electoral outcome

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## Gesellschaftliche Konfliktlinien und Wählerbindungen innerhalb von Nationalstaaten – Zur Erklärung von Wahlergebnissen in den deutschen Stadt- und Landkreisen, 1998 bis 2005

**Zusammenfassung:** Trotz ihrer Popularität wurde die Cleavagetheorie bisher nur sehr selten zur Erklärung regionaler Wahlergebnisse herangezogen. In dieser Studie wird untersucht, inwiefern die sozio-strukturellen Merkmale und die Wahlergebnisse in einer Region miteinander in Beziehung stehen. Um die politischen Präferenzen gesamter regionaler Wählerschaften in einem einzigen analytischen Schritt erfassen zu können, werden die Wahlergebnisse in eine rechts-links-Position im Sinne von Gross und Sigelmanns Konzept des ideologischen Gravitätszentrums übersetzt. In der Folge wird überprüft, ob die beobachteten rechts-links-Unterschiede auf die sozio-strukturelle Zusammensetzung einer Region zurückgeführt werden können. Dieser Ansatz wird auf die Ergebnisse der Bundestagswahlen der Jahre 1998, 2002 und 2005 in allen 439 Landkreisen und kreisfreien Städten angewendet. Die Resultate unserer Untersuchung zeigen, dass der Staat-Kirche-Cleavage und der Postmaterialismus-Cleavage regionale Wahlergebnisse in Westdeutschland maßgeblich beeinflussen, wohingegen der Arbeit-Kapital-Gegensatz an Bindungswirkung eingebüßt hat. In den ostdeutschen Regionen scheinen die Wählerschaften hauptsächlich durch einen Zentrums-Peripherie-Konflikt geprägt, der sich aus einer linksorientierten Mentalität speist, während die übrigen westdeutschen Erklärungsmuster hier versagen.

**Schlüsselwörter:** Cleavagetheorie · Ideologisches Gravitätszentrum · Policypositionen · Regionales Wählen

### 1 Introduction

More than 40 years ago, Seymour Martin Lipset and Stein Rokkan published their seminal work on how conflicts arising from the structure of a society shape and polarise political competition. While Lipset and Rokkan are certainly not the only scholars who have pondered the factors that might influence electoral results,<sup>1</sup> their approach has a unique feature: Whereas their counterparts seek to explain *individual* voters' decisions, Lipset and Rokkan concentrate on *aggregate* patterns. Numerous scholars have applied the cleavage theory during the last four decades and have highlighted its strengths but also its weaknesses (Allardt 2001). While the theory has been intensely discussed, adapted, confirmed and criticised on the level of nation-states, little light has been shed on sub-national cleav-

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1 The literature offers an abundance of reasons for diverging voting behaviour. A main contender of the cleavage theory is the *rational* or *political choice theory*, supported by scholars such as Downs (1957), with his idea of position issues, and by Stokes (1963), with his notion of valence issues. Succeeding refinements include, for example, the works of Hinich and Munger (1994) or Rabinowitz and Macdonald (1989). There is furthermore the *Columbia School* (Berelson et al. 1954; Lazarsfeld et al. 1944) that focuses on the social background of individual voters. Scholars belonging to the *Michigan School* (Campbell et al. 1960; Campbell et al. 1954) adopt a behavioural perspective and concentrate on voters' party identification, candidate preferences, and campaign issues. Another strand of research sees individuals' evaluations of *economic conditions* as the main determinants of voting behaviour (Fiorina 1978; Key 1966; Kiewiet 1983; Lewis-Beck 1988). In recent years, attempts have been made to integrate the propositions of the various schools (Adams et al. 2005; Miller and Shanks 1996).

age patterns. This seems a rather surprising fact, since Lipset and Rokkan (1967, p. 53) addressed this issue right from the start: They pointed out that in order to attain a comprehensive understanding of how social relations impact on electoral outcome, it would be necessary to study not only the “differences and similarities *across* nations but also *within* nations” [original emphasis]. In recent years, within-nation research related to the cleavage theory has intensified and there are now studies for a number of western democracies.<sup>2</sup> With this study, we seek to contribute to the closure of this gap by analysing the relations between the social structure and electoral outcome on the regional level in Germany. The central question is whether regional electoral outcome can be predicted from the regional accentuation of cleavages or more precisely from the composition of the regional social structure.

To study electoral outcomes in a region or a country we not only need to take the party-political affiliation of individuals belonging to different socio-structural groups into account, but also the relative strength of these groups. To do so a shift of the analytical focus from the micro-level (i.e. individuals) to the macro-level (i.e. societies) is required.<sup>3</sup> To capture the specific composition of regional societies and to relate these parameters to electoral outcomes, we chose the following strategy. Theoretically, our approach is built on the work of Knutsen (1995, 1997) who argues that all cleavages convey notions of a left-right orientation. Consequently, we assume that a region’s left-right preference is related to its socio-structural composition. To test this hypothesis we translate the results of all the major parties into a left-right value for each region similar to Gross and Sigelmann’s (1984) ideological centre of gravity.<sup>4</sup> We then treat this regional left-right indicator as our dependent variable and analyse whether the observed left-right variation can be traced back to the socio-structural composition of entire regions. In sum, our approach allows us to analyse the roles of different groups in societal contexts, to account for their relative strength and to compare them to other groups in a single analytical step. By scaling down to a very low regional level we are able to reproduce socio-structural environments as accurately as possible. As another feature, this study exclusively relies on aggregate data from official statistics, be it election results in the form of party vote shares or socio-

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2 The importance of regional socio-structural factors in national elections in Great Britain is studied by Ron Johnston and Pattie (2006); in Canada by Bélanger and Eagles (2006), Blake (1978) and Richard Johnston (1991); in the United States by Darmofal (2008) and Jenkins et al. (2004). Other authors examine the effect of regional cleavages on sub-national or local party systems: For the Swiss cantons see Ladner (2004) and Vatter (2002, 2003); for municipal elections in Belgium see Geys (2006); and for the autonomous communities in Spain see Lago Penas (2004). Flick and Vatter (2007) see regional societal cleavages as one explanation for varying party fragmentation across the 16 German Länder parliaments. Hearl et al. (1996) study regional voting patterns in European Union member states. For an example of nation-state aggregate-level electoral research, see Mair (2002).

3 Restricting ourselves to macro-level analysis, our goal is the detection of patterns on an aggregate level and to find causes for these patterns on the aggregate ecological level (Thomsen 1987, p. 12). We do not seek to account for individual behaviour, even though we draw on individual level research for the generation of our hypotheses.

4 This use of left-right values as an operationalisation of electoral outcomes is, in our view, a feasible strategy, as the left-right values are a function of party vote shares, as will be shown.

economic variables like the share of Catholics within a population. Besides the fact that survey data below the state level is simply not available, the use of official aggregate data offers the advantage of not buying into the specific problems of survey data, like sampling errors, non-response, social desirability and over- or underreporting (Voss 2004, p. 90).

The analysis is conducted using electoral results of the 1998, 2002, and 2005 German federal elections from all of Germany's 439 counties. To locate the parties we use a general left-right dimension, an economic and a social policy dimension. The results indicate that cleavage structures shape electoral outcomes systematically. We find that in western regions the church-state cleavage determines electoral outcome to a large extent, followed by a postmaterialism cleavage, but that the structural impact of the capital-labour divide seems to have largely vanished. Contrarily, eastern electorates seem to be largely guided by a centre-periphery cleavage that finds an expression in leftist values. Apart from that traditional alignments seem weak in the east. The paper proceeds as follows: First, we shall review the research conducted on the cleavage theory and electoral outcome in Germany and present our approach of how cleavage structures affect aggregate left-right preferences. Then the research design is outlined, including the operationalisation of the dependent variable, expressed as regional electoral outcome in left-right terms. We test our hypotheses by means of a cross sectional regression analyses. The study concludes with a discussion of the empirical findings and an outlook on possible future applications of our approach.

## 2 Cleavage Structures and Voter Alignments in Germany

As outlined in the introduction we seek to analyse whether regional electoral outcome can be predicted from the regional accentuation of societal cleavages. Therefore, we first need to define the nature of these cleavages. While Lipset and Rokkan (1967) have presented the cleavage theory, they did not provide any definition of what a cleavage actually is. We resort to Bartolini and Mair (1990, p. 212, 216) who speak of cleavages as "forces which both shape and condition electoral behaviour" inasmuch as these forces effect "a form of closure of social relationships". They furthermore identify three characteristics that a social conflict must have in order to qualify as a politically relevant cleavage (1990, p. 215): First, there is an *empirical element* that refers to the presence of a conflict between certain socio-structurally defined groups, such as between workers and factory owners. Next, shared values and beliefs constitute a *normative element* in the sense of an ideological identity among group members, like the vision of an equal distribution of wealth among the members of a society. Third, there has to be an *organisational element*, meaning that some kind of interaction or institution, such as a political party that develops from the conflict.

How exactly do these cleavages shape electoral outcome? Think of a certain socio-structural group that takes a side in a cleavage, say industrial employees. The group members support the political party that emerged from this cleavage because it is most likely to represent their specific interests. In the case of industrial employees, this party would be the Social Democrats. The ties that link the socio-structural group to a party are the shared norms, values, and beliefs, in the case of the Social Democrats and the industrial

employees the ideas of equality and social justice. Against the background of the cleavage theory as it is sketched here the act of voting becomes a matching of ideological preferences between socio-structural groups and political parties, or, using the vocabulary of Bartolini and Mair (1990, p. 215) an alignment between the empirical and the organisational element of a cleavage by means of the normative element.

The most common strategy to test the cleavage theory would be to analyse the relationships between various social characteristics and single parties, as Emmert and Roth (1995) do. What one learns from this kind of exercise is that perhaps Catholics are more likely to cast their votes for the Christian Democrats, that workers prefer the Social Democrats, and so on. While this is without a doubt an interesting approach, it also has a major drawback: This strategy only provides a partial picture of society, that of individuals. Knowing that Person A bears a certain characteristic that makes it very likely that he or she will vote for Party X only tells us about the probability of an individual decision to occur. We do not know anything about how Society B will vote given that it consists of multiple, overlapping and disproportionately large groups of individuals. Simply inferring from individual to social behaviour does not work very well, as one would disregard group dynamics, social interaction effects and run the risk of individual fallacy (Alker 1969, p. 78). We therefore develop a different strategy: In the following section we suggest the use of a measure that *a*) yields a single value of a region's electoral outcome but *b*) is still sensitive to the single parties' strength, as it includes each party's vote share. This approach permits us to model electoral outcome not as, say, five different dependent variables (that is party vote shares), but as a single value. We are thus able to theorise and test how the *composition* of regional societies affects electoral outcomes in a single analytical step, or, in other words, whether an impact of cleavage structures is discernible once we consider entire electorates. To do so, we must however make some basic assumptions:

Taking the normative element as a starting point for our investigation we hypothesise that the values conveyed by any cleavage can be located on a left-right spectrum of politics (Knutsen 1997, p. 193). New lines of conflict may bring about new meanings of left and right, but do not replace old meanings. The underlying left-right dimension rather incorporates the new tendencies. In the words of Knutsen (1995, p. 87), "the new meanings of left and right are added to the old meanings."<sup>5</sup> If parties are supported by socio-structural groups that are part of the same cleavage and hold the same values in left-right terms, we should be able to predict the overall left-right position of electoral outcomes by the structural composition of a society. To measure a region's overall left-right preference in electoral terms we use Gross and Sigelmann's (1984) concept of the *ideological centre of gravity* which is presented below. But first we analyse the cleavage structures prevalent in Germany, including their empirical, normative, and organisational elements. The discussion of each cleavage concludes with a hypothesis of how it may impact on the left-right orientation of the regional electorate.

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5 As an example one might think of the classical left claim of social justice. Green parties have added to this claim by calling for environmental protection, and refer to it with the concept of inter-generational justice. Rather unsurprisingly, green parties throughout Europe are characterised as leftist parties.

Two of the four cleavages presented by Lipset and Rokkan (1967) have been identified in German politics. The conflicts between the *church versus the state* and between *capital versus labour* clearly constitute the main cleavages (Elff 2007; Emmert and Roth 1995; Lepsius 1966; Pappi 1973, 1977; Saalfeld 2004). With the “silent revolution” (Inglehart 1977) a third conflict line has emerged, in Germany first identified by Alber (1985). We will refer to this cleavage as the conflict between *materialism versus postmaterialism* (Knutsen 1997). A fourth issue dimension of importance, it is argued, is a *centre versus periphery* conflict between the east and the west that developed in the wake of the German reunification (Emmert and Roth 1995; Mielke 2001).

The *church versus state cleavage* is often emphasised when it comes to explaining electoral outcome. In Germany, this is the socio-political conflict with the deepest roots – they can be traced back to the age of reformation. With the formation of the German national state in 1871, this cleavage also found a party-political expression when Catholics joined together to form the Centre Party. With its clear mandate to defend the rights of the Catholic population it stood firm during the *Kulturkampf*, a struggle between the Catholic Church and the national government which took place towards the end of the 19<sup>th</sup> century (Schmitt 1989; see also Manow and van Kersbergen 2009, p. 21). In the aftermath of World War II the CDU/CSU was formed as an all-Christian party of the right, designed to also incorporate Protestants and thus to represent Christian values in general (Bösch 2007, p. 201; Roth 1998, p. 30).<sup>6</sup> Moreover, the Christian Democrats soaked up and incorporated many of the small parties of the right during the 1950s, including most of what was left of the Centre Party. Although it opened up for Protestants, the Christian Democratic CDU/CSU is still closely aligned with Catholicism (Arzheimer and Schoen 2007; Falter and Schoen 1999; Neller and Thaidigsmann 2004). Accordingly, Manow (2008, p. 133) speaks of the CDU/CSU as dominantly Catholic parties and Manow and van Kersbergen (2009, p. 25) point out that not only in Germany, but throughout Europe “the Catholic vote proved stable even when the conflicts between nation-state and Catholic Church had lost much of their fervor”. Likewise, Schoen (2005, p. 176, 180) argues that both in eastern and western Germany, the confessional cleavage persists to exist and that still today it impacts on electoral behaviour with almost unimpaired vigour when compared to the early days of the federal republic. As an illustration of this claim Schoen (2005, p. 177) reports that in 2002 55% of the Catholic voters in western Germany decided in favour of the CDU/CSU, while only 34% of the Protestant voters did so. These figures are almost identical with those of the 1953 election (58% and 35% respectively). The picture also holds in the east, with the share of Catholics in favour of the CDU amounting to 63% while only 39% of the Protestants indicated a Christian Democratic preference (figures of 2002). Schoen and Abold (2006, p. 148) therefore call Catholics a “bastion”

6 When referring to the Christian Democrats as a party of the right, we do not intend to negate the Catholic welfarist tradition (*katholische Soziallehre*), which, among other factors, contributed to the formation of the continental conservative welfare state regime (Esping-Andersen 1990; Manow 2002). However, applying the term ‘right’ to Christian Democrats and Catholicism seems justified: While both may be committed to a functioning social security system, they also emphasise the subsidiary nature of social security and stand for (at least traditionally) a system that upholds social “status differences” (Esping-Andersen 1990, p. 27). The label ‘right’ is in this respect to be understood in a German context and in relation to the German party system.

of the Christian Democrats, even though there might be signs of a slight decline of alignment (Saalfeld 2004). Against this background we formulate a first research hypothesis:

*H1:* The higher the share of Catholics among a region's population, the further will electoral outcomes lean to the right.

The second cleavage predominant in German elections is the *capital versus labour division* (Broschek and Schultze 2006, p. 32; Falter and Schoen 1999). Traditional class tensions have impacted on political choices since the advent of the industrial revolution. In the second half of the 19<sup>th</sup> century the Social Democratic Party (SPD) was formed as a class party of the workers and hence as the organisational element of the capital-labour cleavage (Alemann 2000, p. 97). The SPD endured both world wars and is today the catch-all party of the left. Central to the ideological claims of the Social Democrats has always been some notion of equality. More radical ideas like the strive for Socialism were abandoned in the early years of the Federal Republic and replaced by claims for equal opportunities and social justice (Jun 2007). As the industrial work force is the traditional empirical element of this cleavage we expect its share to relate to the strength of leftist tendencies in a region (Saalfeld 2004; Schoen and Abold 2006, p. 149). Accordingly the second hypothesis is as follows:

*H2:* The higher the share of the industrial labour force in a region, the further will electoral outcomes lean to the left.

In Germany, as in most other countries of the western world, the "silent revolution" has brought about a new line of social conflict. Along with socio-economic development, a new value system emerged in parts of the society. The changes of economic structures from an industrial to a postindustrial economy and the educational expansion in the 1960s and 1970s brought about a new set of personal preferences including an orientation towards quality of life issues, ecological issues, gender equality, new forms of democratic participation and sexual freedom (Inglehart 1977; Inglehart and Welzel 2005). The Green party can be seen as the organisational element of this *materialism versus postmaterialism cleavage*: "The emergence and success of Green parties seem linked with the shift towards postmaterialist values" (Inglehart 2002, p. vi; see also Alber 1985). It is sometimes contested that the "silent revolution" really has brought about a new cleavage (Schoen 2005, p. 150). However, it is Seymour Martin Lipset (2001, p. 6), one of the original authors of the cleavage theory, who, under the heading "New cleavages", formulates that "groups such as the Green parties" have sought to foster and institutionalise postmaterialist values as party issues. In ideological left-right terms, the Greens may still be characterised as a party representing left liberalism, although a transformation has occurred and the Greens have, to some extent, departed from their origins (Lösche 2003, p. 69). Authors from the field tell us that postmaterialist values and accordingly supporters of the Greens are mostly found in well-educated urban milieus (Frankland 1995, p. 30; Probst 2007, p. 179).<sup>7</sup> We therefore assume the following hypothesis:

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7 To substantiate this choice of indicators we estimated bivariate correlation coefficients between all parties' vote shares in the counties and an urbanisation and an education indicator (see Tables 3 and 7 for operationalisations). We found that both of these indicators correlated positively, significantly and most strongly with the share of Green votes.

*H3*: The higher the share of university graduates and the more urbanised a region, the further will electoral outcomes lean to the left.

Since reunification in 1990, a *centre versus periphery cleavage* has emerged – the conflict between the east and the west (Mielke 2001; Emmert and Roth 1995).<sup>8</sup> After more than a decade since the overthrow of the authoritarian regime and hundreds of billions of Euros in transfers to rebuild the run-down former socialist state, political preferences are still an expression of the specific political and cultural heritage of the east. Most importantly, there is something like a regional political “countermovement” (Lipset and Rokkan 1967, p. 34) in the form of persisting support for the successor of the former socialist state party (PDS).<sup>9</sup> This party is often perceived of as an advocate of eastern German interests or also as an eastern German regional party (Hilmer 2003; Jacobs 2004; Neu 2007; Saalfeld 2002).<sup>10</sup> Complementary to a different party landscape we also find a historically contingent mentality of universal social and economic security among the population (Arzheimer and Falter 2005, p. 281; Jesse 2006, p. 33). The link between the PDS, eastern Germany and leftist values is also empirically observable. In their analysis Doerschler and Banaszak note that (2007, p. 367) the support base of the PDS nowadays centres “on easterners with leftist ideological views”. Thus, we have all the three elements of a cleavage at hand: There is an empirical group that consists of the eastern German population; we find a distinctly leftist set of values; and we have a regional party as an organisational element. In eastern German regions we thus expect an inclination to the left.

*H4*: In eastern German regions electoral outcomes lean further to the left than in western German regions.

### 3 Data and Research Design

In this paper we seek to analyse whether the composition of regional societies is systematically associated with regional electoral outcomes. Our dependent variable, regional electoral outcome, is operationalised as the aggregate ideological position of the entire regional electorate in left-right terms. As noted above, analysing a single ideological position value instead of the vote shares of several parties enables us to compare the units of analysis in a single step.<sup>11</sup> To calculate regional ideological position values we draw on Gross and Sigelmann’s (1984, p. 467) concept of the *ideological centre of gravity (ICG)*.

<sup>8</sup> This conflict line does not correspond to the centre-periphery cleavage of Lipset and Rokkan (1967, p. 14). Whereas the latter authors see the origin of this conflict in the national revolution of the 19<sup>th</sup> century, we refer to a division resulting from the German reunification process in 1989/90.

<sup>9</sup> The PDS changed its name to *Linkspartei.PDS* in 2005. For reasons of clarity we use the abbreviation PDS throughout the whole article.

<sup>10</sup> At least this was the case until the (eastern) PDS and the (western) WASG united in 2007 to form *die Linke* as an all-German socialist party (see Neu 2007).

<sup>11</sup> One might argue that electoral outcomes and ideological positions of electorates are two distinct concepts. In the context of this analysis, however, it seems justifiable to operationalise electoral



$$ICG = \sum_{p=1}^P (pos_p * v_{pr})$$

where  $p$  stands for all the parties 1 to  $P$  that compete in an election,  $pos_p$  for the ideological position of party  $p$  and  $v_{pr}$  for the vote share of party  $p$  in region  $r$ . As our interest is in electoral outcomes in territorial units, we replace the share of seats used by Gross and Sigelmann by the list vote share of the major parties in the German counties. In addition to the list vote, there is also a vote to be casted for a single-member constituency candidate. However, it is the list vote that is decisive for the final composition of the legislature, since the final share of seats allocated to a party corresponds proportionally to the share of list votes won by that party (Nohlen 2004, p. 304; Norris 2004, p. 56; Steinbrecher et al. 2007, p. 26). We chose the counties as units of analysis since they are the lowest administrative level for which data is sufficiently available.<sup>12</sup> In line with the goal of this study, the county level allows us to reproduce socio-structural environments as accurately as possible and thus to test whether cleavages impact on electoral outcomes on a regional level. Between 1998 and 2005, there were a total of 439 counties in Germany, either rural counties which comprise a number of municipalities (*Landkreise*,  $n=323$ ), or urban counties that consist of a single self-governed town (*kreisfreie Städte*,  $n=116$ ).<sup>13</sup> In eastern Germany we find 112 counties, and there are 326 counties in the west, as well as Berlin, which we classify as an in-between, as its two former parts were located on both sides of the Iron Curtain. In sum, our research strategy can be described as a subnational comparative approach in which subnational units, in this case counties, are studied instead of nation states (Snyder 2001; see also Sellers 2005). Electoral outcomes are studied for the election years 1998, 2002, and 2005. Going further back in time is not possible, since the territorial units in focus, the counties, were subject to reorganisation in the mid-1990s and because data for the independent variables is only available since the end of the 1990s.

To locate the different parties we employ data generated by Bräuninger and Debus (2008) who make use of the word score technique.<sup>14</sup> This approach suggested by Laver et al. (2003) takes so-called “reference texts” for which policy positions are known as a

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outcomes as electorates’ ideological positions, because the latter are a function of the former, as will be demonstrated.

- 12 Germany’s political and administrative system is structured vertically into three layers and thus offers various types of territorial units. Below the federal level (*Bund*), there is the subnational level, constituted by the *Länder*, the local level, including *Kreise* or counties, and *Gemeinden* or municipalities. According to the EU-Nomenclature of Territorial Units for Statistics (NUTS), the counties are classified as NUTS-3 level units ([http://ec.europa.eu/eurostat/ramon/nuts/codelist\\_en.cfm?list=nuts](http://ec.europa.eu/eurostat/ramon/nuts/codelist_en.cfm?list=nuts), 15.05.2009).
- 13 The city-states Hamburg and Berlin are counted as one urban county each, whereas the city-state Bremen consists of two urban counties, Bremen and Bremerhaven. Today’s county Hannover was formed in 2001 by merging the former rural county of Hannover with the urban county of the same name. For our analysis we treat Hannover as one county throughout all the period from 1998 to 2005.
- 14 The actual data used in the present study is not displayed in Bräuninger and Debus’ (2008) paper but was obtained from Marc Debus directly.

**Table 1:** ICGs for the 1998 to 2005 German federal elections on the general left-right dimension in two counties (example calculation)

Party	mean left-right position (1 to 20)	mean voteshare in %	
		Straubing-Bogen	Suhl
PDS	3.9	1.2	29.4
Greens	7.0	2.7	3.7
SPD	8.9	20.6	34.4
FDP	13.6	4.7	5.0
CDU/CSU	14.2	65.3	22.3
ICG		12.0	8.4

*Note:* Displayed are rounded values only. All further calculations are based on exact values. PDS: Socialists, SPD: Social Democrats, CDU/CSU: Christian Democrats (the CSU and the CDU are formally separate parties, but form a parliamentary alliance), FDP: Liberals, ICG: Ideological Centre of Gravity.

*Source:* *vote shares* – Federal Election Supervisor, Federal Statistical Office; *party positions* – Bräuninger and Debus (2008).

starting point. The frequency of different words in the reference texts yields scores that contain information on these words' policy positions. The word scores are then used to estimate the policy positions of so-called "virgin texts", that is of texts whose positions we do not yet know (Laver et al. 2003, p. 313). To obtain the positions of reference texts Bräuninger and Debus (2008) use the policy positions of German parties provided by two expert surveys carried out by Laver and Hunt (1992) and Benoit and Laver (2006). These positions are assigned to the manifestos of the same parties in the years these surveys were carried out (1990 and 2002 respectively). In other words, the manifestos of the years of the expert surveys serve as reference texts from which word scores are extracted. The scores are then used to estimate the policy positions of party manifestos as virgin texts from 1990 onwards. Bräuninger and Debus (2008) do not only place parties on a general left-right dimension, but as well on the two most important policy dimensions, economic and social policy. Each of these three dimensions ranges from 1 (left) to 20 (right). For every party we thus have three left-right positions per election year.

To calculate the ideological centres of gravity the regional results of all parties are included that have won seats in the federal elections between 1998 and 2005 (Socialists – PDS, Social Democrats – SPD, Greens, Liberals – FDP, Christian Democrats – CDU/CSU). We will illustrate the procedure of calculating the ideological centre of gravity (ICG) by using the single party's vote shares in two example counties: *Straubing-Bogen*, a rural county in Bavaria with the highest mean share of Christian Democratic votes between 1998 and 2005, and *Suhl*, a city in Thuringia, east Germany with the highest mean share of PDS votes. Table 1 shows the party positions on the general left-right dimension, list vote shares of the relevant parties, as well as the resulting ICG scores that were calculated from the formula above.

No matter which of the three above-mentioned left-right dimensions is employed to locate the parties, we find a considerable variation across the 439 counties in Germany. For the period 1998 to 2005 the total range reaches a value of about 4 points, which means that regional ICGs differ up to 20% on the total left-right scale. Moreover, eastern Ger-

**Table 2:** Ideological Centres of Gravity for 439 Germany counties, 1998 to 2005

policy dimension	minimum	maximum	Germany (mean)	West (mean)	East (mean)
general left-right dimension	8.1	12.2	10.4	10.9	9.1
economic policy dimension	9.5	13.2	11.6	12.1	10.2
social policy dimension	7.3	11.4	9.4	9.8	8.3

*Note:* Displayed values indicate a regional left-right orientation ranging theoretically from extreme left (1) to extreme right (20). Calculations based on mean election results of the 1998, 2002, and 2005 federal elections and on mean party position from the same years.

*Source:* own calculations.

man counties generally lean further to the left, whereas the opposite holds true for western German counties (see Table 2).

The German counties present a promising pool for analysis as all of our independent variables vary widely across the counties. See Table 3 for a descriptive overview over the variables and Table 7 (appendix) for operationalisations and data sources. Note that for the following regression analysis the variables *educational attainment* and *urbanisation* are z-standardised and combined into an additive index of Green milieus.<sup>15</sup>

The empirical analysis consists of a series of cross sectional regression models using electoral and socio-economic data from all of Germany's 439 counties. We base our main models on the mean values of three election years, 1998, 2002, and 2005. In this way possible situational effects of single elections are prevented from misleading the interpretation of results. But the single elections are not entirely omitted. To get the whole picture over time, the appendix provides models for the three election years. Moreover, not only one, but three policy dimensions were mentioned above: A general left-right dimension, an economic policy dimension and a social policy dimension. In order to substantiate the analysis we estimate separate models for each of these dimensions. We are aware that the three issue dimensions refer to different programmatic aspects, that they are not interchangeable, and that their importance or salience can vary between regions as well as between parties (Debus 2008). However, taking all three dimensions into account enables us to examine whether socio-structural alignment differs substantially if we consider different policy dimensions and thus to test the stability of alignment. As a last point we seek to account for the different historical and cultural background in east and west Germany. Hence the hypotheses are first tested in all of Germany's 439 counties, and then independently in the 326 counties of the west and in the 112 counties of the east.<sup>16</sup>

15 This strategy was chosen in order to account for these two important characteristics of Green milieus in a single variable. The results of the final regression analyses change only to a negligible extent if the two indicators are included separately.

16 When it comes to the interpretation of the regression results, we also refer to the significance levels of the coefficients. Significance tests were originally designed to analyse population samples, and not entire populations, as it is presently the case. We follow Broscheid and Gschwend's (2003, p. 3) assumption that "population data, even though they do not exhibit sampling

**Table 3:** Independent variables and indicators across Germany, 1998 to 2005

variable (indicator)	minimum	maximum	Germany (mean)	West (mean)	East (mean)
Catholicism (Catholic church tax payers in % of income tax payers)	1.5	90.3	32.5	42.3	3.9
industrial employment (in % of the work force)	10.9	61.0	30.2	30.8	28.9
educational attainment (% of the work force with higher education degree)	3.0	24.4	7.9	7.5	9.2
urbanisation (population per square kilometre)	40	3,960	511	568	318

Note: for data sources, see Table 7.

#### 4 Empirical Findings

By means of cross sectional regression analysis we now investigate whether regional electoral outcomes in left-right terms are systematically associated with the regional social structure. Table 4 shows the statistical relationships between the values of the regional ideological centres of gravity and the different predictor variables for all of the German counties.

**Table 4:** Cleavage structures and general left-right orientation in Germany, 1998 to 2005

Variable	general left-right dimension	economic policy dimension	social policy dimension
Catholicism	0.41*** (17.09)	0.31*** (14.40)	0.49*** (17.51)
industrial employment	0.02 (0.85)	-0.00 (-0.08)	0.02 (1.05)
Green milieu (education + density)	-0.17*** (-7.84)	-0.10*** (-4.74)	-0.28*** (-11.70)
East – West	-0.58*** (-28.52)	-0.70*** (-35.07)	-0.44*** (20.72)
F-Test	735.71***	870.78***	573.06***
R <sup>2</sup>	0.86	0.88	0.83
n	439	439	439

Note: Dependent variable = *Ideological Centre of Gravity* (ICG) on the respective policy dimension. Berlin is coded 0.5 for the East-West dummy variable. The reported values are standardised regression coefficients (t-values in parentheses). \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. For data sources and descriptions, see Table 7 and text. Multicollinearity was tested for by the computation of uncentred variance inflation factors (VIF). In all models we found VIF values markedly below the critical threshold of 10 (Schnell 1994, p. 247). Robust standard errors were calculated to deal with heteroscedasticity.

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error, are subject to a variety of stochastic processes [...] that have to be part of the analysis, for example through the investigation of [...] significance tests". See also Broscheid and Gschwend (2005) and Diekmann (2002, p. 600).

A first look on the results confirms the predictive potential of our regional approach to the cleavage theory: No matter on which left-right dimension we measure party positions, we are always able to explain more than 80% of the total variance. Looking at the results cleavage-by-cleavage, the link between electoral outcome and the social structure appears to be stable across all three left-right dimensions studied here. To begin with the *church-state cleavage* it is highly visible that Catholicism continues to be associated to electoral outcomes even more than half a century after an all-Christian party was formed. The coefficients of this variable tell us that the share of the Catholic population is positively related to a right tendency in electoral terms, thus confirming our first hypothesis. The results for the *capital-labour divide* contradict our expectations: the share of the industrial labour force is not significantly associated with the ICG values in any dimension; for the general and the social policy dimensions the signs even tell us that the share of industrial employment is positively related to a right tendency. Turning to the *materialism-post-materialism cleavage*, we find the theoretically assumed relations: All of the regression coefficients for the green milieu variable are highly significant and their signs point in the expected directions. We generally find a higher affinity towards a politically left ideology in counties with high rates of educational attainment and a high population density. When it finally comes to the *centre-periphery cleavage*, we again find strong statistical support for our hypothesis: The regression coefficients clearly confirm the assumption of rather left-oriented electorates in eastern counties. It is also discernible that the impact of this cleavage seems even higher than of the church-state cleavage, signalling a changed order of the importance of societal divisions. Where the capital-labour divide seems to have lost its structural power, the territorial conflict line has become increasingly more important. For a detailed discussion of the particularities of eastern electorates, see the analyses of eastern German regions below.

These findings are confirmed if we take a look at the associations between cleavage structures and voter alignment in the single election years (see Table 8 in the appendix). In all three elections and across all three dimensions, Catholicism, green milieus and east-west affiliation show highly significant associations in the same direction as in the models displayed in Table 4. The picture for industrial employment is not as clear: We sometimes find this variable to be significantly related to regional orientations towards the right, or the left, but in most of the models we do not find significant associations at all. Whether a region is dominated by industrial employment seems to have mattered systematically only in the 1998 elections, where we find negative and significant coefficients across all three dimensions. In this election campaign, highly industrialised areas showed the expected inclination to the left. One explanation could be that after 16 years under Chancellor Helmut Kohl and his centre-right government the traditional alignment between workers and social democrats functioned and helped to put Gerhard Schröder and the SPD into power. The associations are, however, rather weak and in the following two elections no consistent relations could be observed. Unpopular measures taken by the Schröder-government designed to cut down on social services like the *Agenda 2010* might have led to a dealignment of the social democrats traditional clientele, the workers, and could explain the lacking or even reversed associations in 2002 and 2005. Taken together this leaves us with the impression that industrialised regions are not the strongholds of the left any longer. When Kornelius et al. (2005) note that the impact of

**Table 5:** Cleavage structures and left-right orientation in west Germany, 1998 to 2005

Variable	general left-right dimension	economic policy dimension	social policy dimension
Catholicism	0.64*** (16.88)	0.60*** (14.61)	0.60*** (16.95)
industrial employment	-0.02 (-0.50)	-0.07 (-1.72)	0.02 (0.42)
Green milieu (education + density)	-0.33*** (-7.28)	-0.23*** (-4.47)	-0.42*** (-10.38)
F-Test	141.94***	87.62***	177.83***
R <sup>2</sup>	0.56	0.43	0.63
n	326	326	326

*Note:* Dependent variable=*Ideological Centre of Gravity* (ICG) on the respective policy dimension. The reported values are standardised regression coefficients (t-values in parentheses). \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. For data sources and descriptions, see Table 7 and text. Multicollinearity was tested for by the computation of uncentred variance inflation factors (VIF). In all models we found VIF values markedly below the critical threshold of 10 (Schnell 1994, p. 247). Robust standard errors were calculated to deal with heteroscedasticity.

traditional class tensions on voters' choices appears to be on the decline, we actually have to consider a complete fade-out of the class cleavage.

Let us now take a closer look at the western part of the country (see Table 5).

Again, we observe only minor differences between the three basic models. Catholicism and with it the *church-state cleavage* is the strongest predictor of electoral outcome. *Industrial employment* seems not systematically related to a political orientation, as we find no significant coefficients but changing signs. We furthermore find comparable results between the whole nation and the west when it comes to the indicator for the *materialism-postmaterialism cleavage*: The association is weaker than that of the Catholicism variable, but it is nevertheless significant in all three models telling us that green milieus and a leftist electoral tendency are aligned as theoretically expected. Taken together, the considerable similarities between the coefficients for all counties and for the western counties only may result from the large total number of western (n=326) in comparison to eastern counties (n=112).

Again, the election-by-election results largely confirm these findings (see Table 9). The stronger Catholicism and the weaker green milieus the further are regional electorates inclined to the right. With industrial employment we find the same picture as in the whole of Germany, only somewhat more pronounced: The associations between the share of the industrial work force and the ideological inclination of the electorate are negative and significant across all three dimensions in 1998, hinting at a functioning relation between workers and social democracy. This seems to be however only a situational effect for a similar connection cannot be observed in any of the models for 2002 or 2005.

Turning our eyes to the eastern part of the country, we find a different situation (see Table 6).

At a first glance the results for the socio-structural explanations for electoral outcome in the eastern German counties look way more heterogeneous than in the west. The single

**Table 6:** Cleavage structures and left-right orientation in east Germany, 1998 to 2005

Variable	general left-right dimension	economic policy dimension	social policy dimension
Catholicism	0.11* (2.08)	0.14* (2.50)	0.08 (1.72)
industrial employment	0.32** (2.82)	0.33** (2.92)	0.20 (1.83)
Green milieu (education + density)	-0.20 (-1.91)	-0.10 (-0.89)	-0.41*** (-4.21)
F-Test	9.21***	6.96***	14.81***
R <sup>2</sup>	0.22	0.17	0.29
n	111	111	111

*Note:* Dependent variable=*Ideological Centre of Gravity* (ICG) on the respective policy dimension. The reported values are standardised regression coefficients (t-values in parentheses). \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ . For data sources and descriptions, see Table 7 and text. Multicollinearity was tested for by the computation of uncentred variance inflation factors (VIF). In all models we found VIF values markedly below the critical threshold of 10 (Schnell 1994, p. 247). Robust standard errors were calculated to deal with heteroscedasticity. The county Eichsfeld in Thuringia was identified as an outlier by means of a leverage-versus-squared-residuals plot and hence excluded from the analysis.

variables may be consistently associated with a political direction, but none of them is significant across all three dimensions.<sup>17</sup> We find the expected positive relation between the share of the Catholic population and electoral outcomes, but coefficients are significant only for the general and the economic policy dimensions. The in comparison to the west rather weak association might be explained by the specific cultural heritage of the east: Christianity was only nominally tolerated under socialist rule, and church membership, no matter which denomination, implied social disadvantages and bore the stigma of backwardness. The propagated social ideal was that of ‘scientific atheism’. As an effect, we find considerably lower degrees of overall religiousness in the east than in the west (Meulemann 2004, p. 56). This in turn may imply a rather low degree of alignment with rightism also in Catholic dominated counties.

Interestingly, a similar pattern can be observed when it comes to the capital-labour divide, suggesting that with rising shares of factory workers also the electoral orientation towards the right increases. Most notably, the east provides the only consistent (but not entirely significant) evidence for the industrial employment variable – which contradicts the hypothesised relation. Finally the strength of green milieus relates to leftist tendencies, but the coefficient is only significant on the social policy dimension.

<sup>17</sup> It should be noted that the differences in significance levels between the east and the west may, to a certain extent, result from the smaller number of units in comparison to the west and to Germany in total. However, the number of units in the east is still rather large, particularly in comparison to other international and subnational comparative research studies. We thus assume that our interpretation of the statistical results constitutes an adequate picture of the situation in eastern Germany.

Taking the models for the single elections into account (see Table 10), the inconsistency of the picture is corroborated. Most of the signs may point in the directions described above, but the assumption of a continuing long-term alignment of socio-structural groups with political parties cannot be confirmed. Most clearly two of the models for the 2005 election are not significant at all. Only the social policy dimension seems to offer some guidance between the left and the right, but with an explained variance of just 8% the explanatory power of the respective model is still close to 0. Summing up, we agree with Hough and Jeffrey (2004, p. 65) who see two distinct “regional political arenas” in Germany (see also Arzheimer and Falter 2002; Deth 2004; Schmitt 2001; Schoen and Abold 2006). While the traditional cleavages do not cause much of a structural alignment in the east, this part of the country seems to be governed by different dynamics: A general eastern inclination towards the left was discovered in the models for Germany as a whole (Tables 4 and 8) that can be interpreted as the dominating force shaping electoral outcomes in this part of the country. These findings are in line with the observation from Table 2, where the means of the ideological centres of gravity in the east were found between 1.5 to 1.9 points left of the respective values in the west. The most convincing explanation for this outcome is, in our view, the aforementioned claim of an eastern German mentality, one which is based on traditional leftist orientations towards a universal welfare system (Arzheimer and Falter 2005, p. 281; Jesse 2006, p. 33). This in turn can be interpreted as the long shadow of a four decade long socialist regime. As Kitschelt (2003, p. 133) notes, “east German voters are highly averse to market liberalism”, a situation which, according to Kitschelt, provides fertile soil for the socialist PDS and its rhetoric of social protectionism. The persistence of such long-term effects also corresponds well to the relatively weak signs of a western German style of alignment in the east, which can be explained by the communist regime’s efforts to eradicate all traditional forms of political alignment.

It must be pointed out that our conclusions for eastern Germany point to a rather different direction than some of the protagonists of post-communist party system research in eastern Europe suggest. As Whitefield (2002, p. 197) argues, “communist rule did not destroy social identities of class, religion, and ethnicity”. Most explicitly, the author stresses that there is “no clear Leninist legacy in the region. [...] The apparent cleavage structures of many countries in eastern Europe can be compared to those of countries without communist pasts”. Here, the example of Germany is given, alongside France and Austria.<sup>18</sup> Similarly, Evans (2006, p. 262) claims that the “social predictors of party or leader preference [...] largely mirror those found in other, more established democracies.” These statements are, however, not uncontested. Tavits (2005, p. 296), for example, claims that “the communist system effectively worked to erase social cleavages” – a view which aligns much better to ours presented above.

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<sup>18</sup> Including Germany in this list is obviously a contradiction in itself, as Germany clearly *does* have a communist legacy.



## 5 Conclusion

In this article we attempted to approach Lipset and Rokkan's cleavage theory from a regional perspective. We asked whether regional electoral outcome could be predicted from the composition of the regional social structure. For our analysis we modelled regional electoral outcomes in left-right terms by means of Gross and Sigelmann's concept of the ideological centre of gravity. This measure was calculated for all of Germany's 439 counties using election data from the 1998, 2002, and 2005 federal elections. We then tested whether the considerable variation detected in regional left-right orientations was associated with regional accentuations of societal cleavages. To check the consistency of our results we not only used a general left-right dimension, but also an economic and a social policy dimension.

Results from regression analysis suggest that cleavage structures shape electoral outcomes systematically in the German regions. We find a territorial cleavage between the centre and the eastern German periphery to be the strongest predictor of regional left-right orientation. But also the church-state cleavage, measured by the relative strength of Catholicism determines electoral outcome to a large extent, followed by a postmaterialism cleavage. All these relationships hold, no matter which election year is analysed or which dimension is used to locate the parties. The capital-labour divide seems to have played its role only in the 1998 elections, when the social democrats had been absent from power for 16 years. But considering the lack of alignment in the following elections, the 1998 results seem rather a last struggle than a systematic effect. Looking at the two parts of the country, the picture in the west by and large resembles that of the whole of Germany. Its facets are even somewhat more pronounced when it comes to the link between industrial employment and a leftist orientation. Contrarily, eastern electorates seem to be largely guided by the centre-periphery cleavage that finds its expression in a deeply rooted inclination towards a leftist social protectionism. The traditional alignments between socio-structural groups and political parties could only occasionally be observed and are in sum rather weak, so that we have to assume situational and contingent factors to be of higher importance in the east.

The approach and the results presented in this paper give way to at least three concluding remarks: *First*, the relative stability of the results displayed above leaves us with the impression that the social structure plays an important role in shaping electoral outcomes in German regions. The consistency of the statistical relations across the election years seems to tell us that there are considerable middle- and long-term influences that one might interpret as a sign of a normal vote phenomenon (Converse 1966; Pappi and Shikano 2002). *Second*, the consistency of the relations across the three policy dimensions hints at a certain degree of commonality between them. This is not to say that the policy dimensions are completely interchangeable, but rather that they are sometimes hard to separate from each other (Shikano 2008). *Third*, and last of all, the approach of this study, namely to consider electoral outcomes as a function of the macro-societal structure, and not simply as a realisation of a number of individual preferences, might also prove fruitful when applied beyond the subnational context to cross-national analyses of societal cleavage structures.

## Appendix

**Table 7:** Operationalisation of independent variables

<b>Variable</b>	<b>operationalisation</b>	<b>source</b>	<b>expected relation-ship</b>
<i>church versus state cleavage</i>			
Catholicism	percentage of Catholic church tax payers in relation to all income tax payers	Research Data Centres of the Federal Statistical Office and the statistical offices of the Länder (income tax database)	+
<i>capital versus labour cleavage</i>			
industrial employment	percentage of the work force employed in the industrial sector	Federal Statistical Office and statistical offices of the Länder (2006), own calculations	- (left)
<i>materialism versus postmaterlism cleavage</i>			
green milieu (higher education + urbanisation)	additive index combining z-standardised a) shares of work force with higher education degree and b) 1,000 inhabitants per km <sup>2</sup>	Federal Statistical Office and statistical offices of the Länder (2006), own calculations	- (left)
<i>centre versus periphery cleavage</i>			
East-West	dummy variable (West=0; Berlin=0.5; East=1)		- (left)

*Note:* All variables are available for 1998, 2002, and 2005 except for the following exceptions: *Catholicism* – only available for 1998 and 2001. For mean values for the whole period, 2001 was counted twice. For models based on 2002 data, data from 2001 was used. *Higher education* – available yearly, except for 38 counties in Schleswig-Holstein and Thuringia for which the earliest data available stems from 2001. In these 38 cases, higher education figures from 2001 are used in the 1998 analysis.

**Table 8:** Cleavage structures and left-right orientation in Germany (total)

Variable	general left-right dimension		economic policy dimension		social policy dimension	
	1998	2002	1998	2002	1998	2002
Catholicism	0.24*** (13.43)	0.59*** (18.43)	0.35*** (12.35)	0.43*** (18.75)	0.32*** (15.03)	0.70*** (17.05)
industrial employment	-0.03* (-2.00)	0.07** (2.93)	0.02 (0.68)	0.04 (1.95)	-0.02 (-1.15)	0.09** (3.16)
Green milieu (education + density)	-0.16*** (-9.61)	-0.19*** (-7.42)	-0.13*** (-5.38)	-0.10*** (-4.79)	-0.26*** (-13.61)	-0.21*** (-10.39)
East – West	-0.77*** (-41.80)	-0.32*** (-13.55)	-0.63*** (-28.22)	-0.58*** (27.35)	-0.65*** (32.73)	-0.06* (-2.38)
F-Test	1255.83	414.19***	614.58***	659.17***	1015.06***	238.26***
R <sup>2</sup>	0.92	0.79	0.83	0.86	0.89	0.70
n	439	439	439	439	439	439

*Note:* Dependent variable = *Ideological Centre of Gravity (ICG)* on the respective policy dimension. The reported values are standardised regression coefficients (t-values in parentheses). \* p<0.05; \*\* p<0.01; \*\*\* p<0.001. For data sources and descriptions, see Table 7 and text. Multicollinearity was tested for by the computation of uncentred variance inflation factors (VIF). In all models we found VIF values markedly below the critical threshold of 10 (Schnell 1994, p. 247). Robust standard errors were calculated to deal with heteroscedasticity.

**Table 9:** Cleavage structures and left-right orientation in west Germany

Variable	general left-right dimension		economic policy dimension		social policy dimension	
	1998	2002	2005	1998	2002	2005
Catholicism	0.56*** (14.52)	0.67*** (18.01)	0.54*** (12.02)	0.53*** (12.40)	0.70*** (18.58)	0.48*** (9.98)
industrial employment	-0.17*** (-4.00)	0.07 (1.83)	0.00 (0.05)	-0.21*** (-4.60)	0.02 (0.44)	-0.05 (-1.10)
Green milieu (education + density)	-0.43*** (-8.58)	-0.26*** (-6.63)	-0.27*** (-5.42)	-0.31*** (-5.30)	-0.18*** (-4.16)	-0.18*** (-3.34)
F-Test	105.11***	183.26***	72.31***	63.28***	159.09***	40.40***
R <sup>2</sup>	0.49	0.62	0.41	0.36	0.57	0.27
n	326	326	326	326	326	326

*Note:* Dependent variable = *Ideological Centre of Gravity (ICG)* on the respective policy dimension. The reported values are standardised regression coefficients (t-values in parentheses). \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. For data sources and descriptions, see Table 7 and text. Multicollinearity was tested for by the computation of uncentred variance inflation factors (VIF). In all models we found VIF values markedly below the critical threshold of 10 (Schnell 1994, p. 247). Robust standard errors were calculated to deal with heteroscedasticity.

1998 2002 2005 1998 2002 2005 1998 2002 2005

0.56\*\*\* (14.52) 0.67\*\*\* (18.01) 0.54\*\*\* (12.02) 0.53\*\*\* (12.40) 0.70\*\*\* (18.58) 0.48\*\*\* (9.98) 0.53\*\*\* (15.19) 0.63\*\*\* (16.71) 0.48\*\*\* (11.17)

-0.17\*\*\* (-4.00) 0.07 (1.83) 0.00 (0.05) -0.21\*\*\* (-4.60) 0.02 (0.44) -0.05 (-1.10) -0.10\* (-2.24) 0.09\* (2.43) 0.01 (0.20)

-0.43\*\*\* (-8.58) -0.26\*\*\* (-6.63) -0.27\*\*\* (-5.42) -0.31\*\*\* (-5.30) -0.18\*\*\* (-4.16) -0.18\*\*\* (-3.34) -0.53\*\*\* (-11.95) -0.30\*\*\* (-7.83) -0.43\*\*\* (-9.65)

F-Test 105.11\*\*\* 183.26\*\*\* 72.31\*\*\* 63.28\*\*\* 159.09\*\*\* 40.40\*\*\* 155.36\*\*\* 178.05\*\*\* 96.82\*\*\*

R<sup>2</sup> 0.49 0.62 0.41 0.36 0.57 0.27 0.58 0.61 0.49

n 326 326 326 326 326 326 326 326 326

**Table 10:** Cleavage structures and left-right orientation in east Germany

Variable	general left-right dimension		economic policy dimension		social policy dimension	
	1998	2002	1998	2002	1998	2002
Catholicism	0.22*** (4.20)	0.05 (0.96)	0.23*** (4.30)	0.09 (1.42)	0.18*** (3.72)	0.02 (0.44)
industrial employment	0.36*** (3.82)	0.34** (3.20)	0.39*** (4.00)	0.32** (3.06)	0.28** (3.05)	0.30** (2.85)
Green milieu (education + density)	-0.29** (-2.98)	-0.25** (-2.71)	-0.17 (-1.72)	-0.20* (-2.13)	-0.45*** (-4.80)	-0.32*** (-3.39)
F-Test	19.45***	12.92***	16.70***	8.39***	23.26***	18.07***
R <sup>2</sup>	0.37	0.26	0.27	0.21	0.44	0.29
n	111	111	111	111	111	111

*Note:* Dependent variable = *Ideological Centre of Gravity* (ICG) on the respective policy dimension. The reported values are standardised regression coefficients (t-values in parentheses). \*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001. For data sources and descriptions, see Table 7 and text. Multicollinearity was tested for by the computation of uncentred variance inflation factors (VIF). In all models we found VIF values markedly below the critical threshold of 10 (Schneel 1994, p. 247). Robust standard errors were calculated to deal with heteroscedasticity. The county Eichsfeld in Thuringia was identified as an outlier by means of a leverage-versus-squared-residuals plot and hence excluded from the analysis.

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