

Why Institutional Differences among Proportional Representation Systems Matter

Governments in different countries spend wide-ranging amounts of money on subsidies. Even among countries with similar electoral rules, governments allocate varied amounts of money to subsidies for business. I argue that governments elected via similar electoral systems spend different amounts of money on subsidies because of economic geography. However, economic geography alone cannot account for the entire variation in subsidies between countries with similar electoral rules. Among countries with proportional electoral rules, some governments spend relatively more on subsidies, holding constant the geographic dispersion of recipients. What explains such variation?

One possible explanation is the institutional diversity that exists among countries classified as having PR systems. The blunt distinction between plurality and proportional systems masks significant institutional variation. Among countries classified as having proportional systems, seven distinct electoral formulas are used to allocate seats to parties. Proportional systems also differ in their district magnitude, the use of higher electoral tiers, the use of electoral thresholds, and the type of party list employed (Clark et al., 2013: 543, Gallagher, Laver, and Mair, 2006: 354).¹

This institutional diversity raises questions about the usefulness of the blunt distinction between proportional and plurality systems. Indeed, some scholars warn that only nonspecialists of electoral systems can persuade themselves that all electoral systems can be characterized by

¹ Although most PR systems use some type of list, not all PR systems do so. In single transferable vote systems, candidates' names appear on the ballot, often in alphabetical order, and voters rank at least one candidate in order of their own preferences. Candidates that surpass a specified quota of first-preference votes are immediately elected. In successive counts, votes from eliminated candidates and surplus votes from elected candidates are reallocated to the remaining candidates until all the seats are filled (Clark et al., 2013: 578). Such a system is used, for example, in Ireland to elect members to the lower chamber of the *Oireachtas*.

a single dichotomous indicator (Taagepera and Qvortrup 2011). They call the plurality/proportional distinction a “procrustean bed” (Taagepera and Qvortrup, 2011: 255) and warn researchers to, “forget about such coarse dichotomy” (Taagepera and Qvortrup, 2011: 253). The blunt dichotomy between proportional and plurality electoral systems may obscure important institutional variations that matter for countries’ economic policies.

The institutional diversity among countries characterized as having proportional systems may explain why governments elected via PR spend varied amount on subsidies, even accounting for economic geography. Governments may spend more on subsidies in some PR countries than others because of institutions that exist only in certain PR systems. In this chapter, I investigate two institutions that vary among PR systems: list type and district magnitude. These institutions may generate diverse incentives for governments elected via proportionality to supply subsidies and other particularistic economic policies.

List type refers to how candidates fill a district’s multiple seats. In open-list systems, candidates fill a party’s seats in the order in which they are ranked by voters. In closed-list systems, candidates are chosen by party leaders to occupy a party’s legislative seats.

List type shapes politicians’ (re)election tactics and subsequently their policy decisions. In open-list systems, politicians win office by currying favor with voters in their own district. Voters can express a preference for a particular candidate on an open party list. Candidates ranked higher by voters have a better chance of winning a seat in the legislature. To build personal support among voters, politicians may promise subsidies to groups concentrated in their own district (or bailiwick). Once elected, legislators will work to fund the promised subsidies to maximize their chances of reelection. Given this, I hypothesize that subsidies for geographically concentrated beneficiaries will be more generous in open-list systems than closed-list systems, all else equal.

In contrast, candidates in closed-list systems have little incentive to champion subsidies for groups concentrated in their electoral district. Voters cannot express preferences for individual candidates in closed-list systems. Candidates’ names are often not even included on the ballot in closed-list systems. Instead, voters select a party. Party leaders then decide which candidates will fill the seats allocated to the party. Because party leaders choose who fill a party’s legislative seats, candidates’ seek to curry favor with party leaders. Party leaders often champion programs for geographically diffuse groups in order to maximize the party’s electoral success and candidates will support these programs to please party leaders. As a result, I hypothesize that spending on subsidies for

geographically diffuse groups will be higher in closed-list PR systems, as compared to open-list PR systems. In open-list systems, some funds will be diverted from diffuse groups to geographically concentrated groups by candidates seeking to build a personal support base.

District magnitude refers to the number of candidates elected in a district.² In proportional systems, multiple candidates are elected from each district. However, the number of candidate elected from each district varies within and between PR countries.³ In some countries, as many as 150 legislators are elected from a single district (e.g. Slovakia). In others, as few as two legislators are elected from each district (e.g. Chile).

District magnitude may interact with a country's list system to shape politicians' incentives to supply certain types of economic policies. In districts with more seats, politicians compete against more politicians from their own party because parties tend to run more candidates in districts with more seats. In theory, a party might run as many candidates as there are seats. In a district with five seats, for example, a party might run five candidates in the hope of winning all five. Although practical constraints may render this strategy infeasible (particularly for smaller parties), the number of candidates running for office from a given party in a district generally increases with district magnitude. When district magnitude is high, candidates compete against relatively more co-partisans for voters' support, and consequently they must work harder to distinguish themselves from other candidates. One way to distinguish themselves from other co-partisans is to provide subsidies. This logic suggests that increases in mean district magnitude will correlate with greater government spending on subsidies to concentrated groups in open-list PR systems.

I test these hypotheses using cross-nationally comparable data on government-funded subsidies in countries with proportional electoral systems. I supplement the cross-national tests with a single-country study. A single-country case study holds constant cultural and institutional features, such as list type, and consequently helps to isolate the effects of economic geography on policy. Economic geography varies between sectors within a country. In other words, some sectors in a country will be more geographically concentrated than others. By exploiting the within-country variation in economic geography, I can test the effects of economic geography on policy outcomes while holding constant other country-specific features. Using this research design, I find

² District magnitude is distinct from the geographical size of a district.

³ While plurality systems typically elect a single legislator from each district, district magnitude varies among proportional systems.

that governments elected via proportional rules and closed party lists spend more on subsidies for geographically diffuse sectors, as compared to geographically concentrated sectors. The single-country results confirm the findings from the multiple-country regressions.

VARIATION IN LIST TYPE

In most PR systems, party lists determine how candidates are chosen to fill a party's legislative seats.⁴ Two distinct types of lists exist: open and closed. Closed lists give party leaders exclusive control over which candidates will fill the party's legislative seats. Candidates are seated strictly according to the order in which the party has ranked them on their list. Candidates closer to the top of the party list are more likely to get a seat in parliament. In this way, party leaders, rather than voters, decide which candidates will represent citizens in the legislature. Voters have no direct ability to affect which of the party's candidates actually represent them (Cox and McCubbins 2001). At the ballot box, voters cannot express a preference for any individual candidate (Lijphart, 1999: 147). In fact, ballot papers in closed-list systems frequently do not even list the names of individual candidates. Instead, voters choose a party knowing that the party leaders will fill the legislative seats won by the party (Cox and McCubbins 2001). Examples of closed-list PR systems include Spain and Israel.

In open-list systems, parties cannot fully control the order in which candidates receive seats. Instead, voters have a say over which candidates will represent them in parliament. Legislative seats are allocated to parties based on the sum of the votes for all the candidates of a given party. If a party wins four legislative seats, the candidates seated are the four on the party's list that received the most individual preferences votes (Cox and McCubbins 2001). In contrast, in a closed-list system, they would be the four candidates that the party leaders placed in the top four positions on its list (Golden and Picci 2008). Finland is an example of a fully open-list PR system. Many other countries use partially open or "flexible" lists where voters can express preferences for individual candidates but the list order presented by the parties often prevails because voters decide not to express a preference between candidates or because of threshold

⁴ Single transferable vote systems do not use a party list. Such a system is used, for example, in Ireland to elect members to the lower chamber of the *Oireachtas*. However, in my sample, I code Ireland as being an open-list system because although parties control access to the ballot, voters choose which candidates will represent them in the legislature and elections are candidate-centered. All reported results are robust to the exclusion of Ireland from the sample.

requirements (Lijphart 1999). In Sweden, for example, a candidate needs to receive 5 percent of the party's votes in order for "individual preference votes" to overrule the ordering on the party list.

THE POLICY EFFECTS OF LIST TYPE

In both open and closed-list PR systems, parties control access to the ballot. In closed-list PR systems, parties also fully control which candidates will fill the legislative seats the party wins. In open-list systems, voters have a say over which candidates will represent them in parliament. This seemingly small institutional difference has important consequences for electoral behavior and subsequently policy.

Closed Lists

The type of party list influences candidates' election strategies and the nature of electoral competition. Closed lists generate party-centered competition, which encourages voters to emphasize their party preference over that for specific candidates. Because voters cannot express a preference for individual candidates at the ballot box in closed-list systems, they must prioritize their party preferences. Voters decide which party to support based on the parties' platforms and election promises – rather than any individual candidate's personal characteristics.

In addition to having an effect on electoral competition, list type also has an effect on legislative behavior. Closed lists typically engender high levels of party discipline (Depauw and Martin 2008). Party discipline refers to the control that party leaders have over their members of the legislature. In closed-list systems, party leaders can exert control over their members because legislators' best chance of winning reelection is to be at or near the top of the party list. Party leaders can effectively promise candidates a legislative seat by placing them at the very top of the party's list. To earn a position at the top of the list, legislators work hard to appease the party's leaders by promoting the interests of the party. In closed-list systems, fighting for the interests of their geographically defined constituents (i.e. voters in their own electoral district) does little to improve legislators' reelection chances – especially when the interests of their constituents run counter to the interests of the party. Legislators who work against the party's interests may be moved down the party list, which reduces their chances of winning reelection. Closed-list systems consequently engender high levels of party discipline.

Closed-list systems also align the incentives of individual legislators and party leaders. Party leaders seek to maximize the number of legislative

seats the party holds. Individual legislators also work to promote their party, which in turn maximizes the party's legislative seats. This dynamic reinforces the party-centered nature of electoral competition in closed-list systems.

Closed lists generate party-centered electoral competition, high levels of party discipline, and align the incentives of legislators and party leaders. As a result, constituency-focused earmarks like those frequently seen in plurality countries are improbable in closed-list systems. A city that wants money for a new museum, for example, might lobby their local representative(s) for government funds. But legislators elected via closed-lists have few incentives to respond to the demands of their geographically defined constituents – particularly if the legislator's own party has no interest in such a program. The party may instead want to spend government funds on other projects – specifically those most likely to maximize the party's legislative seat share. In this way, geographically concentrated interest groups often find themselves without a champion in closed-list PR systems – particularly at the national level. As a result, geographically concentrated producers tend not to win generous government subsidies in closed-list systems.

Instead, geographically diffuse groups are relatively more likely to win subsidies in closed-list systems. Subsidizing a geographically diffuse sector helps people across the country. For example, the Norwegian construction industry employs people across the entire country and subsidizing this industry consequently helps citizens in all regions. Employees in the construction industry benefit directly from subsidies via increased wages and more secure employment. Owners of capital invested in the industry benefit from above market rates of return and greater demand. Subsidies to the construction industry also help related sectors, such as real estate and retail. In this way, subsidies to one industry can indirectly benefit connected industries and services (Barber 2014).

Subsidies to a geographically diffuse industry indirectly benefit many more people than subsidies to a concentrated industry. In effect, there is a “dispersion bonus” from subsidizing geographically diffuse industries. The political profit from this dispersion bonus is greater for parties competing in PR systems, as compared to plurality systems. Parties in PR systems seek to maximize the number of votes they win in order to maximize the number of seats they hold in the legislature. In this institutional setting, subsidies to diffuse groups are a politically expedient electoral tool.

Even subsidizing a relatively small, yet diffuse, industry could be electorally beneficial in a PR system. If, for example, an industry employs just 2 percent of the population, a party could potentially

increase its vote share by 2 percent by subsidizing that industry. Depending on the magnitude of the “dispersion bonus” the electoral gains may be even larger. But even an increase of just 2 percent could be electorally valuable for parties competing in PR systems. In Sweden, for example, a 2 percent increase in a party’s vote share could translate into as many as seven additional legislative seats.

In all PR system, the political bonus from subsidizing geographically diffuse groups is electorally valuable for parties. Yet, only parties in closed-list systems have the necessary control over their legislators to ensure that funds go to the diffuse groups that maximize the party’s vote share. Party discipline in closed-list PR ensures that subsidies flow to geographically diffuse groups rather than the geographically concentrated supporters of individually powerful legislators (Golden and Picci 2008). In contrast, parties in open-list systems have greater difficulty disciplining their legislators’ vote-seeking behavior, as described in the following section.

Open Lists

Open lists generate candidate-centered electoral competition. Candidate-centered competition encourages the voter to see the basic unit of representation as the candidate rather than the party (Shugart, 1999: 70). Candidate-centered competition emerges in open-list systems because voters indicate not only their preferred party but can also designate their favorite candidate within that party (Shugart, 1999: 70). The party’s legislative seats are filled by those candidates who win the most votes. In this way, candidates from the same party compete against one another for votes and ultimately seats. Legislators cannot guarantee their own reelection just by working to ensure the party’s popularity. While a popular party may win many seats in parliament, voters ultimately decide who fills a party’s seats in open-list systems.

To maximize their chances of reelection, incumbents must do something to distinguish themselves from other candidates on a party’s list. One thing they can do is develop a personal vote. A personal vote is that part of a legislator’s vote that is based on his or her individual characteristics or record rather than the party to which the candidate belongs (Carey and Shugart 1995). Developing a personal support base among voters helps candidates to differentiate themselves from others on the same party list. In this way, generating a personal vote maximizes candidates’ chances of winning a legislative seat in open-list systems (Carey and Shugart 1995, Cox and McCubbins 2001).

Legislators can use particularistic economic policies to develop a personal vote (Lancaster 1986, Lancaster and Patterson 1990, Carey and Shugart 1995). Subsidies are one type of particularistic economic policy. Subsidies keep people employed, create new jobs and raise wages above market rates. By delivering subsidies, politicians can garner the support of voters who benefit directly, or even indirectly, from the program. In this way, subsidy spending is roughly analogous to legislative particularism, or “pork barrel” spending, when the beneficiaries of a subsidy are geographically concentrated. Subsidies to geographically concentrated groups represent the appropriation of government spending for localized projects secured solely or primarily to bring money to a representative’s district. Bringing “pork” back to the district helps politicians cultivate a personal vote (Fenno 1978, Ferejohn 1974, Wilson 1986).

In open-list systems, individual legislators’ best reelection strategy differs from parties’ optimal electoral tactics. Individual legislators endeavor to develop a personal vote by targeting benefits to voters concentrated in their electoral district or bailiwick. In contrast, parties seek to maximize the number of legislative seats they control. At times, these two objectives will come into conflict. A legislator may want to subsidize producers in her district to cultivate a personal vote. Yet, the legislator’s party may have no interest in subsidizing producers in that district. If, for example, the district is heavily populated by supporters of other parties, the legislator’s party will have little interest in providing subsidies to producers in that district.⁵

This disconnect between legislators’ incentives and parties’ incentives engenders problems for parties in open-list systems. Party leaders have few tools with which to discipline their legislators in open-list systems. While parties can effectively “promise” a candidate a legislative seat in closed-list systems by placing them at or near the top of the party’s list, the same is not true in open-list systems. The top spot on a party’s list does not guarantee a seat in open-list systems because voters can upset a party’s rank-ordering of candidates. As a result, parties have less ability to discipline their legislators’ behavior in open-list systems.⁶

Because parties cannot wholly discipline their legislators’ vote-seeking behavior in open-list systems, some subsidies will go to geographically concentrated groups. In open-list systems, legislators’ best reelection strategy is to develop a personal vote by supplying particularistic

⁵ See Chapter 7. See also Cox and McCubbins (1986), McGillivray (2004), Golden and Picci (2008).

⁶ See Martin (2014), for other tools parties can use to discipline their legislators.

policies, like subsidies, to their geographically defined constituents. Parties cannot fully discipline such behavior and as a result some rents will flow to geographically concentrated groups in open-list systems. Evidence of this pattern is found in Italy during the period from 1953 to 1994 when open lists were used to elect national legislators (Golden and Picci 2008).⁷ To cultivate their own personal support base, individually powerful legislators secured resources for their constituents in the form of infrastructure spending (Golden and Picci 2008). They did so even at the expense of the governing parties (Golden and Picci 2008). As the evidence from Italy illustrates, legislators in open-list systems have both the incentives and, at times, the opportunity to target benefits to their geographically defined constituents. Given this, I expect spending on subsidies to geographically concentrated groups to be higher in open-list systems, as compared to closed-list systems, all else equal.

CROSS-NATIONAL TESTS

I investigate the empirical relationship between list-type, economic geography, and subsidies in two different ways. First, I conduct a cross-national test using comparable data on central government spending on manufacturing subsidies for twelve countries with proportional electoral systems and varied list types. Second, I examine government spending on subsidies for different economic sectors in a single PR country with de facto closed lists. I describe these tests and the results in the following section and then examine the role of district magnitude.

Measuring List Systems

To capture the distinction between open and closed-list systems, I construct a variable that indicates when parties control both access to the ballot and the order in which candidates fill the party's legislative seats. When these two conditions are met, a country is characterized as having closed lists and the variable *Open List* equals zero. When parties control access to the ballot but not the order in which candidates receive seats, the country is classified as having open lists and the variable *Open List* equals one. These data come from Johnson and Wallack (2012) who build upon canonical insights from Carey and Shugart (1995).

⁷ In Italy during this period, voters could decide to use as many as three (and in very large districts, four) preference votes for individual candidates on the party list of their choice (Chang and Golden 2007). Preference votes were restricted to one in the 1992 parliamentary elections.

The sample includes only PR countries because I am interested in the variation in governments' economic policies among proportional systems. While list type and district magnitude vary among PR systems, plurality systems have only one representative per district and often allow independent candidates and/or use primaries to select candidates. For this reason, plurality systems are excluded from the sample under investigation in this chapter. Although plurality systems are excluded, mixed member proportional (MMP) systems, like Germany, are included in the sample. In mixed systems, legislators in the same legislative chamber are elected via different institutions. To account for this, I estimate the institutional setting for the "average legislator" by calculating the weighted average of the variable *Open List*. Germany's value of *Open List*, for example, equals a country-level weighted average, which ranges from 0.95 to 0.99. All other countries in the sample take a value of zero or one. In Spain, for example, the variable *Open List* equals zero because party leaders determine which candidates will fill the party's seats (i.e. it is a closed-list system).

Although the coding scheme is straightforward, it is often difficult to determine the extent to which parties control candidates' order on the ballot in practice. In some cases, voters may disturb party lists with preference votes ("flexible lists"), but the extent to which they are actually affected in practice by preference votes varies according to thresholds and empirical circumstances. In Norway, for example, voters may, in theory, modify the order of candidates on the list. Voters are allowed to change the rank order of the candidates on the list as well as cross out candidates (Aardal, 2011: 8). However, the levels of coordination required to overturn the parties' rankings are so extreme that they effectively deter any attempts to do so. At least half of the voters have to make exactly the same alterations of the list for it to have any effect (Aardal, 2011: 8). As a result, Norway's system is effectively a closed-list system for all practical purposes (Aardal, 2011: 8).

The variable *Open List* captures de facto practice rather than de jure rules.⁸ Flexible lists are coded as closed lists when, as in Norway, there is

⁸ Johnson and Wallack (2012). The determination of ballot access is complicated. Oftentimes, where ballot access is legally controlled only by political parties, individual candidates may have de facto ballot access if they establish a new political party. Similarly, rules on the books regarding ballot access may imply that parties do not tightly control ballot access, but access is de facto prohibitive for other reasons, such as political dominance by a single-party or regime. To facilitate cross-country comparison of ballot access, Johnson and Wallack (2012) attempt to capture de facto practice that differs from de jure rules. Johnson and Wallack (2012) relied on the "Candidacy Requirements" listed on the Inter-Parliamentary Union's Parline database (www.ipu.org) to determine whether individual candidates faced stringent

little or no actual change in list order based on electoral data and reports. Flexible lists are coded as open lists where preference votes actually influence which of a party's candidates are elected. Thirty-three percent of the sample observations use closed party lists, according to these criteria, while 59 percent use open lists. The remainder have a mixed system with a country-level weighted average that falls between zero and one, as in Germany.

Measuring Economic Geography

To estimate the geographic concentration of voters with a shared interest in manufacturing subsidies, I measure the concentration of manufacturing employment. Details about how this measure is constructed can be found in Chapter 4. The measure captures the degree of a sector's employment concentration relative to the geographic distribution of aggregate employment. The concentration variable ranges from zero to one with higher values indicating more geographic concentration. The construction of the geographic concentration variable is data intensive. Consequently, this variable can only be constructed for a relatively small sample of highly developed countries for which the necessary employment data are available. Although this limited sample raises potential questions about the external validity of the results, it allows for direct comparisons with previous studies of electoral institutions that use similar samples (e.g. Bawn and Rosenbluth 2006, Persson et al. 2007).

Measuring Subsidies

Subsidy spending equals the amount spent by the central government on grants and loans for the manufacturing sector as a percentage of total government expenditures (excluding interest payments).⁹ This ratio

requirements for ballot access. Where available, Johnson and Wallack (2012) also inferred from electoral data or country reports the relative ease for individual candidates to appear on the ballot.

⁹ These spending data come from the International Monetary Fund's *Government Financial Statistics*. These data include all fiscal outlays targeted to the manufacturing sector – including all subsidies, grants, and subsidized loans provided to the manufacturing sector to support manufacturing enterprises and/or development, expansion or improvement of manufacturing. Although conventional government accounts are generally not suitable for comparisons between countries and over time because they reflect the organizational structures of governments, these standardized data allow for meaningful cross-national comparisons. For additional information, see the *Government Finance Statistics Manual* (IMF 2001).

indicates the relative importance of subsidies among governments' myriad spending priorities.

Cross-National Model

I regress subsidy spending on employment concentration and an interaction term equal to the product of employment concentration and *Open List*, along with both constitutive terms. More precisely, a partial-adjustment regression is estimated by ordinary least squares (OLS) with the following form and robust standard errors:

$$\text{Subsidies}_{it} = \beta_0 + \beta_1 \text{Open List}_{it-1} + \beta_2 \text{Concentration}_{it-1} + \beta_3 \text{Open List}_{it-1} * \text{Concentration}_{it-1} + \beta X_{it-1} + \varepsilon_{it}$$

where ε_{it} is an error term. The coefficient on β_3 is expected to be positively signed; as the geographic concentration of manufacturing employment increases, I expect politicians in open-list systems to become relatively more responsive to demands for manufacturing subsidies.

X_{it-1} refers to a vector of control variables. All estimated models include at least three key control variables. The first control variable is a measure of trade openness. Since manufacturing subsidies assist domestic producers in competing with lower cost foreign imports, countries more open to trade may spend more on subsidies (Rickard 2012b). Trade openness may also systematically correlate with electoral institutions. Countries dependent on international trade tend to have electoral rules that minimize the influence of narrow, protectionist interest groups (Rogowski 1987). To reduce the potential for a spurious correlation, a variable measuring trade openness as the sum of imports plus exports divided by GDP is included as a control.

The second control variable included in all estimated models is *GDP per capita*. Electoral support from lower-income voters may be relatively cheaper to “buy” using subsidies (Lindbeck and Weibull 1987, Dixit and Londregan 1996). Manufacturing subsidies may, therefore, be higher in countries whose voters have relatively lower incomes on average as a result of strategic “vote-maximizing” spending by national governments.

The third control variable is country size, measured by the natural log of a country's land area in square kilometers. Large countries will tend to have bigger manufacturing industries, which may increase government spending on manufacturing subsidies. Country size may also relate systematically to electoral systems and the geographic concentration of sector employment (Blais and Massicotte 1997). Controlling for country size minimizes the possibility of finding a spurious correlation.

Despite the potential relationship among the three key control variables, standard tests show acceptable levels of multicollinearity.¹⁰ Additional control variables are introduced one-at-a-time to further minimize multicollinearity. These additional control variables are:

Federalism, a dichotomous variable coded one for federal systems and zero otherwise. This is a potentially important control since the subsidy data refer only to central government expenditures. Data on general government spending, including that from local and regional governments, is often missing and when available it tends to be less reliable than central government spending data (Persson and Tabellini 2003). Furthermore, the precise definition of local and regional governments' outlays are often incomparable across countries and time periods (Persson and Tabellini 2003). Central government expenditures on subsidies may be lower in federal systems than nonfederal systems if some of the burden of subsidizing industries falls to regional and local governments. This would be particularly problematic if federal systems co-vary with electoral systems. *Federalism* is therefore introduced as a control variable.

Sector Employment equals the number of people employed in the manufacturing sector as a percentage of the total labor force. This is a potentially important control variable because the number of people employed in manufacturing may influence both the amount spent on manufacturing subsidies and the geographic distribution of manufacturing employees.

Left is a dichotomous variable coded one if the largest governmental party is left of center and zero otherwise. In general, governments' industrial policies tend to have only a minimal ideological component (Verdier 1995, McGillivray 2004, Thomas 2007, Rickard, 2012c). However, controlling for ideology is important because left governments tend to be associated with proportional electoral systems (Iversen and Soskice 2006). Failure to control for the ideological tendency of a government could result in mistakenly assigning explanatory power to electoral rules rather than ideology.

Production factors employed in geographically concentrated sectors may confront higher adjustment costs than factors in geographically diffuse sectors. Factors with higher adjustment costs invest more in lobbying (Hiscox 2002, Rickard 2009), which raises the possibility that asset specificity rather than *Concentration*, per se, explains groups' political influence. A measure of labor mobility is therefore introduced

¹⁰ The variance inflation factor (VIF) is less than 4 for all variables included in the estimated models, as recommended by Huber et al. (1993).

as a control variable. This measure estimates the adjustment costs facing workers in the manufacturing sector by calculating the rate of labor movement between industries in the sector (Wacziarg and Wallack 2004). The rate of movement varies according to the costs to workers of voluntarily entering and exiting different industries. Higher rates of movement indicate lower adjustment costs. Including *Labor Mobility* in the estimated model does not change the key results and suggests that geographic concentration is, in fact, the source for explanation rather than adjustment costs.

Another plausible alternative explanation is the number of parties in government. The current study's argument maintains that electoral institutions affect politicians' incentives to cater to certain constituencies. Electoral systems may also influence subsidy spending via the number of parties in government. Single-party governments are most common in plurality systems, while PR systems are more likely to foster multiparty governments. Multiparty governments typically spend more than single-party governments because multiparty governments negotiate less efficient logrolls (Bawn and Rosenbluth 2006). This raises the possibility that multiparty governments will spend more on subsidies than single-party governments. If this is the case, the reported results may not be the consequence of the suggested electoral dynamics but rather the accountability and bargaining dynamics induced by multi- versus single-party governments. To test for this possibility, the number of parties in government is introduced as an additional control variable. Including the number of parties in government as a control variable in the estimated model does not change the key results.

Concentration (squared) tests for the possibility that maximum political influence occurs at some intermediate level of geographic concentration. The literature on interest group politics in plurality systems hypothesizes a positive coefficient for the un-squared concentration term and a negative coefficient for the squared term (Grier et al. 1994). However, the expectations are less clear for PR countries.

Cross-national Results

Governments elected via closed lists spend more on subsidies for geographically diffuse sectors than governments elected via open lists, as reported in Table 6.1. When geographic concentration is at its lowest observed value (i.e. zero), moving from a closed-list to an open-list PR system reduces subsidy spending by approximately one percentage point on average across all estimated models. The negative marginal effect of

Table 6.1 *Effect of open-party lists on subsidy budget shares*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
L.Open list	-0.274*	-0.949***	-0.963***	-1.049***	-1.152***	-1.371***	-0.915***	-1.027***
	(0.145)	(0.225)	(0.271)	(0.196)	(0.244)	(0.259)	(0.211)	(0.219)
L.Concentration	-23.83***	-36.12***	-36.32***	-39.00***	-39.27***	-46.01***	-25.03***	-53.78***
	(4.092)	(5.723)	(6.417)	(5.631)	(5.948)	(5.784)	(6.203)	(9.592)
L.Open list*L. Concentration		17.544***	17.643***	15.020**	19.700***	23.636***	17.456***	18.061***
		(6.057)	(6.359)	(5.778)	(5.974)	(7.666)	(5.518)	(5.799)
L.Trade	0.016***	0.017***	0.017***	0.015***	0.015***	0.016***	0.011*	0.018***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.004)
L.GDP per capita (log)	-1.998***	-2.207***	-2.206***	-2.105***	-2.211***	-2.476***	-1.422***	-1.982***
	(0.197)	(0.206)	(0.206)	(0.204)	(0.201)	(0.226)	(0.342)	(0.262)
L.Area (log)	0.263***	0.299***	0.295***	0.292***	0.313***	0.347***	0.226**	0.322***
	(0.069)	(0.067)	(0.075)	(0.077)	(0.068)	(0.088)	(0.089)	(0.069)
Federalism			-0.021					
			(0.161)					
L.Employment				-1.413				
				(1.875)				
L.Left government					-0.272**			
					(0.130)			

(continued)

L.Number of government parties						0.174**		
						(0.074)		
L.Labor Mobility							5.139	
							(6.279)	
L.Concentration^2								212.582**
								(101.720)
Constant	16.767***	18.786***	18.855***	19.226***	19.363***	22.095***	12.608***	16.595***
	(2.544)	(2.622)	(2.836)	(2.999)	(2.602)	(2.758)	(3.159)	(3.110)
Observations	162	162	162	141	162	141	144	162
R-squared	0.515	0.533	0.533	0.521	0.545	0.590	0.210	0.543

Robust standard errors appear in parentheses. All models include year fixed effects. Year coefficients are not reported due to space constraints. *** p < 0.01, ** p < 0.05, * p < 0.1.

open lists on subsidy spending is statistically significant for all values of geographic concentration less than 0.04. In other words, governments in closed-list systems spend more on subsidies than governments in open-list systems when employment is geographically diffuse. Seventy-seven percent of the sample observations fall in this range.

Spending on subsidies for geographically diffuse sectors is higher in closed-list systems as compared to open-list systems because parties in closed-list systems are better able to discipline their legislators' vote-seeking behavior. In open-list systems, where party discipline is lower, powerful individual legislators divert some money away from broadly beneficial programs to fund geographically targeted programs that benefit their own constituents. Legislators do this in an attempt to develop a personal vote, which is electorally valuable in open-list systems. In contrast, individual legislators in closed-list systems have neither the incentive nor the opportunity to funnel money to producers concentrated in their own district. Legislators and party leaders tend to eschew narrowly targeted programs in favor of programs that benefit people across the country in closed-list systems. As a result, spending on subsidies for geographically diffuse sectors is higher in closed-list systems than open-list systems.

As the beneficiaries of subsidies become more and more geographically concentrated, the negative marginal effect of open lists declines and eventually becomes positive, as illustrated in Figure 6.1. When

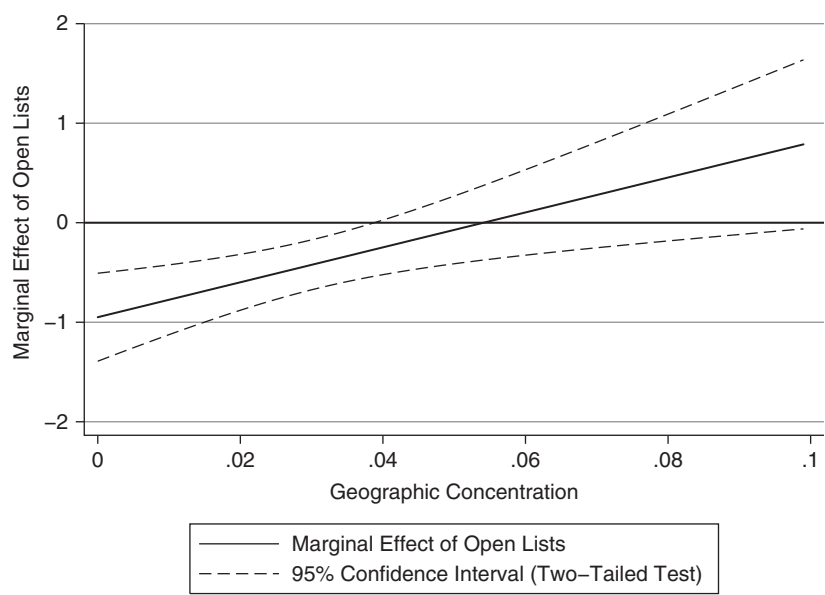


Figure 6.1 Marginal effect of open lists on subsidy budget shares in PR countries

geographic concentration is greater than 0.05,¹¹ moving from a closed-list to an open-list PR system increases subsidy spending. When geographic concentration is at its highest observed value, moving from a closed-list system to an open-list system increases subsidy spending by nearly one percentage point on average across all estimated models. Although the positive marginal effect does not reach the 95 percent level of statistical significance, it is consistent with evidence from previous studies of Italy and Brazil. Single-country studies have shown that electorally motivated policy targeting occurs in open-list PR. Voters in open-list PR countries, like Brazil, appear to support candidates offering particularistic economic policies, such as subsidies, over candidates promising broadly beneficial policies (Ames, 1995: 413).

As geographic concentration increases, governments in closed-list PR systems spend less on subsidies. This result is illustrated in Table 6.1 by the negative and statistically significant coefficient on *Concentration*. The coefficient on *Concentration* illustrates the effect of increased geographic concentration on subsidy spending in closed-list PR systems (i.e. when *Open List* equals zero). Across all estimated models, the coefficient is negative and significant indicating that government spending falls in closed-list PR systems as geographic concentration increases. More precisely, subsidy spending falls by 3.5 percentage points in closed-list systems when concentration increases from its minimum sample value to its maximum. The same increase in geographic concentration reduces subsidies by just 2 percentage points in open-list systems. Although geographic concentration is a political liability in all PR systems, it is relatively more detrimental to interest groups in closed-list PR systems where elections are party-centered and individual legislators have few incentives or opportunities to champion the interests of geographically concentrated groups.

I also estimate a two-stage least squares model to allay concerns about potential endogeneity. Indicators of the historical period during which a country's current electoral rules were adopted are used to instrument the variable *Open List* in the first stage of the model, following Persson and Tabellini (2003), Evans (2009) and others. The distribution of current electoral rules vary with the age of the rules (Persson and Tabellini 2003). Experience of other democracies and prevalent political and judicial doctrines shift systematically over time and these shifts may explain why the distribution of current electoral rules vary with the age of the rules. List type also varies with the age of electoral rules. Open lists are more common in younger electoral systems while closed lists are more frequent

¹¹ Which is the case for 16 percent of the sample observations.

in older systems. The age of electoral systems robustly predicts list type even though the type of list used generally changes more often than the electoral rule. Despite this, the age of a country's electoral system is a robust predictor of list type.

I exploit the temporal pattern in electoral systems by constructing three dummy variables that correspond to the periods: 1921–1950, 1951–1980, and post-1981. The dummy variables take a value of 1 if the current electoral system originated in the respective period, and 0 otherwise.¹² Countries' electoral systems and list type are robustly associated with the year in which countries' constitutions were adopted. However, the date at which a country adopts its constitution is unlikely to affect industrial policy or manufacturing subsidies. Indeed, the historical period during which a country's current electoral rules were adopted is not correlated with subsidy spending.

The results from the second-stage of the 2SLS model are reported in Table 6.2. The marginal effect of *Open List* on subsidies is negative and statistically significant when the beneficiaries are geographically diffuse. When *Concentration* equals zero, governments in closed-list systems spend more on subsidies than governments in open-list systems, all else equal. As *Concentration* increases, the negative marginal effect of *Open List* declines and eventually becomes positive. At high level of *Concentration*, the marginal effect of *Open List* is positive. In other words, governments in open-list systems spend more on subsidies than governments in closed-list systems when the beneficiaries are geographically concentrated.

In short, the key results are robust to an alternative model specification that relaxes the assumption that electoral systems are exogenous.¹³ In fact, using the instruments in the first-stage model increases the estimated effects of key variables in the second-stage model. Compare, for example, the estimated coefficient on *Open List* in column 2. For the OLS results in Table 6.1, the estimated coefficient on *Open List* equals –0.95. For the 2SLS results reported in Table 6.2, the estimated coefficient equals –1.35. Instrumenting for a country's list type using the age of the electoral system increases by 42 percent the estimated reductive effect of *Open Lists* on subsidies to geographically diffuse groups. These results suggest that the OLS models likely report lower bound estimates.

¹² Persson and Tabellini (2003) demonstrate that these specific time periods best describe the pattern of electoral system adaptation.

¹³ If anything, correcting for potential endogeneity appears to reduce the standard errors on the estimated marginal effect of *PR*.

Table 6.2 *Second-stage results of the effect of open-party lists on subsidy budget shares*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
L.Open List	-0.658*** (0.228)	-1.351*** (0.363)	-0.247 (0.542)	-1.399*** (0.304)	-1.630*** (0.400)	-1.794*** (0.447)	-0.813*** (0.302)	-1.101*** (0.316)
L.Concentration	-32.47***	-46.92*** (7.340)	-31.93*** (9.697)	-48.22*** (7.294)	-51.53*** (7.964)	-57.47*** (8.241)	-28.71*** (6.016)	-59.23*** (10.518)
L.Open List*L. Concentration		26.463*** (7.444)	9.142 (10.295)	24.977*** (7.542)	29.620*** (7.808)	33.917*** (9.550)	15.765** (6.576)	20.302*** (6.881)
L.Trade	0.012*** (0.004)	0.015*** (0.004)	0.016*** (0.003)	0.015*** (0.004)	0.012*** (0.004)	0.014*** (0.004)	0.010** (0.005)	0.016*** (0.003)
L.GDP per capita (log)	-2.136*** (0.179)	-2.379*** (0.177)	-2.214*** (0.195)	-2.253*** (0.188)	-2.391*** (0.176)	-2.703*** (0.197)	-1.616*** (0.284)	-2.058*** (0.226)
L.Area (log)	0.249*** (0.081)	0.343*** (0.063)	0.460*** (0.080)	0.335*** (0.072)	0.363*** (0.065)	0.410*** (0.085)	0.276*** (0.080)	0.362*** (0.064)
Federalism			0.557*** (0.195)					
L.Employment				0.092 (1.732)				
L.Left government					-0.365*** (0.119)			

(continued)

Table 6.2 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
L.Number of government parties						0.232*** (0.073)		
L.Labor mobility							2.905 (5.831)	
L.Concentration^2								214.464** (93.778)
Constant	19.393*** (2.607)	20.646*** (2.385)	16.520*** (3.071)	19.681*** (2.908)	21.488*** (2.416)	23.302*** (2.480)	13.431*** (2.592)	17.284*** (2.736)
Observations	151	151	151	132	151	132	133	151
R-squared	0.549	0.583	0.616	0.569	0.593	0.646	0.278	0.600

From 2SLS Model. Robust standard errors appear in parentheses. All models include year fixed effects. Year coefficients are not reported due to space constraints. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. In the first stage model, *Open List* is predicted using historical periods, as described in the text.

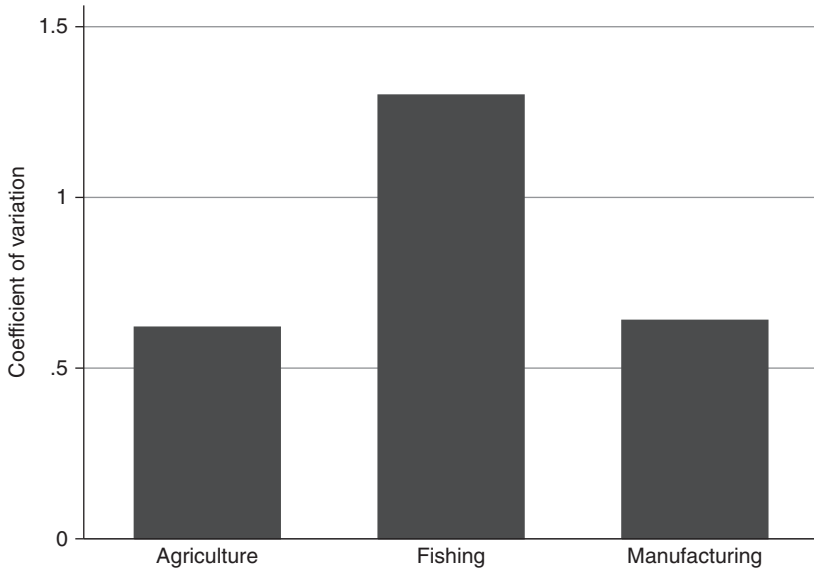


Figure 6.2 Variation in the geographic concentration of economic sector employment in Norway from 2008–2012.

Notes: Author's calculations using employment data from Statbank (www.ssb.no/en/statistikbanken)

Arguably the instrumental variables allow us to more closely estimate the causal relationship between electoral systems and subsidy spending. Instruments may, in fact, get us as close as possible to identifying causal relationships given that we cannot randomly assign electoral rules or list systems to countries. Can we ever know if electoral rules “cause” distinct policy outcomes, given the myriad unobservable factors that drive the selection of electoral systems and policies? Ultimately, to know this we would need to answer the counterfactual question: If we picked a country at random and went back in history to change its electoral rules, how would this alter its current economic policies? (Persson and Tabellini 2003). The problem, of course, is that we cannot observe the relevant counterfactual. This daunting challenge should not lead scholars to abandon research on electoral systems and policy. Understanding how electoral institutions, a fundamental feature of democracy, influence policy outcomes is an important research agenda. And much can be learned from observational data, as demonstrated here. Although observational data do not typically identify causal effects, instrumental variables help to reveal estimates closer to causal relationships and uncover interesting and important patterns, which can feed into theory building.

A few words about the control variables are in order. Left governments spend less on subsidies than right governments, all else equal. In both Tables 6.1 and 6.2, the coefficient on *Left Government* is negatively signed and statistically significant. Among PR countries, left-leaning governments tend to allocate less of their budget to subsidies than right-leaning governments, all else equal.

Coalition governments spend more on subsidies when they included relatively more parties, all else equal. The estimated coefficient on the *Number of parties in government* is positive and statistically significant in Tables 6.1 and 6.2. The more parties involved in a government coalition, the more money allocated to subsidies, all else equal. This result confirms the idea that coalition governments typically spend more money than single-party governments because each party in government funds programs for their own supporters (Bawn and Rosenbluth 2006). Although the number of government parties influences subsidy spending, electoral systems continue to have a robust, independent effect. Even when the number of parties in government is included as a control variable, the estimated coefficient on *Open List* remains statistically significant.

Within-Country Test

Subsidies vary within – not just between – countries. Even in countries with generous subsidies, not all sectors benefit equally from government support. Some sectors receive lavish amounts of state aid while others receive relatively little financial assistance from the government. How can the variation in subsidies *within* a country be explained?

National electoral institutions are constant within a country – they typically do not vary over the short to medium term. On their own then electoral institutions cannot explain the varied generosity of subsidies between different economic sectors within a given country. Instead, the within country variation in subsidies is explained, in part, by economic geography. In any given country, employment in some sectors will be more geographically concentrated than in other sectors. I exploit the cross-sectoral variation in employment patterns in a single country to investigate the policy effects of economic geography. A single-country study holds constant electoral institutions and other time-invariant, country-specific factors, such as culture. Holding institutions constant isolates the effects of economic geography on policy outcomes. However, electoral institutions interact with economic geography to shape economic policy. So even when electoral institutions are held constant, as in a single-country case study, it is important to understand

the country's electoral system to understand how economic geography will shape economic policy.

The country under investigation here is Norway. Norway has a proportional representation system with *de facto* closed party lists. Voters cast a ballot for a party list and the names on a party's list correspond with the candidates representing that party. The candidates are chosen by the nomination conventions of each party (Sørensen 2003). In theory, voters may modify the order of candidates on the list. Voters are allowed to change the rank order of the candidates on the party list as well as cross out candidates (Aardal, 2011: 8). However, the levels of coordination required to overturn the parties' rankings are so extreme that they effectively deter attempts to do so. At least half the voters have to make exactly the same alterations of the list for it to have any effect (Aardal, 2011: 8). For all practical purposes, Norway's system is effectively a closed-list system (Aardal, 2011: 8).

How does economic geography shape policy in a closed-list PR system like Norway? Geographically diffuse groups are politically advantaged in closed-list PR systems. As a result, diffuse groups win greater subsidies in closed-list systems as compared to open-list systems, as illustrated by the cross-national results reported in Tables 6.1 and 6.2. Diffuse groups win more subsidies in closed-list systems because closed lists engender party-centered electoral competition, generate high levels of party discipline, and align the incentives of individual legislators and party leaders. In closed-list systems, individual legislators have few incentives or opportunities to champion the interests of geographically concentrated groups. As a result, concentrated groups often find themselves without a champion at the national level in closed-list systems. Parties and their legislators instead work to assist groups spread across the country to maximize the party's legislative seats. Sectors with geographically diffuse employment will consequently win more generous subsidies than concentrated sectors in closed-list PR systems.

I test this hypothesis using novel data on government-funded subsidies to various sectors in Norway. The Ministry of Finance provided the subsidy data to me upon request. The data indicate the net subsidy costs in millions of Norwegian krone (NOK) at 2013 prices deflated by annual inflation for the gross domestic product of mainland Norway.¹⁴ Using these data, I calculate the amount spent on subsidies for three economic sectors that exhibit varying degrees of geographic concentration: agriculture, fishing, and manufacturing. My first dependent variable

¹⁴ Lone Semmingsen, Deputy Director General, Ministry of Finance, Norway, Written communication, January 20, 2015.

equals the amount spent on subsidies to each of these sectors. My second dependent variable equals the amount spent on subsidies to a given sector as a percentage of total subsidy spending. The second measure reports how much of the government's total subsidy budget went to a particular sector of the economy. I hypothesize that more diffuse sectors will win more of the government's total subsidy budget in this de facto closed-list PR system, controlling for the size of the sector.

Measuring Geography Concentration

To measure the geography of sectors' employment, I use highly disaggregated employment data from Statistics Norway – the national statistical institute of Norway and the main producer of official economic statistics.¹⁵ These data report the number of employed persons by sector, electoral district, and year. I calculate the standard deviation of each sector's employment for each of Norway's nineteen electoral districts for every year during the period from 2008 to 2012. The standard deviation of a sector's employment across electoral districts provides politically relevant information about the geographic distribution of employees. If all of a sector's employees were located in a single electoral district, the standard deviation would equal one – its maximum possible value. The standard deviation of sector employment across electoral districts provides a measure of geographical concentration that corresponds with the theoretical concept of interest and varies within a single country.

As an alternative measure of geographic concentration, I calculate the coefficient of variation (COV), which equals the standard deviation of sector employment divided by the mean. The COV shows the extent of variability in relation to the mean of the population. In other words, the coefficient of variation normalizes the standard deviation with respect to the mean, which is useful when the means vary. Figure 6.2 reports the COV for three important sectors of the Norwegian economy averaged over the period from 2008 to 2012.¹⁶

The geography of employment varies in between sectors, as illustrated in Figure 6.2. Of the three sectors investigated here, agriculture employment is the most geographically diffuse. Agriculture employs a relatively similar number of people in all nineteen of Norway's electoral districts. Given this, agriculture is characterized as being a geographically diffuse sector in

¹⁵ www.ssb.no/en/statistikkbanken.

¹⁶ This measure of geographic concentration differs from the measure used in Chapter 4 in order to maximize the number of sectors included in the single-country sample.

Norway. In fact, Norway's agriculture sector is more geographically diffuse than the OECD average (OECD 2008).

In contrast, employment in the Norwegian fishing sector was geographically concentrated during the period from 2008 to 2012.¹⁷ Today, more than half of the fishing sector's labor force lives in just three electoral districts: Finnmark, Nordland, and Møre og Romsdal (Fløysand and Jakobsen 1999). Traditionally, employment in the fishing industry was more evenly spread across the country. However, in recent years the industry has become more and more concentrated (Fløysand and Jakobsen 1999). The industry's increased geographic concentration may explain why political support for fishing subsidies has fallen. Over the period from 1980 to 1990, spending on fishing subsidies fell by around 90 percent (Ásgeirsdóttir 2008). In 1981, the government spent 133 million krone on support for the fishing industry (Isaksen 2000). These support measures included minimum income guarantees, bait subsidies, insurance subsidies, and price support programs (Isaksen 2000, Schrank 2003). By 1999, spending on fishing-industry subsidies fell to just 86 million krone (Isaksen 2000).

The Norwegian government was able to withdraw financial support from the fishing industry without incurring major political costs (Ásgeirsdóttir 2008). The political risks from cutting fishing subsidies fell as the industry's employees became more and more geographically concentrated. The industry's remaining employees are almost entirely concentrated along the coast in just three electoral districts (Fløysand and Jakobsen 1999). The industry's increased geographical concentration translated into less political clout in Norway's closed-list PR system, as made clear in interviews with members of the union and employer association for Norwegian fisherman (*Norges Fiskarlag*). One interviewee said, "We (still) have influence, but we feel we have been sidelined" (Ásgeirsdóttir, 2008: 70). Changes in the industry's employment patterns left, "fewer voters for the fisheries to mobilize" (Ásgeirsdóttir, 2008: 70) and as a result, the industry enjoys less political influence that it did when its employees were geographically diffuse.

The fishing industry's experience provides anecdotal evidence of the political importance of economic geography in closed-list PR systems. I aim to provide systematic evidence of this pattern using an econometric model of government spending on sector-specific subsidies. To this end, I regress sector-specific subsidies on sector employment patterns for three sectors of the Norwegian economy (agriculture,

¹⁷ The OECD report combines agriculture and fishing and as a result it obscures the variation in concentration in these two sectors.

Table 6.3 *Effect of geographic concentration on sector-specific subsidies in a closed-list PR system*

	(1) Subsidies (NOK mil)	(2) Percent of total subsidies	(3) Subsidies (NOK mil)	(4) Percent of total subsidies
Coefficient of variation	-15.137*** (2.494)	-0.666*** (0.110)		
Standard deviation of sector employment			-25.265*** (2.140)	-1.111*** (0.094)
Total sector employment			0.772*** (0.065)	0.034*** (0.003)
Constant	20.396*** (2.310)	0.897*** (0.102)	14.673*** (0.969)	0.645*** (0.043)
Observations	15	15	15	15
R-squared	0.739	0.739	0.922	0.921

Notes: The unit of analysis is sector-year. Standard errors appear in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

fishing, and manufacturing) over the course of five years (2008–2012). The sample size is limited by data availability. Given the small sample, I estimate a parsimonious model with a few key control variables. The results, reported in Table 6.3, must consequently be treated with caution.

Within Country Results

Governments spend more money on subsidies for geographically diffuse sectors than on geographically concentrated sectors in Norway, a de facto closed-list PR country. Sectors that employ a comparatively uniform number of people across the country's nineteen electoral districts win relatively more generous subsidies. The greater the variance in a sector's employment between electoral districts, the fewer krone the sector receives in government-funded subsidies.

The estimated coefficients on both measures of geographic concentration are negatively signed and statistically significant in all models. The coefficient of variation (COV) is negatively correlated with subsidies, as reported in columns 1 and 2 of Table 6.3. An increase in the COV by one standard deviation over its mean value results in a 53.6 percent decrease in subsidies. In other words, sector subsidies fall from 7.44 million NOK to 3.45 million NOK when the coefficient of

variation increases by one standard deviation over its mean value. An increase in the standard deviation of sector employment also correlates negatively with subsidy spending. In sum, sectors with more geographically concentrated employment win relatively fewer subsidies in this closed-list PR country.

Importantly, the negative correlation between sector concentration and sector subsidies remains statistically significant when controlling for a sector's total employment. Larger sectors in terms of employees receive more subsidies than smaller sectors, as illustrated in columns 3 and 4 of Table 6.3. However, the geographic diffusion of employees remains a robust predictor of subsidies controlling for total employment. This is an important finding. It is often difficult to isolate the impact of total employment from the geographic concentration of employment, as the fishing industry example suggests. Employment in Norway's fishing industry declined and became increasingly concentrated at the same time, making it difficult to isolate the policy effects of these two simultaneous changes. However, in the econometric model, it is possible to control for total employment and consequently isolate the effects of geographic concentration on subsidy spending. Holding total employment constant, increased geographic concentration reduces government spending on subsidies in closed-list PR systems.

DISTRICT MAGNITUDE AND LIST TYPE

The type of list system used in countries with proportional electoral systems influences the generosity of government subsidies. The effect of a list system on governments' subsidy spending depends on the geographic distribution of beneficiaries. In this way, list systems interact with economic geography to influence subsidy spending. List systems may also interact with district magnitude to shape politicians' incentives to supply certain economic policies, such as subsidies. District magnitude refers to the number of candidates elected in a district.¹⁸ District magnitude varies among PR countries.¹⁹ In some countries, as few as two legislators are elected from each district, as in Chile. In others, as many as 150 legislators are elected from a single district, as in Slovakia where the entire country makes up one electoral district.

¹⁸ District magnitude is distinct from the geographical size of a district and the number of voters in it.

¹⁹ While district magnitude typically equals one in plurality systems, it varies when comparing proportional systems.

District magnitude may interact with a country's list type to shape politicians' incentives to cultivate a personal vote (Carey and Shugart 1995, Shugart, Valdini, and Suominen 2005, Chang and Golden 2007, Carey and Hix 2011). Increases in district magnitude intensify personal vote incentives in systems where institutions, such as open lists, already encourage personal vote-seeking (Carey and Shugart 1995). As district magnitude increases, the number of co-partisans from which a given candidate must distinguish herself grows. As a result, the importance of establishing a unique personal reputation, distinct from that of the party, increases with district magnitude in open-list PR systems (Carey and Shugart 1995).

Politicians can build their personal support bases using subsidies. However, the usefulness of subsidies to develop a personal vote depends on the geographic concentration of the beneficiaries. When beneficiaries are geographically concentrated in a legislator's district or bailiwick, subsidies can be an effective means by which to cultivate a personal vote. In contrast, when beneficiaries are geographically diffuse across the country, promising subsidies to that sector will be an inefficient way to cultivate a personal vote. Given the powerful incentives that exist to cultivate a personal vote in open-list PR systems when district magnitude increases, I hypothesize that subsidies will be relatively more generous when beneficiaries are geographically concentrated and district magnitude is relatively high.

I test this hypothesis by estimating the effects of district magnitude and economic geography on subsidies in a sample of open-list PR countries. To measure district magnitude, I use the average number of representatives elected to the lower (or only) legislative chamber by each district. I interact this measure of mean district magnitude with geographic concentration. The results are reported in Table 6.4 and displayed graphically in Figure 6.3.

In open-list PR systems, the marginal effect of mean district magnitude on subsidy budget shares is positive and statistically significant when beneficiaries are geographically concentrated. Whenever geographic concentration is greater than 0.043, mean district magnitude is positively correlated with subsidy spending. Ten percent of the sample observations fall in this range. This result is consistent with the argument that higher district magnitude reinforces politicians' incentive to cultivate a personal vote in systems that already encourage personal vote-seeking, such as open-list PR.

Politicians competing in open-list PR systems fund subsidies when the beneficiaries are geographically concentrated in order to cultivate a personal vote. When mean district magnitude is at its highest observed

Table 6.4 *Effect of mean district magnitude on subsidies in open-list PR*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
L.Mean District Magnitude (log)	-0.170*** (0.064)	-1.029*** (0.300)	-0.754** (0.291)	-0.616* (0.319)	-1.008*** (0.296)	-1.069*** (0.288)	-0.562 (0.424)	-0.988*** (0.324)
L.Concentration	-29.463*** (3.190)	-84.793*** (16.820)	-67.474*** (16.006)	-58.196*** (18.298)	-84.571*** (16.438)	-88.887*** (15.523)	-58.384** (23.807)	-91.390*** (17.713)
L.MDM*L. Concentration		30.014*** (9.570)	20.689** (9.150)	18.417* (9.561)	29.503*** (9.386)	31.507*** (8.933)	15.745 (12.525)	29.876*** (9.634)
L.Trade	-0.000 (0.004)	-0.008* (0.004)	-0.005 (0.004)	-0.010** (0.004)	-0.009** (0.004)	-0.009* (0.004)	-0.006 (0.005)	-0.008** (0.004)
L.GDP per capita (log)	-2.857*** (0.306)	-2.670*** (0.315)	-2.966*** (0.301)	-3.275*** (0.397)	-2.662*** (0.313)	-2.750*** (0.310)	-2.946*** (0.630)	-2.625*** (0.342)
L.Area (log)	0.270*** (0.090)	0.178* (0.094)	0.259*** (0.087)	0.067 (0.143)	0.195* (0.106)	0.184* (0.109)	0.241** (0.096)	0.192* (0.106)
Federalism			0.692*** (0.144)					
L.Employment				7.591* (4.500)				

(continued)

Table 6.4 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
L.Left government					-0.149 (0.187)			
L.Number of government parties						0.107 (0.084)		
L.Labor Mobility							-2.325 (7.872)	
L.Concentration^2								76.568 (127.828)
Constant	28.078*** (3.763)	29.671*** (3.577)	29.714*** (3.544)	33.928*** (4.683)	29.130*** (3.573)	29.987*** (3.381)	29.550*** (6.726)	29.055*** (4.111)
Observations	95	95	95	82	95	82	77	95
R-squared	0.817	0.831	0.848	0.815	0.834	0.850	0.601	0.832

Notes: Robust standard errors appear in parentheses. All models include year fixed effects. Year coefficients are not reported due to space constraints.

*** p<0.01, ** p<0.05, * p<0.1.

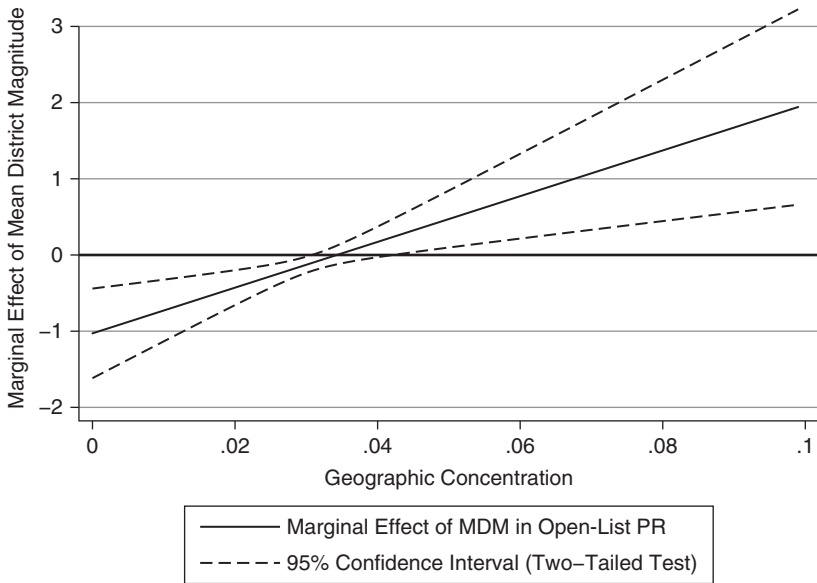


Figure 6.3 Marginal effect of mean district magnitude on subsidy budget shares in open-list PR

value in the sample of open-list PR countries, increasing *Concentration* from its lowest observed value to its highest value increases subsidy spending by nearly seven percentage points.²⁰ This result suggests that the usefulness of subsidies for developing a personal vote depends on the geographic concentration of subsidy recipients. Only when beneficiaries are sufficiently geographically concentrated are subsidies an effective means by which to cultivate a personal vote.

When beneficiaries are geographically diffuse, increases in mean district magnitude do not correlate with greater subsidy spending. In fact, mean district magnitude is negatively correlated with subsidies in open-list PR countries when the beneficiaries are geographically diffuse. When *Concentration* equals its lowest possible value (i.e. zero), a one-unit increase in the natural log of mean district magnitude reduces subsidy spending by one percentage point, all else equal. The negative marginal effect of mean district magnitude on subsidies is statistically significant at the 95 percent level whenever *Concentration* is less than 0.03, which holds for 73 percent of the sample. The negative effect of mean district magnitude on subsidies at low levels of geographic concentration suggests that subsidies are an ineffective tool with which to cultivate

²⁰ Calculated using column 2 from Table 6.3.

a personal vote when the beneficiaries are geographically diffuse. Legislators consequently prioritize other spending areas.

In Chapter 3, I identified personal vote seeking as a potential mechanism linking electoral institutions and policy outcomes. The results reported here provide empirical support for this mechanism. A positive correlation exists between district magnitude and subsidy spending when beneficiaries are geographically concentrated in open-list PR systems and district magnitude is high. This correlation arguably exists because politicians competing in open-list systems with high district magnitude work harder to cultivate a personal vote and do so using subsidies when the beneficiaries are concentrated geographically.

If personal vote seeking is indeed the mechanism at work here, I would expect to find no correlation between district magnitude and subsidies in closed-list PR systems. In closed-list systems, increased district magnitude should not increase subsidy spending because legislators have no incentives to cultivate a personal vote – regardless of the number of seats up for grabs in their district. Therefore, district magnitude should have no effect on subsidy spending in closed-list systems. To test this possibility, I reestimate the models using only closed-list countries. The results for closed-list countries, reported in Table 6.5, show no robust correlation between district magnitude and subsidies in PR systems with closed-party lists (or the interaction of district magnitude and geography). In closed-list systems, increases in district magnitude do not correlate with greater government spending on subsidies, all else equal.²¹

Similarly, in a PR country with de facto closed party lists (Norway), I find no robust correlation between district magnitude and subsidy spending (see Chapter 7). In Norway, district magnitude ranges from 4 to 19. The variation in district magnitude within Norway does not influence the geographic distribution of subsidies across the country. Norwegian electoral districts with more representatives receive no more generous subsidies than districts with fewer representatives. The fact that district magnitude does not correlate with subsidies in closed-list PR systems, at any level of geographic concentration, suggests that personal vote seeking does indeed influence government spending on industrial subsidies.

²¹ In Table 6.5, two of the coefficients on *Mean District Magnitude* are statistically significant at conventions levels. However, the first is in the model that excludes the key interaction term (*Concentration*MDM*) and is negatively signed. The second is in the model that includes the squared *Concentration* term for which the estimated effects are unreasonably large, presumably due to the relatively small sample size ($n = 54$).

Table 6.5 *Effect of mean district magnitude on subsidies in closed-list PR*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
L.Mean District	-1.134*	3.566	-6.172	3.781	4.482	4.169	2.852	10.061***
Magnitude (log)	(0.644)	(3.476)	(4.875)	(3.767)	(2.910)	(3.582)	(3.458)	(3.372)
L.Concentration	-47.564	214.9	-102.4	201.9	243.3	213.8	185.8	771.1***
	(28.2)	(190.2)	(211.6)	(199.5)	(158.3)	(197.3)	(189.2)	(243.8)
L.MDM*L.		-99.21	57.86	-100.1	-116.8*	-107.4	-85.7	-206.0***
Concentration		(71.48)	(87.65)	(75.43)	(60.87)	(72.57)	(71.15)	(66.63)
L.Trade	0.014	0.028	0.047*	0.056**	0.037	0.053**	0.022	0.038
	(0.022)	(0.024)	(0.024)	(0.026)	(0.024)	(0.024)	(0.023)	(0.022)
L.GDP per capita (log)	-1.770	-0.035	3.848*	-0.388	-0.614	-1.282	0.037	0.880
	(1.456)	(1.610)	(1.926)	(2.112)	(1.481)	(1.894)	(1.587)	(1.133)
L.Area (log)	-0.056	0.269	7.170**	1.103	0.574	0.876	0.078	0.805
	(0.485)	(0.515)	(2.683)	(0.688)	(0.543)	(0.532)	(0.503)	(0.516)
Federalism			15.138**					
			(5.698)					
L.Employment				9.025				
				(16.183)				
L.Left government					-0.554*			
					(0.309)			

(continued)

Table 6.5 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
L.Number of government parties						-0.043 (0.174)		
L.Mobility							15.695* (8.340)	
L.Concentration^2								-2724.3** (1099.5)
Constant	22.498** (10.540)	-12.024 (25.771)	-117.8** (45.012)	-22.129 (30.373)	-12.122 (21.293)	-9.304 (28.427)	-8.610 (25.534)	-50.801** (20.900)
Observations	54	54	54	48	54	48	54	54
R-squared	0.594	0.636	0.684	0.704	0.676	0.702	0.660	0.701

Notes: Robust standard errors appear in parentheses. All models include year fixed effects. Year coefficients are not reported due to space constraints.
*** p<0.01, ** p<0.05, * p<0.1.

CONCLUSION

The simple distinction between plurality and proportional electoral systems together with economic geography helps to explain the cross-national variation in governments' particularistic economic policies. However, it fails to explicate the variation in subsidy spending among countries with proportional systems. Governments elected via proportional rules in different countries spend varied amounts on subsidies. Why? I offer two concordant explanations. First, the policy effects of electoral institutions depend on economic geography. Because economic geography varies between countries, similar institutions can have different policy effects. Second, key institutions vary among countries with proportional systems, including list type and district magnitude. Holding economic geography constant, list type and district magnitude influence government spending on subsidies in PR countries, as I demonstrate in this chapter.

Although many aspects of countries' electoral systems vary, this variation is masked by the blunt distinction between plurality and proportional systems. Some PR systems have characteristics more similar to plurality systems than to other PR systems. Elections in open-list PR systems, for example, are candidate-centered. Candidates on the same-party list compete against one another for "preference votes" in multimember districts. Politicians work to cultivate a personal vote to maximize their chances of winning office. In this way, electoral competition in open-list PR systems looks similar to electoral competition in plurality systems (although in plurality systems co-partisans typically compete against one another in primaries). This observation raises doubts about the usefulness of the plurality/PR distinction. The distinction overlooks a key characteristic shared by both plurality systems and open-list PR systems: candidate-centered electoral competition. More generally, the blunt dichotomy between plurality and proportional obscures important institutional variation within each system. Moving beyond this blunt distinction can help to improve our understanding of the effects of electoral institutions on policy outcomes, as illustrated in this chapter.