A Spatial Analysis of Czech Parliamentary Elections, 2006–2013

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Abstract

This article presents a spatial analysis of the parliamentary elections in the Czech Republic between 2006 and 2013. Among most political parties with long-term parliamentary representation, right-wing parties had higher support in areas with a high development potential and left-wing parties in areas with a low development potential. However, similar congruence between electoral support and development potential was not found in the case of most new parties. Spatial regression analyses then show that class conflict has ceased to be the unambiguous primary factor of political competition in the Czech Republic. This finding is further supported by the often inconclusive estimates for most new parties, which showed their ability to mobilise voters from different social classes.

IN CONTRAST TO MANY OTHER CENTRAL AND EASTERN EUROPEAN countries which suffered from marked instability and fluidity in their party politics, the Czech party system was relatively stable and closed during the first two post-communist decades, with low levels of volatility and with the failure of most new political parties to develop (Hloušek & Kopeček 2008; Deegan-Krause & Haughton 2010). Since 1996, political competition in the Czech Republic has been dominated by interactions among four political parties with permanent parliamentary representation. The party system was characterised by the prevalence of a socioeconomic cleavage which had emerged relatively early after 1989. This contributed to the stabilisation of the classic left–right model of political competition, with the right dominated by the liberal-conservative Civic Democratic Party (*Občanská demokratická strana*—ODS) and the left by the Czech Social Democratic Party (*Česká strana sociálně demokratická*—ČSSD). This pair of large parties was accompanied by two medium-sized ones: the Communist Party of Bohemia and Moravia (*Komunistická strana Čech a Moravy*—KSČM) and the Christian Democratic Union–Czechoslovak People's Party (*Křesťanská a demokratická unie–Československá strana lidová*—KDU–ČSL), which also had parliamentary representation since the first democratic election in 1990. In each election, these four were supplemented by other smaller parties, none of which, however, was able to maintain parliamentary representation for more than

two terms (Hloušek & Kopeček 2008, pp. 526–33).[1] The high stability of the Czech party system was also confirmed by studies of political geographers which found a high level of continuity in the spatial patterns of electoral voting support across the country (Pink & Voda 2012a; Bernard & Šimon 2014).[2]

However, as pointed out by Stegmaier and Vlachová (2011, p. 238), the 2010 Czech parliamentary elections resulted in a 'dramatic upheaval to what had been a relatively stable political landscape'. The ODS fell to a historical low and the ČSSD to its worst result since 1992. Compared to 2006, the ODS's vote share dropped by just over 15 percentage points, and the ČSSD experienced a ten-point drop. The KDU–ČSL and the Green Party (*Strana zelených*—SZ) lost parliamentary representation, while two new parties—Tradition, Responsibility, Prosperity 09 (*Tradice, odpovědnost, prosperita 09*—TOP09) and Public Affairs (*Věci veřejné*—VV)—reached the 5% electoral threshold, thus obtaining seats in the Chamber of Deputies, the lower house of the Czech parliament. Even greater changes were brought about by the 2013 early elections (Stegmaier & Linek 2014). Of the two largest parties, the ČSSD won the elections with the lowest gain of a winning party since 1992 and the ODS, as the former main party of the right, achieved as little as 7.72%. After four years, the KDU–ČSL regained parliamentary representation, while VV left the Chamber of Deputies. The KSČM and TOP09 maintained their representation, but another two new parties entered the lower house as well—ANO2011 (*Akce nespokojených občanů 2011*, 'ano' means 'yes' in Czech) and the Dawn of Direct Democracy of Tomio Okamura (*Úsvit přímé demokracie Tomia Okamury*, referred to as 'the Dawn').

The Czech party system thus underwent the kind of 'electoral earthquakes' experienced by some other countries of post-communist Europe in the past two decades, with a considerable increase of volatility.[3] The following questions arise from the results of the last two elections. 'Did the voting patterns change substantially in these elections? And if so, how important are the different explanatory factors for the spatial variation of political preferences, in contrast to past elections?' These questions have been, with regard to past elections, at least partially answered by previous studies (Kostelecký 1994, 2001, 2009). However, most studies of Czech electoral geography interested in the regional variation of party preferences and the determinants of voting decisions are based on the most frequently used statistical modelling approach, OLS regression. The applicability of these studies is thus subject to significant methodological limitations that are associated with specific characteristics of spatial data. Spatially or geographically referenced data are 'special' (Anselin 1988), as they are collected on the basis of, and biased by, identifiable locations or places (Shin & Agnew 2011).

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[1]These were generally smaller, centre-right political parties of liberal orientation, sometimes referred to as 'liberal centre' (Hanley 2011, p. 116; Linek 2012a, pp. 14–5): the Civic Democratic Alliance (*Občanská demokratická aliance*—ODA); the Union of Liberty (*Unie svobody*—US); the Green Party (*Strana zelených*—SZ); or the radical right-wing populist Association for the Republic–Republican Party of Czechoslovakia (*Sdružení pro republiku–Republikánská strana Československa*—SPR–RSČ). For a detailed discussion of the formation of new parties in the Czech Republic, see Hanley (2011).

[2]Some authors also found continuity of some parties' support with their interwar (1920–1935) predecessors (Jehlička & Sýkora 1991), that is, before World War II and the advent of the single-party dictatorship of the communists. In contrast, other studies (with the Czech Republic's municipalities as units of observation) found only very limited historical continuity between voting patterns in the interwar period and the spatial differentiation of election results in the post-communist period (Balík 2006; Maškarinec 2011).

[3]Whereas electoral volatility had been decreasing since the mid-1990s, the 2010 and 2013 elections marked a significant increase in electoral volatility stemming from support for new parties and party switching within the blocs of left-wing and non-left-wing parties (Linek 2014).

In the light of profound changes in the country's political landscape since the 2006 elections, the Czech Republic is a promising case for testing how spatial analysis and spatial regression techniques can complement and extend ecological (that is, aggregate level) analyses of voting behaviour. In this article, we provide a spatial econometric analysis of recent trends in Czech parliamentary elections between 2006 and 2013, thus expanding our understanding of the importance and possible transformation of geographical patterns of voting behaviour. We demonstrate not only considerable geographical variation in election outcomes but also a relatively high degree of spatial autocorrelation among the units of observation. The presence of spatial autocorrelation then produces the effect that the ordinary least squares (OLS) regression coefficients are biased and/or inefficient. For this reason, we employ spatial econometric procedures to control for the influence of spatial effects. Specifically, we use spatial regression models in which spatial interaction is incorporated in the model specifications.

Party voting in the Czech Republic after 1990: early observations and hypotheses

Main determinants of Czech voters' electoral behaviour

After the communist regime was overthrown and free political competition re-established in 1990, Czech politics exhibited a relatively smooth emergence of the left–right axis, which gradually took on a traditional socioeconomic form and became the main structural cleavage of the Czech political spectrum (Vlachová & Matějů 1998; Hloušek & Kopeček 2008). Hloušek and Kopeček (2008), using Rokkan's concept of cleavages (Lipset & Rokkan 1967), argue that the 1992–1996 period was decisive, as the dominance of a socioeconomic cleavage (which reflected the left–right division) was confirmed, while the importance of other cleavages disappeared, with a minor exception of the church–state cleavage that mobilised KDU–ČSL voters. The predominance of the socioeconomic cleavage in party competition (as an indicator of the position of individual parties) then enables us to understand the Czech political space as one-dimensional (Hloušek & Kopeček 2008, pp. 526–29). Likewise, Deegan-Krause and Haughton (2010, p. 237) argue that the stability of Czech party politics (after 1990) was associated with the dominance of the left–right economic division and the abilities of the ČSSD and the ODS (the main parties of the left and right) to occupy one or the other side of this divide. Other studies then proved that the political conflict in the Czech Republic was a class conflict and the different social classes voted for political parties that defended their class interests. For instance, Smith and Matějů (2011) confirmed that while many Western countries had seen declining or stable association between class and electoral choice, class voting had indeed increased in the Czech Republic, particularly from 1998 to 2010. Similarly, Linek and Lyons (2013) confirmed a strengthening effect of social class on voting and an increasing weight of class voting in overall election results, with slightly weakening effects of left–right orientation (especially in the elections of 2006 and 2010).

However, according to Hloušek and Kopeček (2008), in addition to the main socioeconomic cleavage, a new axiological cleavage began taking shape at the end of the 1990s. This cleavage divides two groups of voters: those of a more-or-less liberal persuasion, on one hand, and those with rather state-centred and authoritarian political, cultural and social attitudes, on the other hand. But this emerging cleavage was compatible with the left–right dimension and did not undermine the dominance of the socioeconomic cleavage (Hloušek & Kopeček

2008, pp. 529–30). Similarly, other authors confirmed the two-dimensionality of Czech party competition, although with dominance of the left–right socioeconomic division. Kostelecký (2005) has written about an economic dimension (left against right) and a supplementary non-economic dimension (social libertarianism as opposed to social conservatism). Chytilek and Eibl (2011) found an economic and a social–liberal dimension, and finally, Deegan-Krause and Haughton (2010) even refer to the existence of two smaller, less significant dimensions (axes): an idiosyncratic national–cosmopolitan one and a conservative–liberal one.

Other studies showed that social class did not fully explain voting behaviour; other status determinants include employment sector, income, religiosity (Matějů & Řeháková 1997; Vlachová & Řeháková 2007; Smith & Matějů 2011). Furthermore, studies of political geographers confirmed that differences in the political attitudes of regional populations reflect not only the social and demographic composition of their populations but also contextual variables such as the regional social, political, and economic situation of specific places (Kostelecký & Čermák 2004). Finally, analyses using spatial econometric methods found certain independent effects of contextual variables on voting decisions, namely of two macro-regions—the formerly German-inhabited Sudetenland in parliamentary elections (Kouba 2007), and Moravia in presidential elections (Maškarinec 2013).

In the most comprehensive analysis of Czech voters' behaviour thus far, covering the two decades from 1990 to 2010, Linek and Lyons (2013) demonstrated that electoral competition in the Czech Republic is strongly centred upon party programmes, while party choice is largely based on three cleavages (social class, religion and generational membership) and on the left–right ideological orientation, all of which are reflected in the programmes and in political competition.[4] Thus, while the ODS was predominantly supported by higher-class right-wing voters, the ČSSD was more successful among left-wing voters of lower social classes; the KSČM mobilised voters especially among blue-collar workers, pensioners and the generation born before 1954, who found themselves to the left of ČSSD voters; and finally, the KDU–ČSL constituency was largely dominated by practising Catholics, with all the other factors far behind, and the centrist position of KDU–ČSL voters resulted from the fact that left–right competition was irrelevant to them (Linek & Lyons 2013, pp. 165–67).

Spatial patterns and determinants of voter support for political parties

Individual-level analyses of the links between different social groups and Czech political parties indicated considerable stability of those links throughout the 1990–2010 period. At the same time, the effects of social class on voting in the Czech Republic were steadily strengthening (Linek & Lyons 2013), an important finding given the precisely opposite trend observed at the international level. Similarly, research conducted at the aggregate level indicated that the spatial patterns of electoral support for the different parties were very stable over time and any change between elections was extremely slow (Kostelecký & Bernard 2014, p. 140). Like at the individual level, it was found that socioeconomic factors explained

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[4]The generational and religious cleavages are asymmetrical, only influencing voting for the KSČM and the KDU–ČSL, respectively, while bearing no significance to the other parties (Linek & Lyons 2013, p. 144). If those cleavages ceased to exist, the competition between Czech political parties would become unidimensional (Linek & Lyons 2013, p. 172). However, other studies analysing the demographic structure of the KSČM electoral base proved that the party's parliamentary representation is secured for many years ahead (Linek 2008; Stegmaier & Vlachová 2009).

the largest part of inter-regional differences in electoral support. Kostelecký and Bernard (2014, pp. 141–42) observed a gradually strengthening relationship between socioeconomic structural characteristics and electoral behaviour (or the spatial patterns of electoral support, respectively), and as a result, the territorial distribution of the different parties' constituencies was expected to stabilise over time (Kostelecký 2009, p. 132). In short, right-wing parties were more successful in regions that were better off economically, while left-wing parties won more support in regions with structural problems in the economy (Kostelecký 2009; Bernard & Šimon 2014).

When attempting to outline the spatial patterns of voting support for the main Czech parties, and the factors which influence the inter-regional variation in those patterns, one has to start with a critique of the general belief that the country's territory is divided between right-wing Bohemia and left-wing Moravia.

Indeed, the information value of that belief is extremely limited, which can be exemplified (not only) by the two long-term leaders of the Czech party system. On one hand, the territory of highest support for the right-wing leader, ODS, was centred in the Prague metropolitan area and contiguous parts of central Bohemia, and from there it stretched to a number of contiguous territorial units in north-eastern Bohemia. On the other hand, the party enjoyed considerable support in parts of Moravia as well, yet almost exclusively in some of its largest cities (such as the country's second-ranking city of Brno, Olomouc and Zlín). As additional evidence of the rather urban character of its constituency, the ODS was able to mobilise high electoral support in other major cities of Bohemia as well (České Budějovice in the south, Plzeň in the west, Liberec in the north, and Hradec Králové and Pardubice in the east). In contrast, central and southern Moravia, above all, were among the areas with constantly low support for the ODS (Pink & Voda 2012b; Bernard & Šimon 2014). The logic behind the factors that explained ODS support was also consistent with theoretical assumptions. For a long time, the party's electoral gains were higher in areas with more self-employed people, college graduates, and white-collar workers with higher salaries, while negative influences on its success included high unemployment or widespread Catholicism (Kostelecký 2009; Pink & Voda 2012a; Bernard & Šimon 2014). At the same time, Kouba (2007) found a spatial regime which had an influence on voting decisions, as support for the ODS was considerably higher in inland Czech Republic, relative to the Czech–German borderland (Sudetenland)—the latter being a traditional stronghold of the Communist Party (see below).

Just like voter support for the ODS was not limited to Bohemia, support for the ČSSD was not limited to Moravia. On the one hand, central and northern Moravia (in particular the Moravian–Silesian region) were the long-term centres of high social democratic support. On the other hand, the ČSSD was able to mobilise large constituencies in continuous areas of north-western Bohemia and along the boundary between central and western Bohemia. Analogously, low support for the party was not limited to spatial units in Bohemia (in particular, the Prague metropolitan area, north-eastern Bohemia and southern Bohemia, that is, the core areas of high ODS support), but covered large parts of southern Moravia as well (Pink & Voda 2012b; Bernard & Šimon 2014). Like the ODS, the effects of socioeconomic variables on the left-wing ČSSD tended to strengthen in time, only in the opposite direction. Social democratic voters were mobilised primarily in areas with high unemployment or, conversely, with small populations of the self-employed, college graduates or white-collar workers (Kostelecký 2009; Pink & Voda 2012a; Bernard & Šimon 2014).

While the rough distinction between 'blue' Bohemia and 'orange' Moravia (according to the traditional colours of the ODS and the ČSSD, respectively) is somewhat applicable to the two major parties, it is hardly of any help in the case of the KSČM. Clusters of high and low communist support were found both in Bohemia and in Moravia, and they exhibited high spatial stability compared to other parties, and only KDU–ČSL support was even more stable (see below). Traditionally scattered into several territories, the core units of high KSČM support were all impoverished peripheries, and were mostly found in the country's borderland that had been re-populated by new settlers after World War II (Bernard & Šimon 2014, p. 121). The first cluster of high KSČM support was centred in north-western Bohemia and extended into parts of central Bohemia, the second cluster was in southern Moravia, and the third one in parts of northern Moravia. Areas of low support for the KSČM were similarly scattered and traditionally included the Prague metropolitan area, north-eastern Bohemia and south-eastern Moravia, which were long-term strongholds of the right-wing ODS or the centre-right KDU–ČSL (Pink & Voda 2012b; Bernard & Šimon 2014). The determinants of communist support were largely reminiscent of those applicable to the ČSSD. Above all, there were economic factors, which exhibited a tendency to strengthen in time. The KSČM was traditionally more successful in regions with higher unemployment or lower wages, and its electoral gains were under-average in units with more college-educated or self-employed individuals, but also in ones with more widespread Catholicism. In contrast, starting in 2006, areas with larger Catholic populations yielded more votes for the ČSSD (Kostelecký 2009; Pink & Voda 2012a; Bernard & Šimon 2014). At the same time, analogously to the ODS, support for the KSČM was shaped by a spatial regime. While its right-wing competitor was more successful in inland Czech Republic, support for the KSČM was considerably higher in the formerly German-inhabited Sudetenland. Kouba (2007) traces this effect back to the role of the Communist Party in post-war Czechoslovakia. Voting for the KSČM in Sudetenland is rational insofar as the party strives to preserve the *status quo* and defend the local population against any restitution claims that are occasionally raised by Sudeten German organisations; and it is generational insofar as the KSČM constituency has the oldest age structure of all Czech parties. Thus, Kouba hypothesises that many current KSČM supporters voted for the communists as early as in 1946 and, in addition, an intergenerational transfer of political preferences is taking place in this territory (Kouba 2007, pp. 1032–34).

In contrast to the parties mentioned above, support for the KDU–ČSL was concentrated almost exclusively in one of the Czech Republic's macro-regions, namely Moravia (except small areas in northern Moravia), while the party's electoral success in Bohemia was limited to a minor part of eastern Bohemia. It was especially weak in the region of north-western Bohemia and in parts of north-eastern Bohemia (that is, Sudetenland) (Pink & Voda 2012b; Bernard & Šimon 2014). At the same time, the spatial patterns of KDU–ČSL support largely overlapped with the distribution of the Catholic population throughout the country, and the inter-regional variation of voter support for the party was strongly associated with the Catholicism variable. The strength of that association tended to grow in time, while the effects of other variables were extremely limited and tended to weaken; the KDU–ČSL electoral gains were slightly enhanced by lower unemployment and smaller settlement size (Kostelecký 2009; Pink & Voda 2012a; Bernard & Šimon 2014).

Let us now pay attention to parties with only temporary representation in the Czech Republic's lower chamber. Among these, parties of the so-called 'liberal centre' are especially

relevant to the present analysis. In the case of the two oldest ones (the ODA and the US), highly similar patterns of voter support were observed, with an especially close match between the ODA in 1996 and the US in 1998; and with relatively larger, but still minor differences in the pattern of ODA support in 1992. Both parties' core constituencies were found in and around the country's largest cities, including Prague with its metropolitan area, contiguous areas in central and especially north-eastern (Liberec) and eastern Bohemia (Hradec Králové), and Plzeň, but also some parts of Moravia—Brno as the country's second-largest city, the Vysočina Region, and an area in south-eastern Moravia. In contrast, both centre-right parties obtained the least votes in northern Moravia, a traditional stronghold of the left (Kostelecký 2001; Pink & Voda 2012b). The spatial patterns of ODA and US support largely copied those of the ODS, in terms of better results in units with more college graduates, more self-employed persons, higher purchasing power and lower unemployment. The only difference was that the two minor parties were relatively (considering their lower total vote share) more successful in southern Moravia, central Moravia and Vysočina (Pink & Voda 2012b). Kostelecký (2001, pp. 44–5) characterised the ODA as a party of people 'living in affluent cities' and found a high level of similarity between the factors influencing ODA and US support.

When the Greens obtained parliamentary representation in 2006, the distribution of their electoral support was somewhat different. Like the ODA and the US, the Green Party, too, relied primarily on voters in large cities (the Prague agglomeration, north-eastern and eastern Bohemia, parts of southern Bohemia, Plzeň, and the Brno agglomeration). In contrast to those parties, there was also a large cluster of high SZ support in north-western Bohemia (Kabát & Pink 2006). The structural factors of SZ support were slightly different as well: on the one hand, the party won more votes in areas with more college-educated and self-employed residents, but on the other hand, Catholicism newly emerged as the strongest factor, with considerably worse electoral gains in areas with more Catholics. Pink and Voda (2012a, p. 222) attributed the latter effect to the Greens' position on a number of traditional issues, rather than issues of religion as such.

The list of parties with temporary parliamentary representation is concluded by SPR–RSČ, a radical right-wing populist party of the 1990s. The spatial pattern of its voter support was rather atypical. High support for the SPR–RSČ concentrated almost exclusively on a peripheral area in northern Bohemia which covered the entire north-west and some of the north-east (Pink & Voda 2012b; Bernard & Šimon 2014). In terms of social structure, the party won more votes primarily in regions at risk of social exclusion (Bernard & Šimon 2014, p. 130), which were characterised by larger blue-collar populations, high levels of unemployment and weak Catholicism (Pink & Voda 2012a; Bernard & Šimon 2014). Individual-level analyses of electoral behaviour reached the same conclusion and, in addition, identified above-average support among men, first-time voters and younger people (Kreidl & Vlachová 1999).

Considering the determinants of support for political parties in previous elections and the recent profound changes in the Czech party system that occurred in the elections of 2010 and especially 2013, we have formulated four basic sets of hypotheses:

Hypothesis 1: the considerable decline of support for the two traditionally leading parties (the ČSSD and the ODS) in the elections of 2010 and 2013 results in weaker effects of socioeconomic factors as the main determinants of their success.

Hypothesis 2: in spite of certain changes in electoral support for the KDU–ČSL and the KSČM, the strong rooting of their respective constituencies in asymmetrical cleavages (which is associated with

additional structural variables in the case of the KSČM) results in stable effects of the respective traditional determinants of electoral support for the KDU–ČSL (Catholicism) and the KSČM (socioeconomic factors and age).

Hypothesis 3: since new parties (VV, ANO2011, Dawn) largely mobilised voters by making critiques of traditional parties and were typically marked by ambiguous ideologies, their success will rely to a much lesser extent on the traditional socioeconomic cleavages that used to be the dominant structuring elements of electoral competition in the past. The TOP09 with its relatively clear ideological foundation will be an exception.

Hypothesis 4: support for the new parties (VV, ANO2011, Dawn) is only weakly rooted in geography, and at the same time, it is not shaped by the different regions' socioeconomic structures which used to be decisive for traditional parties. The TOP09 with its clear ideological foundation is an exception because its target constituency was clearly defined in terms of social structure.

Data and methods

Data

This article analyses data on national parliamentary elections from 2006 to 2013. We have decided to use data for the Chamber of Deputies only, as the Czech Republic is a very clear case of asymmetrical bicameralism (Balík *et al*. 2012). There are large differences between the elections to both chambers of the Czech Parliament. While the 200 seats in the Chamber of Deputies are assigned by a proportional system using the D'Hondt method, with open lists in 14 fixed constituencies and a 5% nationwide threshold, the 81 seats in the upper house (the Senate) are distributed through a two-round majority system. Thus in the Chamber elections voters must vote for a party list and their choice better reflects the distribution of voter preferences within the country, than their choice of individual candidates in single-member districts used in the senatorial elections.

Our primary indicator of the political preferences is the percentage of votes achieved by the parties which exceeded the 5% threshold at the level of the Czech Republic's 205 administrative districts of municipalities with extended powers and the capital city of Prague.[5] Since these districts can be considered to be relatively natural regional units, they enable one to appropriately explore detailed geographical patterns of voting behaviour in the Czech Republic. This level of analysis was also chosen for its good explanatory power in terms of territorial unit similarity, and for the relatively simple accessibility of secondary data. At the same time, the majority of studies which analysed Czech general elections (at the aggregate level) have focused entirely on the district level (76 spatial units corresponding with the level of NUTS 4/LAU 1). Nevertheless, as political and administrative units, these districts do not correspond to catchment areas. They contain areas with significantly different territorial patterns of voter support for individual political parties. For these reasons, an analysis operating at the district level may provide a somewhat distorted view of reality, blurring intra-regional differences.

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[5]For a full account of local authorities in the Czech Republic and the basic features of their autonomy, see Pomahač (2013).

The necessity to work at a lower level of aggregation was highlighted also by analyses of the geographical dimension of Czech social inequalities (Feřtová & Temelová 2011; Novák & Netrdová 2011) carried out on smaller territorial units. They conclusively proved that the choice of the district or regional level tends to hide profound intra-regional disparities. On the other hand, according to Musil and Müller (2008), municipalities are not considered fully adequate units of analysis because there is a large number of very small municipalities with extreme variance of selected variables.[6] Therefore, the basic aim of this article is to conduct a spatial analysis of recent trends in Czech elections at a more detailed regional level, specifically with 205 administrative districts of municipalities with extended powers and the capital city of Prague as the units of observation.

Raw electoral results were obtained from the Czech Statistical Office's (CZSO) election server and matched to other demographic and economic data sets at the same level of aggregation.[7] The data sets used for the spatial regression analyses were retrieved from various sources, and included indicators which previous studies (as mentioned above) had shown as the most important predictors of voting behaviour in the Czech Republic. The data set of socioeconomic indicators was compiled from two basic sources: the decennial population census of 2011, and other CZSO statistics.[8] Socioeconomic status as the main source of structural cleavage of Czech politics is expressed as unemployment (proportion of the unemployed population) and the number of self-employed per 1,000 inhabitants. The other independent variables represent the most common bases of stratification: higher education (proportion of people with tertiary education); retirement (proportion of the population aged 65 and over); or contextual variables that characterise the situation of the regional populations: immigration (share of foreigners in the population); urbanisation (proportion of the population living in municipalities with 5,000 or more inhabitants); Sudetenland (dummy variable dividing the territory of the Czech Republic into units whose territory is or is not located in the formerly German-inhabited Sudetenland—value 1, or 0); and Moravia (dummy variable which equals 0 for Bohemia and 1 for Moravia or Silesia).

Methods

Spatial data almost invariably exhibit some form of spatial autocorrelation or spatial dependence, whereby locations in close proximity tend to have more similar attributes than do locations further apart. This violates the basic assumption of the general (aspatial) linear model and many other standard parametric statistical tests, namely that individual observations are independent or uncorrelated with one another, and creates the problem of autocorrelation of errors across territorial units (Cliff & Ord 1981; Brunsdon 2009). Moreover, these spatial patterns can be indicative of the underlying processes and actors that generate them and modify them in time (Fortin & Dale 2009). Another property of many spatial data sets is that

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[6]The settlement and administrative structure of the Czech Republic is extremely fragmented, with a high number of small municipalities. At present, of the total of 6,253 municipalities, 4,829 (77.23%) have fewer than 1,000 inhabitants, but comprise only 17.04% of the population. Similarly, there are 1,461 (23.36%) municipalities with fewer than 200 inhabitants whose population accounts for only 1.73% of the total (CZSO 2012).

[7]The data were obtained from the Czech Statistical Office's Election Server, available at: http://www. volby.cz/, accessed 7 April 2014.

[8]The data were obtained from the Czech Statistical Office's Public Database, available at: http://vdb.czso. cz/vdbvo/en/uvod.jsp, accessed 7 April 2014.

data collection might exhibit spatial heterogeneity or nonstationarity, that is, the processes generating observed attributes might vary over space, rather than being constant as assumed by most traditional types of statistical analysis (Brunsdon *et al*. 1996).

For these reasons, we have used several spatial techniques to control for the influence of spatial effects and analyse the dynamics of Czech party competition between the elections of 2006 and 2013. Our exploration of the spatial structure of electoral support begins with the formal detection of spatial autocorrelation using Moran's *I* statistic, which is now the most commonly used indicator of spatial autocorrelation (Cliff & Ord 1981).[9] The statistic enables the measurement of spatial clustering and identification of spatial clusters and spatial outliers in the studied data set.

However, Moran's *I* is an overall measure of linear association, whose single value is valid for the entire study area. Given the aim of this study is to analyse voting behaviour at a lower level of aggregation in order to identify potentially different patterns of voting behaviour within larger units, a local indicator of spatial association (LISA; or local Moran) was used to obtain more detailed insight into how electoral support was clustered throughout the Czech Republic's territory.

Local Moran's *I* statistics reflect the level and direction of the contribution of each individual observation to the overall global statistic, and can be used for visualising maps of spatial clustering. The mean local Moran's *I* is equivalent to the global Moran's *I* value, since the sum of all local indicators is proportional to the value of the global Moran. A local Moran's *I* statistic is calculated for each observation, and significant values can be mapped to identify cases of positive or negative spatial dependence (high values surrounded by similarly high values, or low values surrounded by similarly low values), or spatial outliers (high values surrounded by low values, or low values surrounded by high values) (Anselin 1995). Our maps present the units with significant values falling into two quadrants of the Moran diagram of dispersion: the positive–positive values are marked with dark grey and the negative–negative with light grey.[10]

The local Moran's *I* statistic is useful especially for descriptive analysis of the given phenomenon, while at the same time detection of spatial autocorrelation in a data set has implications for other statistical techniques (especially for regression analysis). Therefore, there is a reason to use methods which are able to counter the effects of spatial structure in the data set as well as the contamination of the error term with spatial autocorrelation. A spatial interaction therefore will be integrated in the regression model specifications by means of two spatial econometric strategies, the so-called 'spatial lag' and 'spatial error' models (Anselin 2002).

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[9]The values of Moran's *I* fall between −1.0 and +1.0, with high negative values indicating strong negative spatial autocorrelation, high positive values indicating the presence of positive autocorrelation, and 0 indicating a random pattern. In other words, if high values for one unit are accompanied by high values for the neighbouring unit (or if there are adjacent areas with low values), there is positive spatial autocorrelation or spatial clustering. Conversely, if there are places with low values surrounded by areas with high values (or *vice versa*), there is negative spatial autocorrelation, which further allows us to identify spatial outliers as cases of spatial randomness of the given phenomenon.

[10]However, it is important to say that the value of the Moran's *I* statistic (both global and local) does not indicate statistical significance. To reject the null hypothesis of no spatial autocorrelation, the statistical significance of the global and local Moran's *I* values thus will be verified using conditional randomisation (that is, the permutation approach (Anselin 1995)).

Results

Spatial clustering of electoral support

A pioneering spatial analysis of the clustering of support for Czech political parties in the elections between 1990 and 2006 shows that the different parties' electoral support was considerably regionally structured and concentrated in specific regions (Kouba 2007). Overall, with the exception of the KSČM, districts with high or low values of spatial autocorrelation were centred either in Bohemia (the ODS and the SZ) or in Moravia (the KDU–ČSL and the ČSSD). At the same time there was a relatively high variation of Moran's *I* values not only between the parties, but also between elections for each of the parties.

The two most recent parliamentary elections in 2010 and 2013 strongly destabilised Czech party politics at the systemic level by changing the relative strength of the different parties (see Table A1 in the Appendix). Nevertheless, there was no major transformation of existing patterns of global spatial clustering of electoral support (see Table 1). As in the past, the highest levels of spatial autocorrelation of electoral support were exhibited by the KDU–ČSL (0.698), followed by the TOP09 (0.651) and the ČSSD (0.595). Only slightly lower levels of spatial autocorrelation were observed for the ODS and the Dawn (0.591 and 0.526, respectively). Thus, despite losing almost three-quarters of votes since 2006, the ODS as the formerly strongest right-wing party did not experience any major change in the global pattern of clustering of electoral support. Like in the preceding elections, the lowest level of spatial autocorrelation of all parties with permanent parliamentary representation was enjoyed by the KSČM (0.485); (all preceding values apply to the year 2013). However, the lowest level of regionalisation of electoral support was identified for some of the new parliamentary parties: the VV (in 2010, 0.403) and the ANO2011 (in 2013, 0.456). The latter became the second strongest party of the Czech political system after the 2013 elections.

The added value of spatial analysis lies not 'only' in demonstrating the existence of spatial autocorrelation but, more importantly, in identifying areas with different patterns of spatial autocorrelation in order to tell whether the distribution of electoral support is structured

TABLE 1
MORAN'S *I* SCORES FOR SELECTED PARTIES, 2006–2013

	2006	2010	2013
ČSSD	0.632	0.596	0.595
ODS	0.647	0.557	0.591
KSČM	0.494	0.438	0.485
KDU–ČSL	0.677	0.724	0.698
SZ	0.571	0.403	0.426
TOP09		0.572	0.651
VV		0.454	
ANO2011			0.456
Dawn			0.562

Notes: All values are significant at the *p*<0.001 level. ČSSD—Czech Social Democratic Party (*Česká strana sociálně demokratická*); ODS—Civic Democratic Party (*Občanská demokratická strana*); KSČM—Communist Party of Bohemia and Moravia (*Komunistická strana Čech a Moravy*); KDU–ČSL—Christian Democratic Union–Czechoslovak People's Party (*Křesťanská a demokratická unie–Československá strana lidová*); SZ—Green Party (*Strana zelených*); TOP09—Tradition, Responsibility, Prosperity 09 (*Tradice, odpovědnost, prosperita 09*); VV—Public Affairs (*Věci veřejné*); ANO2011 (*Akce nespokojených občanů 2011*); Dawn—Dawn of Direct Democracy of Tomio Okamura (*Úsvit přímé demokracie Tomia Okamury*).
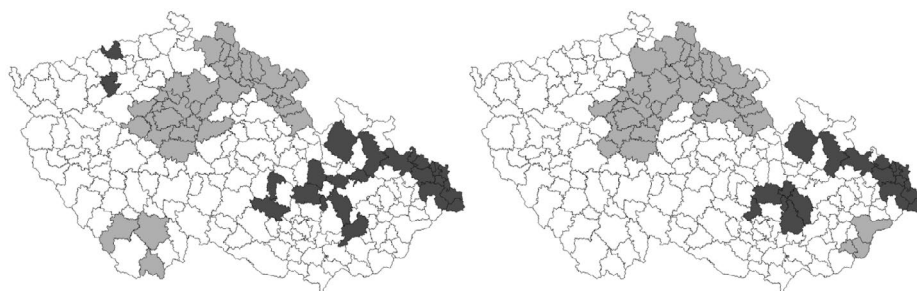
FIGURE 1. MORAN'S *I* CLUSTER MAPS FOR THE DISTRIBUTION OF SUPPORT FOR THE ČSSD, 2006/2013.
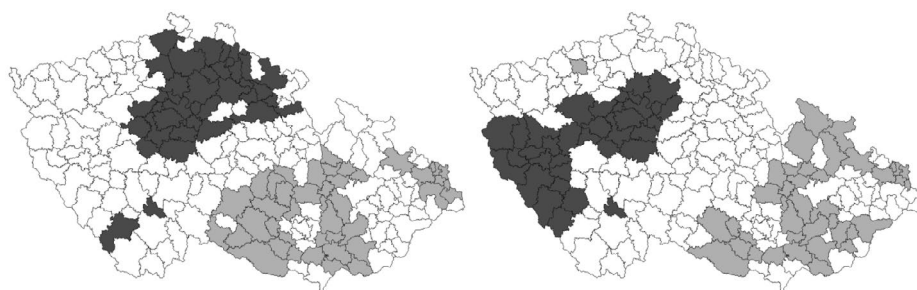*Source:* Created by the author.

FIGURE 2. MORAN'S *I* CLUSTER MAPS FOR THE DISTRIBUTION OF SUPPORT FOR THE ODS, 2006/2013.
Source: Created by the author.

spatially and concentrated into specific regions. This is well illustrated on the clustering of electoral support for the two historically strongest Czech parties between 2006 and 2013, which underwent divergent developments (not indicated by the global Moran's *I* statistic). In spite of losing more than one third of votes between the elections of 2006 and 2013, the ČSSD did not exhibit any major changes in the spatial pattern of electoral support (see Figure 1). Clusters of high support for the party remained in central and northern Moravia (especially in the industrial agglomeration of Ostrava/Karviná/Frýdek-Místek). Similar stability was observed for clusters of low support which were centred in the Prague area and extended through central Bohemia to north-eastern and eastern Bohemia. The trend of declining support for the ČSSD was accompanied by a gradual growth of homogeneity in the entire area of low support. This suggests that support for the Social Democrats slowly became limited to their traditional core constituency (still quite a large one, compared to the ODS), while the new parties obtained votes from many rather centrist voters who had supported the ČSSD in previous elections (especially in 2006 when a strong ODS–ČSSD bipolarity characterised the Czech party competition).

   In contrast, the dramatic decline of electoral support for the ODS, which became the second smallest parliamentary party after the elections of 2013, was accompanied by major changes in the spatial distribution of its constituency (see Figure 2). Between 1990 and
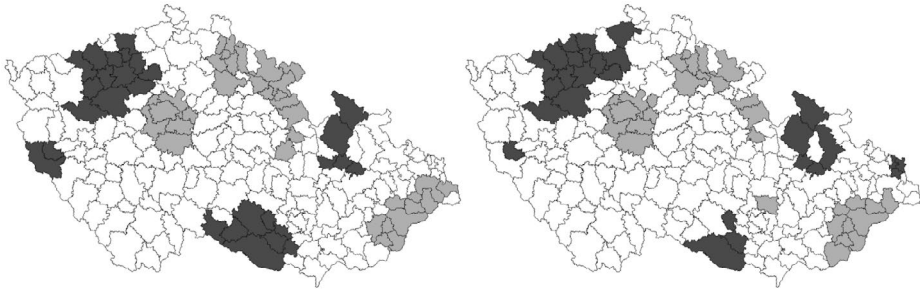
FIGURE 3. Moran's *I* Cluster Maps for the Distribution of Support for the KSČM, 2006/2013.
Source: Created by the author.

2006, the main stronghold of right-wing voters consisted in the Prague agglomeration and a number of contiguous territorial units to the north-east and east. By 2010, large parts of north-eastern and eastern Bohemia were lost. This trend continued and by 2013, the Prague-centred cluster of units of high support for the ODS no longer continued to the north-east and east, but mostly shifted to western Bohemia. Subject to some simplification, the distribution of high electoral support for the ODS indicates the continuity of its primarily 'Bohemian' identity. This is well illustrated by the fact that most regional clusters of low support were concentrated in Moravia throughout the time period of observation (besides a few units in north-west Bohemia). As an exception, the second largest city of the country, Brno, and its immediate surroundings were the only areas of Moravia where the ODS was successful in the long term. Overall, despite these changes in the spatial patterns of its electoral support, the ODS retained its urban voter appeal, as evidenced by its high vote share in cities such as Prague, Brno or the western Bohemian Plzeň. Its success in western Bohemia, as the only region alongside Prague where it won more than 10% of the vote, can be primarily ascribed to the personality of its election leader in that region, Deputy Chairman Jiří Pospíšil, one of the most trusted Czech politicians in the long term.[11]

The KSČM was one of the few Czech parties that enjoyed long-term support both in Bohemia and in Moravia. The maps (see Figure 3) indicate a high level of stability in the clustering of communist electoral support, with a large continuous area of high support in most of north-west Bohemia (that is, part of the Sudetenland populated mostly by Germans until the end of World War II) and some parts of central Bohemia. This area was somewhat reduced in 2010 when the party achieved its second lowest electoral gain since 1990. Higher concentration of KSČM voters was also identified in western Bohemia, along the German border (especially in 2010), and in major continuous areas of high support that are traditionally found in parts of southern and northern Moravia. In the 2013 elections, the party obtained additional support in north-eastern Moravia, namely in the industrial agglomeration of Ostrava/Karviná/Frýdek-Místek, formerly an area of rather low communist support; this can be explained by losses of the ČSSD in this area. In contrast, the territories in which the KSČM traditionally fails to mobilise voter support consist of the larger Prague area and extensive

[11]In the election year of 2013, Jiří Pospíšil ranked third on the list of most trusted Czech politicians. Higher levels of trust among voters were only enjoyed by TOP09 Chairman Karel Schwarzenberg and ČSSD Chairman Bohuslav Sobotka (Kunštát 2013).
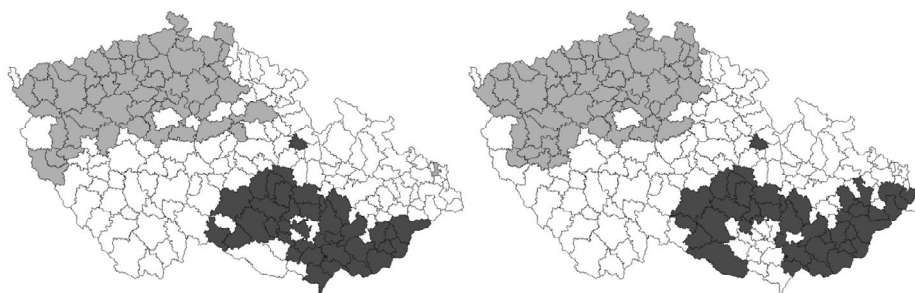
FIGURE 4. Moran's *I* Cluster Maps for the Distribution of Support for the KDU–ČSL, 2006/2013.
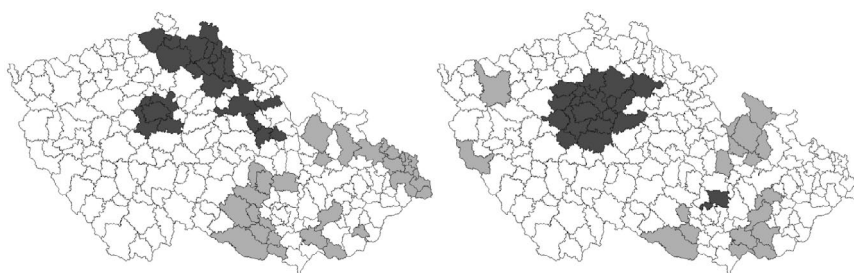*Source:* Created by the author.

FIGURE 5. Moran's *I* Cluster Maps for the Distribution of Support for the SZ, 2006/2013.
Source: Created by the author.

parts of eastern and north-eastern Bohemia, including a portion of Sudetenland, otherwise a stronghold of the party. An important cluster of units with low support for the KSČM is also found in eastern Moravia and the Brno agglomeration.

The KDU–ČSL definitely has the most stable regionalised electoral support. The party's inter-regional electoral base reflects its anchoring in the Catholic *milieu*, spatially bounded mainly in the area of southern Moravia (see Figure 4). In contrast, its electoral gains are minimal in extensive parts of Bohemia, except for areas with relatively larger Catholic populations in southern Bohemia and in some parts of central and north-eastern Bohemia. This spatial pattern of electoral support changed little in the elections of 2010 and 2013. In 2010, the KDU–ČSL (one of the country's oldest political parties, founded in 1918) lost all its seats in the Chamber of Deputies for the first time in more than 100 years, only to regain parliamentary representation three years later.

The Czech Republic was one of a few exceptions in the post-communist region where Greens obtained parliamentary representation (if only for a single term). Major changes in the magnitude of clustering of electoral support for the Green Party were suggested by the values of Moran's *I* and confirmed by LISA maps (see Figure 5). SZ's electoral success in 2006 was based on its high popularity in the Prague area and in north-eastern Bohemia; in 2010, these were joined by a small number of units in north-western Bohemia; however, in 2013, clusters of high support for the SZ were limited to Prague with surrounding parts of
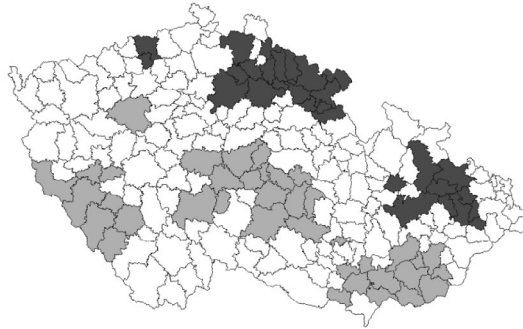
FIGURE 6. Moran's *I* Cluster Maps for the Distribution of Support for the VV, 2010.
Source: Created by the author.

central Bohemia, the area of Brno, the second largest city of the country, and some other big (university) cities (České Budějovice, Hradec Králové, Pardubice, Ústí and Labem). Lower support was observed in Moravia, except for its largest cities (Brno, Olomouc). These findings suggest that inter-regional support for the SZ gradually transformed to match the party's core constituency among college-educated inhabitants of the largest Czech urban areas, that is, a social group to which the Green postmaterialist agenda is likely to appeal the most.

People's dissatisfaction with established political parties grew gradually since 2000 (see, for instance, Linek's (2010) discussion of the sources of Czech citizens' political dissatisfaction/alienation) and became fully manifest in the parliamentary elections of 2010 when two new parties joined the Chamber of Deputies. The global Moran's *I* value showed greater regionalisation of voter support for the TOP09, as a right-wing conservative party with liberal economic views, while the opposite was true for the VV classified by some authors as a populist or business firm party (Havlík & Hloušek 2014). However, this conclusion is not fully supported by maps of local spatial autocorrelation because the local clusters of VV support (see Figure 6) were similar in size as those of the TOP09 (see Figure 7). At the same time, these two parties were mostly successful in different territories (except for parts of north-eastern and eastern Bohemia). The TOP09 joined the group of political parties that generally score higher in Bohemia. Clusters of high support for the TOP09 are concentrated in the Prague area and the (especially in 2013) contiguous areas of north-eastern and eastern Bohemia. Low voter support for the TOP09 was recorded in north-western Bohemia and especially in most of Moravia, except for some major urban areas (Brno and Zlín, and also Olomouc in 2013). Thus, the territorial patterns of TOP09 support are largely identical with those of minor centre-right parties with short-term parliamentary representation between 1992 and 2006 (the so-called 'liberal centre', especially the ODA and the US).

In contrast, the VV was similar to the KSČM in that its clusters of high or low support were not limited to either Bohemia or Moravia. The VV, too, obtained many votes from Sudetenland; yet it was more successful in the traditionally rather right-wing regions of north-eastern and eastern Bohemia as well as, to some extent, in the rather left-wing areas of north-western Bohemia and northern Moravia, while the KSČM won more support in north-western Bohemia. Low VV support was, too, distributed between several regions both in Bohemia and in Moravia. We thus can conclude that support for the VV was relatively weakly
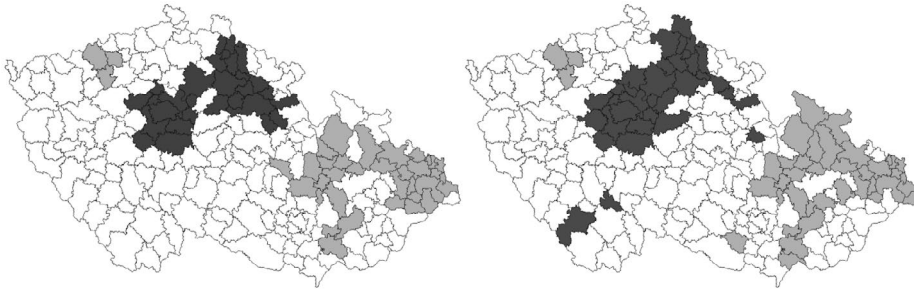
FIGURE 7. MORAN'S *I* CLUSTER MAPS FOR THE DISTRIBUTION OF SUPPORT FOR THE
TOP09, 2010/2013.
Source: Created by the author.
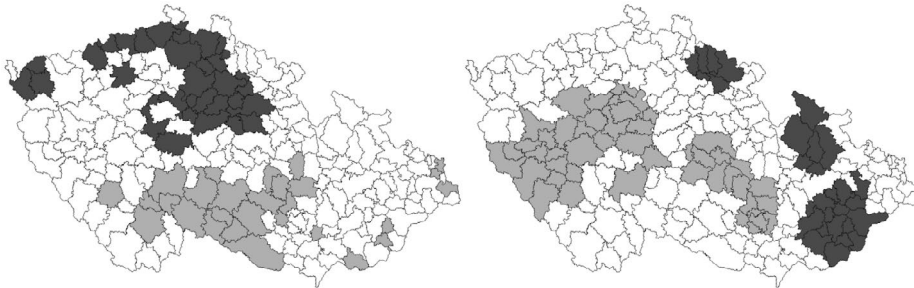
FIGURE 8. MORAN'S *I* CLUSTER MAPS FOR THE DISTRIBUTION OF SUPPORT FOR ANO2011
AND THE DAWN, 2013.
Source: Created by the author.

rooted in geography, as its constituency was relatively indistinct. While the concentration of TOP09 support in certain regions allowed us to hypothesise that the patterns of TOP09 support were linked to the same socioeconomic structures as those of the 'liberal centre', any such links between electoral geography and socioeconomic structures were extremely limited in the case of the VV.

The parliamentary elections of 2013 did not bring back what used to be a stable system of party politics in the Czech Republic. The position of the second largest party was taken by the ANO2011 of Andrej Babiš, one of the country's wealthiest entrepreneurs. The spatial patterns of its electoral support (see Figure 8) were analogous to those of most Czech parties, with a stronghold in one part of the country (northern, eastern and central Bohemia); however, in contrast to traditional parties, the territory of high ANO2011 support comprised a mixture of areas inclined to the right (central, north-eastern and eastern Bohemia) and to the left (north-western Bohemia). The ANO2011 was much weaker in southern Bohemia and the weakest in southern and central Moravia, especially along the border with Bohemia (these were typically areas of high support for the KDU–ČSL). Also interestingly, its extremely weak results in the two largest cities with traditionally strong right-wing constituencies (Prague and Brno) suggest that the link between ANO2011's electoral geography and the socioeconomic structures of the different regions was rather weak (in contrast to traditional parties but similarly to the VV and the Dawn, see below).

Unlike ANO2011, support for the Dawn, the other Chamber of Deputies newcomer, was not as clearly divided between Bohemia and Moravia (see Figure 8). The movement obtained many votes in eastern Moravia, the same region where its chairman, Tomio Okamura, had been elected Senator in 2012. Other clusters of high support for the Dawn were located in north-western Moravia and, to a lesser extent, in eastern Bohemia (additional units of high support existed in north-western Bohemia but those were not clustered continuously). In contrast, the Dawn obtained very little support in a large cluster of units extending from central Bohemia (including Prague) to the country's western border, as well as in some parts of the Bohemian–Moravian borderland and central Moravia (including the city of Brno). Overall, the Dawn was able to obtain votes both in typically left-wing and in typically right-wing regions. However, with the rare exception of the above-mentioned eastern Moravia, its results were very weak in the country's largest cities, suggesting that support for the movement was rooted in the context of small towns and rural areas.

Determinants of inter-regional electoral support for Czech political parties

The global and local Moran's *I* values for electoral support clearly show that the results from individual units are autocorrelated. For that reason, we use spatial regression to analyse the relationship between electoral support and selected independent variables. A spatial error model was selected as spatial diagnostic tests (unreported) indicated its preference over a spatial lag model. Its results will be compared with the results of global OLS regression.

A basic comparison of the regression models (see Tables 2–8) indicates that the spatial error models explain higher amounts of total variance than the global OLS models. On the other hand, as pointed out by Anselin (2005), the output of the spatial model is not real variance, but a so-called pseudo-R^2, which is not directly comparable with the measure given for the OLS results. Proper measures of goodness of fit for the spatial models include the Log-likelihood, the Akaike information criterion (AIC) and the Schwarz criterion (BIC).[12] If we compare the resulting values, we can notice that all spatial error models meet these criteria, suggesting an improvement of fit. The spatial error model would thus seem a more reliable tool to verify the examined relationships than the traditional method of OLS.

Interesting information was obtained by comparing the regression models for the two historically strongest Czech political parties. First, although the ČSSD lost one third of its voters between the elections of 2006 and 2013, the factors explaining the territorial patterns of its support have been highly stable (see Table 2). As expected, throughout the time period, the party obtained more votes from areas with higher percentages of seniors and lower percentages of college graduates (for instance, in 2013, the estimates from the spatial regression model for these independent variables were 0.405 and –0.334, respectively);[13] and fewer votes in areas with higher numbers of immigrants (in 2013, –0.171). At the same time, the decline of electoral support for the ČSSD in 2010 was accompanied by substantial weakening of the

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[12]These measures are based on the assumption of multivariate normality and a corresponding likelihood function for the standard regression model. The higher the Log-likelihood, the better the fit. The direction is opposite for the information criteria, and the lower the measure, the better the fit (Anselin 2005).

[13]The results of each regression model are indicated by unstandardised regression coefficients (*B*). Measuring the effect of an independent variable on the dependent variable when controlled for all other variables, *B* tells us how much the dependent variable changes per unit change in the independent variable. In the case of dummy variables, *B* tells us how a party's average electoral support in a given territory increases or decreases relative to the rest of the country. To improve the text's flow, only the spatial regression estimates are stated in brackets.

TABLE 2
EFFECTS ON VOTING FOR THE ČSSD, 2006–2013 PARLIAMENTARY ELECTIONS

	Spatial error model			OLS		
	2006	2010	2013	2006	2010	2013
Constant	39.054	28.833	26.927	40.793	33.554	30.539
	(2.593)	(2.497)	(2.375)	(3.019)	(2.969)	(2.820)
Self-employment	–0.124	–0.124	–0.099	–0.172	–0.173	–0.153
	(0.019)	(0.017)	(0.017)	(0.019)	(0.017)	(0.017)
Unemployment	0.141	0.024	–0.025	0.181	–0.013	–0.095
	(0.077)	(0.073)	(0.075)	(0.080)	(0.088)	(0.088)
Higher education	–0.270	–0.361	–0.334	–0.120	–0.257	–0.210
	(0.093)	(0.091)	(0.084)	(0.105)	(0.108)	(0.101)
Retirement	0.384	0.512	0.405	0.506	0.474	0.503
	(0.128)	(0.120)	(0.114)	(0.152)	(0.147)	(0.141)
Immigration	–0.197	–0.160	–0.171	–0.273	–0.117	–0.091
	(0.119)	(0.112)	(0.106)	(0.122)	(0.117)	(0.112)
Urbanisation	0.022	0.016	0.018	0.015	0.010	–0.004
	(0.009)	(0.009)	(0.008)	(0.011)	(0.010)	(0.010)
Moravia	1.971	1.874	1.426	1.790	2.275	2.173
	(0.812)	(0.801)	(0.779)	(0.537)	(0.546)	(0.508)
Sudetenland	0.440	0.653	0.116	–0.640	–0.117	–0.415
	(0.512)	(0.476)	(0.452)	(0.531)	(0.510)	(0.489)
Lambda	0.691	0.720	0.737			
	(0.060)	(0.057)	(0.452)			
Log-likelihood	–453.058	–440.585	–430.070	–484.461	–476.335	–467.702
AIC	924.116	899.170	878.140	984.922	970.670	953.404
BIC	954.067	929.121	908.091	1,014.870	1,000.620	983.355
N	206	206	206	206	206	206
R-squared	0.774	0.772	0.740	0.657	0.632	0.568

Note: Standard errors in parentheses.

effects of economic variables. In 2006, the party was more successful in areas with lower levels of self-employment and higher levels of unemployment (–0.124 and 0.141, respectively); the effects of self-employment diminished in 2013 (–0.099); the effects of unemployment diminished as early as in 2010 (0.024), and their direction was reversed in 2013 (–0.025). Urbanisation continued to have weak positive effects.

Support for the ČSSD was enhanced by both contextual variables, especially Moravia (in 2013, 1.426). In 2013, its gains in Sudetenland were only slightly higher than in the rest of the country (0.116, compared to 0.653 in 2010). However, this development was in line with trends in the spatial distribution of support for the ČSSD in Sudetenland. Its overall vote share in Sudetenland gradually declined (especially in north-western Bohemia) when a part of its voters shifted mainly to the new parties, which were highly successful in different parts of the territory. This finding once again proves that the spatial model is preferable to OLS, in which the effects of the variable were negative. Overall comparison of the spatial and OLS models shows changes only in the magnitude of effects for most variables, with the exception of Sudetenland and unemployment (only in 2010, with very low effects).

Analogously to the ČSSD, the ODS experienced a decline of electoral support in the context of weakening effects of economic variables. The direction of these relationships was in line with expectations in both the spatial and the OLS model (see Table 3). The electoral gains of the ODS were higher in areas with more college-educated or self-employed persons, and lower in areas with higher unemployment or more seniors. The effects of these variables

TABLE 3
EFFECTS ON VOTING FOR THE ODS, 2006–2013 PARLIAMENTARY ELECTIONS

	Spatial error model			OLS		
	2006	2010	2013	2006	2010	2013
Constant	23.034	14.240	6.183	23.476	16.196	7.102
	(3.022)	(2.190)	(1.280)	(3.401)	(2.318)	(1.421)
Self-employment	0.105	0.0833	0.010	0.152	0.099	0.007
	(0.022)	(0.015)	(0.009)	(0.021)	(0.014)	(0.008)
Unemployment	–0.348	–0.203	–0.123	–0.136	–0.195	–0.109
	(0.089)	(0.065)	(0.041)	(0.090)	(0.069)	(0.044)
Higher education	0.734	0.327	0.197	0.683	0.324	0.212
	(0.108)	(0.081)	(0.046)	(0.118)	(0.084)	(0.051)
Retirement	–0.261	–0.209	–0.001	–0.728	–0.446	–0.042
	(0.149)	(0.107)	(0.062)	(0.171)	(0.115)	(0.071)
Immigration	0.031	–0.019	0.048	0.313	0.029	0.157
	(0.139)	(0.096)	(0.057)	(0.137)	(0.091)	(0.057)
Urbanisation	0.025	0.005	–0.004	0.042	0.010	–0.014
	(0.011)	(0.008)	(0.005)	(0.012)	(0.008)	(0.005)
Moravia	–4.904	–2.088	–1.947	–6.167	–1.994	–1.856
	(0.985)	(0.546)	(0.355)	(0.605)	(0.426)	(0.256)
Sudetenland	0.975	–0.222	–0.088	1.594	–0.504	–0.121
	(0.594)	(0.409)	(0.242)	(0.598)	(0.398)	(0.246)
Lambda	0.718	0.510	0.617			
	(0.057)	(0.079)	(0.069)			
Log-likelihood	–484.939	–411.716	–301.682	–508.027	–425.310	–326.490
AIC	987.877	841.433	621.364	1,034.050	868.620	670.980
BIC	1,017.830	871.384	651.314	1,064.010	898.571	700.931
N	206	206	206	206	206	206
R-squared	0.839	0.718	0.700	0.770	0.658	0.582

Note: Standard errors in parentheses.

were very strong (and clearly the strongest for higher education) in the elections of 2006, weaker in 2010 and even weaker in 2013, with almost no effects of age structure (–0.001 in 2013, compared to –0.261 in 2006) and self-employment (0.010 in 2013, compared to 0.105 in 2006), and four times weaker effects of higher education as the traditionally strongest indicator of increased support for the ODS (0.197 in 2013, compared to 0.734 in 2006).

While the results confirmed earlier indications of lower support for the ODS in Moravia, the overall reduction of the party's constituency also led to much weaker effects of the contextual variable (–1.947 in 2013, compared to –4.904 in 2006). Also of interest are the findings about the other contextual variable, Sudetenland. Compared to Kouba's (2007) study, we worked at a lower level of aggregation. This reversed the direction of the effects of Sudetenland in the 2006 elections (0.975), that is, increased support for the ODS compared to the rest of the country. In contrast, the effects of Sudetenland on electoral support for the ODS were negative in 2010 (–0.222) and slightly negative in 2013 (–0.088). This shows us that in order to achieve its high electoral gain in 2006, the party had to obtain substantially more votes in areas where it is traditionally rather weak (such as, north-western Bohemia with its high unemployment and lower levels of education) which reversed the direction of the variable's effects. Other variables (urbanisation, immigration) had only limited effects on electoral support for the ODS. In two cases, the spatial model identified effects in the other direction than the OLS model, but overall, it identified weaker, sometimes much weaker, effects of the different variables. Finally, it is precisely the elimination of Sudetenland effects that testifies

TABLE 4
EFFECTS ON VOTING FOR THE KSČM, 2006–2013 PARLIAMENTARY ELECTIONS

	Spatial error model			OLS		
	2006	2010	2013	2006	2010	2013
Constant	18.375	16.231	23.367	19.980	15.522	23.363
	(2.266)	(2.214)	(2.534)	(2.859)	(2.564)	(2.873)
Self-employment	−0.053	−0.064	−0.085	−0.070	−0.074	−0.110
	(0.016)	(0.015)	(0.018)	(0.018)	(0.015)	(0.017)
Unemployment	0.264	0.248	0.320	0.227	0.300	0.442
	(0.067)	(0.065)	(0.081)	(0.075)	(0.076)	(0.089)
Higher education	−0.318	−0.269	−0.339	−0.360	−0.276	−0.277
	(0.080)	(0.081)	(0.091)	(0.100)	(0.093)	(0.103)
Retirement	0.113	0.168	0.076	0.197	0.283	0.178
	(0.110)	(0.107)	(0.123)	(0.144)	(0.127)	(0.144)
Immigration	−0.072	−0.009	−0.014	0.283	0.180	0.088
	(0.103)	(0.099)	(0.113)	(0.115)	(0.101)	(0.114)
Urbanisation	−0.014	−0.018	−0.010	−0.040	−0.036	−0.025
	(0.008)	(0.008)	(0.009)	(0.010)	(0.009)	(0.010)
Moravia	0.208	−0.038	−0.243	0.477	−0.034	−1.017
	(0.805)	(0.680)	(0.748)	(0.508)	(0.471)	(0.517)
Sudetenland	0.558	0.856	1.172	0.228	0.340	0.635
	(0.446)	(0.422)	(0.481)	(0.503)	(0.440)	(0.498)
Lambda	0.778	0.689	0.665			
	(0.049)	(0.061)	(0.063)			
Log-likelihood	−426.067	−415.487	−442.765	−472.235	−446.073	−471.561
AIC	870.134	848.974	903.531	962.469	910.146	961.122
BIC	900.085	878.924	933.482	992.420	940.097	991.073
N	206	206	206	206	206	206
R-squared	0.697	0.663	0.705	0.442	0.490	0.565

Note: Standard errors in parentheses.

to the above-mentioned change in the patterns of voter support for the ODS. The party lost an extremely large part of the support it had enjoyed in north-eastern and eastern Bohemia in 2010 (and in north-western Bohemia until 2006). The fact that the former two regions currently exhibit relatively higher (positive) values of economic indicators may further explain the weaker effects of economic variables on ODS support in 2013.

In the context of post-communist Europe, the KSČM is an exception for two reasons: its unreformed communist identity (Balík 2005) and its ability to repeatedly win support of a large part of the electorate. In this way, the party has been able to influence the ways the party system worked continuously since the fall of the old regime in 1990. Comparison of both regression models (see Table 4) confirms a strong spatial stability of electoral support for the KSČM, especially in areas with lower education and higher unemployment (for instance, 0.264 in 2006 compared to 0.320 in 2013 for unemployment). Support for the party is associated negatively with higher numbers of self-employed persons and positively with higher numbers of seniors. While the effects of self-employment were relatively low throughout the time period of observation (for instance, −0.085 in 2013), the effects of the retirement variable continued to be relatively strong (0.168 in 2010) until the elections of 2013 (0.076). This inspires us to hypothesise that future electoral success of the KSČM does not necessarily depend on the older cohorts of voters with nostalgic memories of the old regime (Linek 2008; Stegmaier & Vlachová 2009). Indeed, the declining effect of the retirement variable suggests that the party has been able to mobilise more voters than during previous elections in regions with more young people.

TABLE 5
EFFECTS ON VOTING FOR THE KDU–ČSL, 2006–2013 PARLIAMENTARY ELECTIONS

	Spatial error model			OLS		
	2006	2010	2013	2006	2010	2013
Constant	5.363	3.538	5.185	4.793	1.230	5.244
	(2.936)	(2.396)	(2.861)	(3.448)	(2.890)	(3.359)
Self-employment	0.056	0.027	0.044	0.048	0.037	0.052
	(0.021)	(0.017)	(0.020)	(0.021)	(0.017)	(0.020)
Unemployment	−0.054	0.015	−0.102	−0.235	−0.075	−0.322
	(0.087)	(0.069)	(0.091)	(0.091)	(0.086)	(0.105)
Higher education	−0.194	−0.160	−0.130	−0.220	−0.169	−0.207
	(0.105)	(0.086)	(0.101)	(0.120)	(0.105)	(0.120)
Retirement	0.046	0.040	−0.013	0.238	0.182	0.106
	(0.144)	(0.113)	(0.010)	(0.174)	(0.143)	(0.168)
Immigration	0.032	0.101	0.079	−0.406	−0.252	−0.347
	(0.135)	(0.106)	(0.128)	(0.139)	(0.114)	(0.134)
Urbanisation	−0.033	−0.017	−0.014	−0.026	−0.017	−0.004
	(0.011)	(0.008)	(0.010)	(0.013)	(0.010)	(0.012)
Moravia	3.796	2.240	4.100	5.106	4.647	5.557
	(0.967)	(0.858)	(0.948)	(0.613)	(0.531)	(0.605)
Sudetenland	−2.125	−1.499	−1.833	−1.978	−1.536	−1.800
	(0.580)	(0.454)	(0.544)	(0.606)	(0.496)	(0.582)
Lambda	0.725	0.797	0.747			
	(0.056)	(0.047)	(0.053)			
Log-likelihood	−479.098	−432.374	−468.464	−510.861	−470.732	−503.759
AIC	976.195	882.749	954.928	1,039.720	959.463	1,025.520
BIC	1,006.150	912.700	984.879	1,069.670	989.414	1,055.470
N	206	206	206	206	206	206
R-squared	0.717	0.740	0.722	0.559	0.551	0.547

Note: Standard errors in parentheses.

While the negative effects of immigration and urbanisation on KSČM's electoral gains were weak, they confirmed the fact that the party won higher support in smaller municipalities. At the same time, urbanisation was the only variable for which the spatial model identified effects in the other direction than the OLS model (both models identified weak effects).

In 2006, the KSČM was more successful in both Sudetenland (0.558) and Moravia (0.208). In contrast, the effect of Moravia became negative in 2010 (−0.038) and even more negative in 2013 (−0.243), while the positive effect of Sudetenland doubled between 2006 and 2013 (to 1.172), reflecting a global growth of KSČM support in 2013. KSČM boosted its gains the most in the same parts of Sudetenland where the ČSSD, as the other left-wing party, lost many of its voters (north-western Bohemia). The differences between the results of the spatial model and the OLS model were most pronounced for these two contextual variables: the spatial model identified stronger effects of Sudetenland (in 2010 and 2013) and weaker effects of Moravia.

In line with the party identity of the KDU–ČSL, the size of the Catholic population in a region was repeatedly identified as the dominant factor explaining inter-regional variance of electoral support for the party. Moravia has been used as a proxy variable for that factor (based on multicollinearity between both variables). Analogously to Catholicism, Moravia (see Table 5) clearly enhanced the electoral gains of the KDU–ČSL (for instance, 4.100 in 2013), with a small exception of the 2010 elections when the party lost parliamentary representation and the effects of Moravia became much weaker (2.240). The Sudetenland variable worked

in the opposite direction, reflecting the low presence of Catholics in the area (for instance, –1.833 in 2013).

The effects of economic and status variables on the electoral success of the KDU–ČSL were much weaker. Among these variables, the highest levels of additional support were measured for areas with fewer college graduates and areas with lower unemployment (for instance, –0.130 and –0.102, respectively, in 2013), except for the 2010 elections when the effect of unemployment was near zero; the effects of the urbanisation variable were much weaker. The direction of the effects of unemployment and urbanisation confirms the rural profile of the party's electorate. It comes as a surprise that support for the party was positively associated with higher immigration (with reverse effects identified by the OLS model) and higher proportion of self-employed individuals, but the effects of both variables were weak (for instance, 0.079 and 0.044, respectively, in 2013). The effects of retirement gradually changed from positive to negative (only in the spatial model), suggesting that the KDU–ČSL managed to mobilise voters in areas with more young people, although the estimates for the retirement variable were very low (ranging between 0.046 in 2006 and –0.013 in 2013). Overall, the spatial model identified not only reverse effects for some variables, but also much weaker effects for other variables.

Although the Green Party managed to win parliamentary representation in 2006 only, the factors explaining the territorial variance in its support were relatively stable and worked in the expected direction (see Table 6). Positive effects on electoral support for the SZ were identified especially for higher education and immigration (for instance, in 2006, 0.141 and 0.131, respectively), and negative effects for retirement (–0.013 in 2006), although the effects of immigration and retirement exhibited a strong tendency to weaken in time. The effects of the other variables were very weak, including self-employment for which the spatial model identified effects in the other direction than the OLS model (these effects were close to zero in both models). Further comparison between the models shows differences in the strength of effects only.

From the spatial perspective, the Greens were predominantly a Bohemian party, especially in the elections of 2006. Support for the SZ in Moravia continued to be weaker in the following elections, albeit the estimates decreased considerably (from –0.948 in 2006 to –0.344 in 2013). Two of the three largest Moravian cities (Brno, Olomouc) were clear exceptions. Looking at the other macro-region of the Czech Republic, relatively higher support for the SZ was identified in Sudetenland, compared to Moravia. This was especially the case of the 2006 elections (0.168) when the Greens obtained parliamentary representation and enjoyed large electoral gains in almost all of northern Bohemia. The subsequent slight decline of the estimate (to 0.124 in 2013) reflected the above-mentioned territorial shift of SZ support, mainly into the larger Prague metropolitan area. It also reflected the fact that college education was practically the only other variable associated with voting for the Greens (in territorial terms, the party won high support in other Bohemian or Moravian university cities and their surroundings), while the effects of other variables were extremely limited.

The VV, the first of the two newcomers of the 2010 elections, experienced the weakest clustering of electoral support of all parties, and the small inter-regional differences in its support were also reflected in the regression models (see Table 7). While for all other parties (except the ODS in 2006 and 2013, the TOP09 in 2010 and 2013, and the Dawn in 2013) there was at least one variable for which the spatial error model identified effects in the other

TABLE 6
EFFECTS ON VOTING FOR THE SZ, 2006–2013 PARLIAMENTARY ELECTIONS

	Spatial error model			OLS		
	2006	2010	2013	2006	2010	2013
Constant	5.011	1.157	1.520	3.366	1.103	1.524
	(0.969)	(0.504)	(0.561)	(1.207)	(0.545)	(0.596)
Self-employment	0.006	0.004	–0.001	0.017	0.007	0.003
	(0.007)	(0.003)	(0.004)	(0.008)	(0.003)	(0.003)
Unemployment	0.002	0.000	0.008	–0.031	–0.003	0.016
	(0.029)	(0.015)	(0.018)	(0.032)	(0.016)	(0.021)
Higher education	0.141	0.087	0.151	0.132	0.089	0.168
	(0.034)	(0.019)	(0.020)	(0.042)	(0.020)	(0.021)
Retirement	–0.103	–0.032	–0.038	–0.055	–0.057	–0.075
	(0.047)	(0.025)	(0.027)	(0.061)	(0.027)	(0.030)
Immigration	0.131	0.059	0.095	0.067	0.036	0.088
	(0.044)	(0.022)	(0.025)	(0.049)	(0.021)	(0.024)
Urbanisation	0.005	0.001	–0.001	0.011	0.005	–0.000
	(0.003)	(0.002)	(0.002)	(0.004)	(0.002)	(0.002)
Moravia	–0.948	–0.284	–0.344	–1.175	–0.315	–0.424
	(0.331)	(0.133)	(0.143)	(0.215)	(0.100)	(0.107)
Sudetenland	0.168	0.104	0.124	0.744	0.209	0.067
	(0.191)	(0.095)	(0.105)	(0.212)	(0.094)	(0.103)
Lambda	0.752	0.566	0.542			
	(0.053)	(0.074)	(0.076)			
Log-likelihood	–250.973	–109.499	–131.479	–294.646	–127.105	–147.591
AIC	519.946	236.999	280.957	607.291	272.210	313.183
BIC	549.896	266.950	310.908	637.242	302.161	343.134
N	206	206	206	206	206	206
R-squared	0.698	0.553	0.642	0.464	0.429	0.553

Note: Standard errors in parentheses.

direction than the OLS model, all variables worked in the same direction for the VV. At the same time, both regression models (especially the OLS) explained smaller percentages of total variance, compared to other parties. This finding suggests that support for the VV was relatively weakly associated with traditional structural factors, including the traditional socioeconomic content of the right–left axis; a finding which again confirmed the above picture of the VV as a broad phenomenon with relatively weak roots, not only in geography, but also in socioeconomic structures. This can be ascribed to ambiguities in the party's ideological profile and the predominance of populism in its rhetoric. The VV's electoral gains were the smallest in areas with stronger post-productive populations (–0.186), while the effects of other factors were relatively weak. The VV was more successful in regions with lower numbers of immigrants, unemployed and college graduates, or with higher levels of self-employment or urbanisation—in short, with diverse population groups that normally tend to vote either left-wing or right-wing parties. Compared to the OLS model, the spatial model identified only weaker effects of unemployment, immigration and urbanisation. However, contextual variables were the strongest factors of VV support. Of the two Czech macro-regions, the party achieved above-average gains in Sudetenland (0.494) and under-average gains in Moravia (–0.248).

The results of the regression models indicate that in order to explain the rise of electoral support for the VV, and inter-regional differences therein, we have to look for other factors, which will be difficult to find at the aggregate level. As Linek (2012b) demonstrated on his

TABLE 7
EFFECTS ON VOTING FOR THE TOP09 AND THE VV, 2010–2013 PARLIAMENTARY
ELECTIONS

	Spatial error model			OLS		
	TOP09 (2010)	TOP09 (2013)	VV (2010)	TOP09 (2010)	TOP09 (2013)	VV (2010)
Constant	6.585	0.534	13.936	1.000	−1.146	14.043
	(2.220)	(1.852)	(1.549)	(2.510)	(2.127)	(1.728)
Self-employment	0.087	0.073	0.007	0.128	0.111	0.010
	(0.015)	(0.013)	(0.011)	(0.015)	(0.013)	(0.010)
Unemployment	−0.095	−0.031	−0.038	−0.039	−0.024	−0.076
	(0.065)	(0.059)	(0.046)	(0.074)	(0.066)	(0.051)
Higher education	0.488	0.509	−0.042	0.395	0.500	−0.037
	(0.082)	(0.066)	(0.057)	(0.091)	(0.076)	(0.063)
Retirement	−0.237	−0.077	−0.186	−0.117	−0.202	−0.213
	(0.107)	(0.089)	(0.075)	(0.124)	(0.106)	(0.086)
Immigration	0.204	0.147	−0.062	0.265	0.172	−0.134
	(0.099)	(0.083)	(0.069)	(0.099)	(0.085)	(0.680)
Urbanisation	0.013	0.000	0.007	0.011	0.003	0.018
	(0.008)	(0.007)	(0.006)	(0.009)	(0.008)	(0.006)
Moravia	−2.251	−2.510	−0.248	−2.862	−3.278	−0.324
	(0.672)	(0.581)	(0.428)	(0.461)	(0.383)	(0.318)
Sudetenland	−0.599	−0.371	0.494	−0.036	−0.091	1.069
	(0.423)	(0.353)	(0.293)	(0.431)	(0.369)	(0.297)
Lambda	0.679	0.709	0.606			
	(0.062)	(0.059)	(0.070)			
Log-likelihood	−415.850	−378.559	−340.973	−441.714	−409.635	−364.868
AIC	849.700	775.118	699.946	901.427	837.270	747.735
BIC	879.651	805.069	729.897	931.378	867.221	777.686
N	206	206	206	206	206	206
R-squared	0.799	0.845	0.414	0.710	0.763	0.194

Note: Standard errors in parentheses.

individual-level analysis, the key motive behind voting for the VV in 2010 was people's trust in, and sympathies for, its leader, popular Czech journalist and writer Radek John. These feelings were closely linked to political dissatisfaction, alienation from traditional political parties and perceptions of corruption as the main problem of the Czech Republic.

The findings of the regression model for the TOP09, the other newcomer of the 2010 elections, were in stark contrast to those for the VV. There is one important difference to mention here: both parties were founded as new entities, but while the VV can be considered a brand-new political project, the TOP09 was established by several leading politicians of the centrist KDU–ČSL (Hanley 2011). The TOP09 models explained relatively high amounts of variance, and all variables worked in the expected direction (see Table 7); the only differences between the spatial and OLS models were in the strength of effects of some variables. The right-wing TOP09 enjoyed the highest support in regions with more college graduates, more immigrants (in 2013, 0.509 and 0.147, respectively) and fewer seniors (although the influence of the retirement variable weakened considerably, from –0.237 in 2010 to –0.077 in 2013, suggesting that its 2013 electoral gains in regions with larger populations of elderly voters fell behind by a far smaller margin than during the party's first electoral success in 2010; similarly, for the other right-wing party, ODS, the effect of the retirement variable fell down to almost zero). The effects of the remaining variables were weaker, but worked in the expected direction. The party's success declined with higher unemployment

TABLE 8
EFFECTS ON VOTING FOR THE ANO2011 AND THE DAWN, 2013 PARLIAMENTARY
ELECTIONS

	Spatial error model		OLS	
	ANO2011	Dawn	ANO2011	Dawn
Constant	17.481	8.820	16.235	6.914
	(2.484)	(1.455)	(2.714)	(1.700)
Self-employment	0.023	0.026	0.028	0.051
	(0.017)	(0.010)	(0.016)	(0.010)
Unemployment	0.041	−0.031	0.151	−0.064
	(0.090)	(0.046)	(0.084)	(0.053)
Higher education	−0.104	−0.202	0.104	−0.315
	(0.090)	(0.052)	(0.097)	(0.061)
Retirement	−0.125	−0.138	−0.178	−0.133
	(0.121)	(0.070)	(0.136)	(0.085)
Immigration	0.025	−0.118	0.098	−0.183
	(0.111)	(0.065)	(0.108)	(0.068)
Urbanisation	−0.001	0.010	0.008	0.027
	(0.009)	(0.005)	(0.010)	(0.006)
Moravia	−1.513	1.175	−1.781	1.728
	(0.676)	(0.436)	(0.489)	(0.306)
Sudetenland	0.534	0.217	0.825	0.626
	(0.469)	(0.277)	(0.471)	(0.295)
Lambda	0.601	0.677		
	(0.070)	(0.062)		
Log-likelihood	−438.141	−328.532	−459.849	−363.366
AIC	894.282	675.064	937.698	744.732
BIC	924.233	705.015	967.649	774.682
N	206	206	206	206
R-squared	0.418	0.575	0.218	0.333

Note: Standard errors in parentheses.

(in 2013, −0.031) and grew with higher self-employment (in 2013, 0.073), but the effect of urbanisation was almost nil.

The effects of the contextual variables were also strong. The TOP09's gains in Moravia fell behind Bohemia by the highest margin of all parties (in 2013, −2.510), with some of the largest urban areas of Moravia (Brno, Olomouc, Zlín) as the only exceptions. The party also obtained fewer votes in Sudetenland, especially in 2010 (−0.599, compared to −0.371 in 2013), with the exception of a part of north-eastern Bohemia, as shown by the cluster maps of electoral support. To sum up, the factors that explained inter-regional variance in electoral support for the TOP09 were in many respects similar to those identified for the ODS or parties of the so-called 'liberal centre' (especially the US). This is quite a noteworthy finding for a party founded by former KDU–ČSL leader Miroslav Kalousek, who integrated the elite networks of Christian-democratic politics and big business (Hanley 2011, p. 128). However, a partial explanation of the 'anomaly' can be found in the TOP09 political programme, which mainly targeted right-wing voters of the ODS. There were two major differences between both right-wing parties, namely that the TOP09 held much stronger Euro-optimist and anti-corruption attitudes (Linek 2012b, pp. 168–69). Our findings thus confirm Hanley's argument (2011, p. 124) that in terms of political appeal, the TOP09 presented itself as a 'purifier' (like the US in the past), a 'more genuine' conservative or liberal-conservative alternative with an ambition to remedy the wrongdoings of traditional centre-right or right-wing parties.

The Czech parliamentary elections of 2013 brought an even more profound systemic change than the previous 'electoral earthquake'. ANO2011, the new movement led by billionaire Andrej Babiš, replaced the ODS as the second strongest party. Analogously to the VV three years before, electoral support for the ANO2011 was distributed relatively evenly between the country's regions, and its regression model explained relatively little variance (see Table 8). Also analogously to the VV, these findings can be attributed to the movement's ideological ambiguity, unclear position on the right–left axis, and marketing-oriented election campaign with a brief programme emphasising protest against corruption and traditional political parties (Hloušek & Kaniok 2014). Of the traditional structural factors, higher populations of retired persons and college graduates were the strongest predictors of lower support for the ANO2011 (–0.125 and –0.104, respectively), while the effects of other factors were limited. The movement achieved above-average electoral gains in territorial units with higher unemployment, higher immigration, higher self-employment and lower urbanisation.

The absence of a stable constituency and the weak links between inter-regional support for the movement and the socioeconomic structure of different regions are further illustrated on the fact that the ANO2011 obtained support in areas with higher unemployment and lower education as well as in areas with higher self-employment. In other words, it mobilised both left-wing and right-wing voters. This was the case of the VV in 2010 as well. Compared to the OLS model, the spatial model changed the direction of effects of urbanisation (with very low effects of the variable in both models), and slightly reduced the effects of other variables. Like the VV, the ANO2011 won more votes in Sudetenland than in the rest of the country (0.534), but its gain in Moravia fell behind by a much higher margin (–1.513). Three facts, namely that firstly, the effects of both contextual variables confirm that ANO2011's successful entry relied mainly on mobilising voters in Bohemia; secondly, there were no clear links between its inter-regional support and the traditional socioeconomic content of the right–left division of Czech politics; and thirdly, the strongholds of ANO2011 support emerged in north-western, north-eastern, eastern and central Bohemia (with the exception of the capital city of Prague), suggest that the ANO2011 was able to build on voter dissatisfaction with traditional parties—the right-wing ODS above all, the left-wing ČSSD to a lesser extent, but also both newcomers of 2010, the TOP09 and the VV—and to take over parts of their constituencies.

The second new party, the Dawn, somewhat met the demand for a relevant populist extreme-right party in the Czech political space (Hloušek & Kaniok 2014). In contrast to other new parties with ambiguous ideologies (VV, ANO2011), electoral support for the Dawn was much more regionalised and its regression models explained much higher amounts of variance (see Table 8). In terms of inter-regional distribution of voter support, the Dawn was one of the few Czech political parties that succeeded in both macro-regions of the country. In general, its electoral support was lower in regions with higher education levels (–0.202), more seniors (–0.138) and more immigrants (–0.118); the first and the third estimates were lower in magnitude in the spatial error model. The other variables had little effects on support for the Dawn, sometimes not in the expected direction. In contrast to expectations, higher support was identified in regions with lower unemployment, higher self-employment and higher urbanisation. Analogously to the VV and the ANO2011, these results suggest that the Dawn did not succeed exclusively by mobilising so-called economic grievances (Maškarinec & Bláha 2014) and its voters were difficult to place on the classical left–right axis.

From the spatial perspective, the Dawn achieved above-average gains in Sudetenland (0.217), and Moravia was clearly the strongest predictor of electoral support for the Dawn (1.175), in contrast to VV and ANO2011's under-average gains in that macro-region. This is confirmed by the cluster map of electoral support which identifies the core of the Dawn's constituency in a large area surrounding the senatorial district of its chairman, Tomio Okamura. At the same time, these findings demonstrate that the Dawn's success cannot be attributed to mobilisation of the same groups of voters that had given rise to the radical right-wing populist SPR–RSČ. This is because the latter constituency was almost exclusively confined to the region of northern Bohemia and associated with mostly those structural determinants which tend to boost the electoral gains of left-wing parties throughout the country (Kreidl & Vlachová 1999).

Summary and conclusions

We have presented a spatial analysis of recent trends in Czech parliamentary elections, shedding light on the geographical patterns of voting behaviour. Subject to some simplification, it was historically possible to distinguish two types of Czech political parties: those which mobilised most of their constituency either in Bohemia (the ODS) or in Moravia (the ČSSD, the KDU–ČSL); and the KSČM which was able to succeed in both macro-regions. This general pattern was not broken by any other parties that enjoyed short-term electoral success in the past. Minor right-wing parties (the ODA, the US) as well as the Green Party gained most of their votes in Bohemia (as well as the largest cities of Moravia, particularly Brno); even the radical right-wing populist SPR–RSČ had its stronghold in northern Bohemia. From the spatial perspective, the success of the right-wing TOP09 in 2010 largely stemmed from the former constituencies of minor right-wing parties of the 1990s. Support for the ANO2011 concentrated in Bohemia as well (however, its area of high support included portions of Sudetenland in north-western Bohemia with its traditionally low number of right-wing voters). In contrast, the VV and the Dawn did not join the ANO2011 by winning high electoral support in both Bohemian and Moravian clusters.

We also found an interesting fact when comparing the determinants of inter-regional support for political parties between elections. While individual-level analysis confirms increased class voting in the Czech Republic (especially from 1998 to 2010) in terms of social class as well as the other demographic variables, we identified quite the opposite trend in many cases. Particularly for the two historically strongest Czech parties (the left-wing ČSSD and the right-wing ODS) we found a significant gradual decrease in magnitude for economic variables (especially in the 2013 elections), thus lending support to Hypothesis 1. Similarly, the estimates show a significant decrease in magnitude for many status variables including higher education for some parties, and retirement for the ODS. On the other hand, support for the Communists and the right-wing TOP09 remained to the greatest degree (and in a relatively stable fashion) determined by the classical socioeconomic variables (although communist support among seniors slightly declined), while estimates for the KDU–ČSL confirmed the contextual variable of Moravia as the strongest determinant of inter-regional differences in its support. This was a sufficient reason to confirm Hypothesis 2, which assumed stability of the determinants of KSČM and KDU–ČSL support given the two parties' reliance on asymmetrical cleavages. In contrast to the TOP09 (the only new party with a clear ideological profile), the

other new parties reached very low values of estimates for unemployment or self-employment and also slightly higher values for most status variables. At the same time, the direction of predicted relationships with economic and status variables for the VV, ANO2011 and the Dawn was in many cases ambiguous and showed their ability to mobilise voters from different social classes, with various status positions. This enabled us to confirm Hypothesis 3 as well.

The regression models thus suggest that political competition in the Czech Republic (at the aggregate level) ceased to be primarily a class conflict (especially in the 2013 election) where political parties defend the interests of 'their' social classes. This is especially true for the new parties (with the notable exception of the TOP09) for which the regression models were generally the least successful. In sum, given the weak links between their voter geographies and the different regions' socioeconomic structures, the new parties achieved electoral success at the expense of both long-term leaders of Czech party politics (and especially the right-wing ODS). This, in turn, resulted in a significant weakening of the traditional socioeconomic left–right division as the main structural cleavage of the Czech political spectrum.

Another interesting finding consists in the overlap of electoral support clustering with areas of high or low development potential, as identified by previous studies of the spatial patterns of socioeconomic differentiation in the Czech Republic (Blažek & Netrdová 2009; Novák & Netrdová 2011). For most political parties with long-term parliamentary representation, areas of high development potential (especially the axis connecting Prague with the regional capitals of western Bohemia, Plzeň, and north-eastern Bohemia, Liberec) largely overlapped with the regions of high support for the right (ODS, TOP09) and low support for the left (ČSSD, KSČM); the industrial agglomeration of Ostrava/Karviná/Frýdek-Místek was an exception. And *vice versa*, left-wing parties (especially the KSČM) were preferred in regions with low development potential. On the other hand, similar amounts of congruence between electoral support and development potential (positive or negative) were not found for the VV, ANO2011 or the Dawn. This again illustrates the low importance of socioeconomic determinants for the inter-regional distribution of voting for new parties, lending support to Hypothesis 4.

From a methodological perspective, our study joins a new line of research emphasising the importance of the spatial distribution of analysed units for the results of the analysis. Our results clearly show that the distribution of support for the different political parties is autocorrelated. On the other hand, in spite of substantial changes in support for Czech political parties between the elections of 2006 and 2013, there was no global transformation in the patterns of clustering of support for traditional parliamentary parties. This is especially noteworthy with regard to the ODS, the once leading right-wing party which lost almost three quarters of votes in seven years and assumed the status of a minor party after the last elections. However, the same is not quite the case when looking at local-level clustering of electoral support. Analysis at this level confirms stable spatial patterns for the left-wing ČSSD and KSČM and the centrist KDU–ČSL, but identifies major changes for the right-wing ODS.

Furthermore, the basic comparison showed that the spatial error model is preferable to OLS models, as it explains higher amounts of the total variance and other goodness-of-fit indicators also suggest an improvement. The spatial error model would thus seem a more reliable tool to verify the examined relationships than the traditional method of OLS. But perhaps more interesting is a comparison of parameter estimates between the spatial error and the baseline OLS models. Specifically, the estimates for many independent variables significantly decreased or increased in magnitude in the spatial error model, and in some

cases the direction of relationships was just opposite to that reported from the OLS; such as, for the ČSSD, the estimates for Sudetenland were negative in the OLS models but positive in the spatial error model. At the same time, the positive values of the coefficients in the spatial regression model better reflect real evolution of the spatial distribution of ČSSD's electoral support in Sudetenland. The example of the ČSSD thus clearly illustrates the precedence of the spatial error model over the OLS model, and the need to consider the importance of the spatial (geographical) basis of support in explaining inter-regional variability of voting behaviour.

We believe that the spatial trends in electoral support for Czech political parties shed light on an important part of contemporary Czech politics, while the clustering of electoral support shows us that different processes are at work in different places across the Czech Republic. However, there are several aspects that merit further research. For example, how does the process of replacement of the old parties by new ones vary in space? Bivariate LISA can serve as a diagnostic test for evaluating the geography of party replacement and revealing the possible underlying socio-geographic processes.

Another question for future research is whether the expected relationships are identical for all parts of the territory. When examining this type of relationship, it is necessary to work with the concept of spatial nonstationarity of observed phenomena. Neither spatial regression nor commonly used statistical methods are able to reveal how the model works in different parts of the analysed territory, or how the importance of each variable changes throughout the territory. Here, one can use innovative techniques such as geographically weighted regression to control for spatial interaction while trying to work with empirical data at the more disaggregated municipal level, despite the problems associated with the high fragmentation of the settlement structure in the Czech Republic.

Finally, our analyses show that voting behaviour in the Czech Republic continues to be, at least to some extent, geographically dependent. However, we also found that the geography of support for some new political parties is considerably different from traditional parties which are, with some simplification, supported either in Bohemia or in Moravia. Future research thus should build, for example, on Lyons and Linek (2010) who identified four local political cultures which go across the borders of Bohemia and Moravia. Lyons and Linek, however, only studied voting patterns for two consecutive elections (the 2002 general and the 2004 European elections) in a period when the Czech party system was relatively stable. Further research should indeed have the ambition to produce an accurate socio-political map of the Czech Republic taking into account the transformation of voter behaviour after the two 'electoral earthquakes' which took place in the last two parliamentary elections.

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References

Anselin, L. (1988) *Spatial Econometrics: Methods and Models* (Dordrecht, Kluwer Academic Publisher).
Anselin, L. (1995) 'Local Indicators of Spatial Association—LISA', *Geographical Analysis*, 27, 2.
Anselin, L. (2002) 'Under the Hood. Issues in the Specification and Interpretation of Spatial Regression Models', *Agricultural Economics*, 27, 3.
Anselin, L. (2005) *Exploring Spatial Data with GeoDa™: A Workbook* (Urbana, IL, University of Illinois).

Balík, S. (2005) 'Communist Party of Bohemia and Moravia and its Attitude towards Own History', in Kopeček, L. (ed.) *Trajectories of the Left. Social Democratic and (Ex-)Communist Parties in Contemporary Europe: Between Past and Future* (Brno, Democracy and Culture Studies Centre).

Balík, S. (2006) 'Kontinuita či diskontinuita voličských vzorců? Volební podpora KSČ a KSČM v prostoru dnešního Olomouckého kraje v období 1929–1935 a 1996–2002', *Evropská volební studia*, 1, 1.

Balík, S., Holzer, J. & Hloušek, V. (2012) 'The Political System in the Czech Republic', in Gizicki, W. (ed.) *Political Systems of Visegrad Group Countries* (Trnava, University of Saints Cyril and Methodius).

Bernard, J. & Šimon, M. (2014) 'Prostorové vzorce volebního chování v letech 1992–2006: popis, proměny a možné příčiny', in Kostelecký, T., Mikešová, R., Poláková, M., Čermák, D., Bernard, J. & Šimon, M. (eds) *Koho volí Vaši sousedé? Prostorové vzorce volebního chování na území Česka od roku 1920 do roku 2006, jejich změny a možné příčiny* (Prague, Sociologické nakladatelství).

Blažek, J. & Netrdová, P. (2009) 'Can Developement Axes be Identified by Socio-economic Variables? The Case of Czechia', *Geografie*, 114, 4.

Brunsdon, C. (2009) 'Statistical Inference for Geographical Processes', in Fotheringham, A. S. & Rogerson, P. A. (eds) *The SAGE Handbook of Spatial Analysis* (London, Sage).

Brunsdon, C., Fotheringham, S. A. & Charlton, M. E. (1996) 'Geographically Weighted Regression: A Method for Exploring Spatial Nonstationarity', *Geographical Analysis*, 28, 4.

Chytilek, R. & Eibl, O. (2011) 'České politické strany v politickém prostoru', *Sociologický časopis*, 47, 1.

Cliff, A. D. & Ord, J. K. (1981) *Spatial Processes: Models and Applications* (London, Pion).

CZSO (2012) *Small Lexicon of Municipalities of the Czech Republic 2012* (Prague, Czech Statistical Office).

Deegan-Krause, K. & Haughton, T. (2010) 'A Fragile Stability. The Institutional Roots of Low Party System Volatility in the Czech Republic, 1990–2009', *Politologický časopis*, 10, 3.

Feřtová, M. & Temelová, J. (2011) 'Prostorová specifika strukturální nezaměstnanosti na úrovni obcí v České republice', *Sociologický časopis*, 47, 4.

Fortin, M.-J. & Dale, M. R. T. (2009) 'Spatial Autocorrelation', in Fotheringham, A. S. & Rogerson, P. A. (eds).

Fotheringham, A. S., Brunsdon, C. & Charlton, M. (2002) *Geographically Weighted Regression: The Analysis of Spatially Varying Relationships* (Chichester, John Wiley & Sons).

Hanley, S. (2011) 'Dynamika utváření nových stran v České republice v letech 1996–2010: hledání možných příčin politického zemětřesení', *Sociologický časopis*, 47, 1.

Havlík, V. & Hloušek, V. (2014) 'Dr Jekyll and Mr Hyde: The Story of the Populist Public Affairs Party in the Czech Republic', *Perspectives on European Politics and Society*, 15, 4.

Hloušek, V. & Kaniok, P. (2014) *Europe and the 2013 Czech Parliamentary Election, October 25–26 2013*, EPERN Election Briefing No. 74 (Brighton, Sussex European Institute).

Hloušek, V. & Kopeček, L. (2008) 'Cleavages in the Contemporary Czech and Slovak Politics between Persistence and Change', *East European Politics & Societies*, 22, 3.

Jehlička, P. & Sýkora, L. (1991) 'Stabilita regionální podpory tradičních politických stran v českých zemích (1920–1990)', *Geografie*, 96, 2.

Kabát, M. & Pink, M. (2006) 'Parlamentní volby 2006 a volební geografie', in Čaloud, D., Foltýn, T., Havlík, V. & Matušková, A. (eds) *Volby do Poslanecké sněmovny v roce 2006* (Brno, Centrum pro studium demokracie a kultury).

Kostelecký, T. (1994) 'Economic, Social and Historical Determinansts of Voting Patterns. In the 1990 and 1992 Parliamentary Elections in the Czech Republic', *Sociologický časopis*, 2, 2.

Kostelecký, T. (2001) *Vzestup nebo pád politického regionalismu? Změny na politické mapě v letech 1992 až 1998—srovnání České a Slovenské republiky* (Prague, Sociologický ústav AV ČR).

Kostelecký, T. (2005) *Political Behavior in Metropolitan Areas in the Czech Republic between 1990 and 2002—Patterns, Trends, and the Relation to Suburbanization and its Socio-Spatial Patterns* (Prague, Sociologický ústav AV ČR).

Kostelecký, T. (2009) 'Regionální rozdíly ve volebních výsledcích v České republice—parlamentní volby 1996–2006', *Evropská volební studia*, 4, 2.

Kostelecký, T. & Bernard, J. (2014) 'Závěr', in Kostelecký, T., Mikešová, R., Poláková, M., Čermák, D., Bernard, J. & Šimon, M. (eds) *Koho volí Vaši sousedé? Prostorové vzorce volebního chování na území Česka od roku 1920 do roku 2006, jejich změny a možné příčiny* (Prague, Sociologické nakladatelství).

Kostelecký, T. & Čermák, D. (2004) 'Vliv teritoriálně specifických faktorů na formování politických orientací voličů', *Sociologický časopis*, 40, 4.

Kouba, K. (2007) 'Prostorová analýza českého stranického systému. Institucionalizace a prostorové režimy', *Sociologický časopis*, 43, 5.

Kreidl, M. & Vlachová, K. (1999) 'Sociální zázemí extrémní pravice v ČR: Voliči SPR–RSČ v letech 1996–1998', *Sociologický časopis*, 35, 3.

Kunštát, D. (2013) *Důvěra stranickým představitelům—duben 2013* (Prague, Centrum pro výzkum veřejného mínění), available at: http://cvvm.soc.cas.cz/media/com_form2content/documents/c1/a7018/f3/pi130522.pdf, accessed 7 April 2014.

Linek, L. (2008) 'Kdy vymřou voliči KSČM? K věkové struktuře elektorátu KSČM', *Politologický časopis*, 14, 4.

Linek, L. (2010) *Zrazení snu? Struktura a dynamika postojů k politickému režimu a jeho institucím a jejich důsledky* (Prague, Sociologické nakladatelství).

Linek, L. (2012a) 'Úvod: Volební výsledky, účast a vzorce podpory politických stran', in Linek, L. (ed.) *Voliči a volby 2010* (Prague, Sociologické nakladatelství).

Linek, L. (2012b) 'Volební podpora nových stran TOP 09 a VV', in Linek, L. (ed.) (2012a).

Linek, L. (2014) 'Čistá a celková volební volatilita v Česku v letech 1990–2013: stejný koncept, odlišná měření a podobné závěry?', *Acta Politologica*, 6, 1.

Linek, L. & Lyons, P. (2013) *Dočasná stabilita? Volební podpora politických stran v České republice v letech 1990–2010* (Prague, Sociologické nakladatelství).

Lipset, S. M. & Rokkan, S. (1967) 'Clevage Structures, Party Systems, and Voter Alignments: An Intoduction', in Lipset, S. M. & Rokkan, S. (eds) *Party Systems and Voter Alignments: Cross-National Perspectives* (New York, NY, The Free Press).

Lyons, P. & Linek, L. (2010) 'Party System Nationalisation and Non-uniform Vote Switching. Evidence from the Czech Republic', *Sociologický časopis*, 46, 3.

Maškarinec, P. (2011) 'Volební podpora ČS(D)SD, (KDU)–ČSL, KSČ(M) a ODS v prostoru dnešního Libereckého kraje v letech 1920–1935 a 1996–2010: Kontinuita či diskontinuita voličských vzorců?', *Evropská volební studia*, 6, 1.

Maškarinec, P. (2013) 'Prostorová analýza prezidentských voleb v České republice v roce 2013', *Sociológia*, 45, 5.

Maškarinec, P. & Bláha, P. (2014) 'For Whom the Bell Tolls: Grievance Theory and the Rise of New Political Parties in the 2010 and 2013 Czech Parliamentary Elections', *Sociológia*, 46, 6.

Matějů, P. & Řeháková, B. (1997) 'Turning Left or Class Realignment? Analysis of the Changing Relationship between Class and Party in the Czech Republic, 1992–96', *East European Politics & Societies*, 11, 3.

Musil, J. & Müller, J. (2008) 'Vnitřní periferie v České republice jako mechanismus sociální exkluze', *Sociologický časopis*, 44, 2.

Novák, J. & Netrdová, P. (2011) 'Prostorové vzorce sociálně-ekonomické diferenciace obcí v České republice', *Sociologický časopis*, 47, 4.

Pink, M. & Voda, P. (2012a) 'Vysvětlení prostorových vzorců volebního chování v parlamentních volbách v České republice a na Slovensku v letech 1996–2010', in Pink, M. (ed.) *Volební mapy České a Slovenské republiky po roce 1993: Vzorce, trendy, proměny* (Brno, Centrum pro studium demokracie a kultury).

Pink, M. & Voda, P. (2012b) 'Základní vymezení voličské základny politických stran v České republice v letech 1996–2010', in Pink, M. (ed.) *Volební mapy České a Slovenské republiky po roce 1993: Vzorce, trendy, proměny* (Brno, Centrum pro studium demokracie a kultury).

Pomahač, R. (2013) 'Czech Republic. Local Government in the Czech Republic: History, Current Position, Prospective Evolution', in Panara, C. & Varny, M. (eds) *Local Government in Europe: The 'Fourth Level' in the EU Multilayered System of Governance* (New York, NY, Routledge).

Shin, M. & Agnew, J. (2011) 'Spatial Regression for Electoral Studies: The Case of the Italian Lega Nord', in Warf, B. & Leib, J. (eds) *Revitalizing Electoral Geography* (Burlington, VT, Farnham, Ashgate).

Smith, M. L. & Matějů, P. (2011) 'Restratifikace české politiky. Vývoj třídně podmíněného volebního chování v České republice v letech 1992–2010', *Sociologický časopis*, 47, 1.

Stegmaier, M. & Linek, L. (2014) 'The Parliamentary Election in the Czech Republic, October 2013', *Electoral Studies*, 35.

Stegmaier, M. & Vlachová, K. (2009) 'The Endurance of the Czech Communist Party', *Politics & Policy*, 37, 4.

Stegmaier, M. & Vlachová, K. (2011) 'The Parliamentary Election in the Czech Republic, May 2010', *Electoral Studies*, 30, 1.

Vlachová, K. & Matějů, P. (1998) 'Krystalizace politických postojů a politického spektra v České republice', *Sociologický časopis*, 34, 2.

Vlachová, K. & Řeháková, B. (2007) 'Sociální třída a její vliv na volební chování', in Lebeda, T., Linek, L., Lyons, P. & Vlachová, K. (eds) *Voliči a volby 2006* (Prague, Sociologický ústav AV ČR).

Appendix

TABLE A1

VOTE SHARES OF CZECH POLITICAL PARTIES, 1990–2013 (%)

	1990	1992	1996	1998	2002	2006	2010	2013
OF	49.50							
ČSSD	4.11	6.53	26.44	32.31	30.20	32.32	22.08	20.45
ODS		29.73	29.62	27.74	24.47	35.38	20.22	7.72
KSČM	13.24	14.05	10.33	11.03	18.51	12.81	11.27	14.91
KDU–ČSL	8.42	6.28	8.08	9.00	14.27	7.22	4.39	6.78
US				8.60		0.30		
SZ	4.10	6.52		1.12	2.36	6.29	2.44	3.19
SPR–RSČ		5.98	8.01	3.90	0.97		0.03	
ODA		5.93	6.36		0.50			
HSD–SMS	10.03	5.87	0.42					
TOP09							16.70	11.99
VV							10.88	
ANO2011								18.65
Dawn								6.88
Others	10.60	19.11	10.74	6.30	8.72	5.68	11.99	9.43

Notes: ANO2011 (populist); ČSSD: Czech Social Democratic Party (social-democratic); Dawn: Dawn of Direct Democracy of Tomio Okamura (radical right-wing populist); HSD–SMS: Movement for Self-Governing Democracy–Association for Moravia and Silesia (regionalist); KDU–ČSL: Christian Democratic Union–Czechoslovak People's Party (Christian-democratic); KSČM: Communist Party of Bohemia and Moravia (radical left); ODA: Civic Democratic Alliance (liberal); ODS: Civic Democratic Party (liberal-conservative); OF: Civic Forum (umbrella movement); SPR–RSČ: Association for the Republic–Republican Party of Czechoslovakia (radical right-wing populist), in the 2002 election as Republicans of Miroslav Sládek (RMS); SZ: Green Party (ecologist), in the 1992 election as a member of the Liberal-Social Union (LSU) coalition; TOP09: Tradition, Responsibility, Prosperity 09 (liberal-conservative); US: Union of Liberty (liberal); VV: Public Affairs (populist).