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The Uneven Geographic Dispersion of Economic Activity

One of the most striking features of "real-world economies" is the uneven distribution of economic activity (Krugman, 1990: 1). Activities, such as production and employment, are "lumpy" – that is unevenly distributed across space – within countries. As a result, some regions remain stubbornly undeveloped while others grow steadily, attracting ever more firms, capital, and people (Brülhart and Traeger, 2005: 598). In Britain, for example, London's economy has grown markedly over the past several decades while other regions, particularly those in the north of England, have declined. As a result, London's share of the economy's gross value added rose from 19 percent to 23 percent over the period from 1997 to 2015.[1] Similarly, in the United States, the bulk of the population resides in a few metropolitan areas, although much of the country's land is fertile, cheap, and sparsely populated (Krugman, 1990: 1). Even in smaller countries, economic activity is often distributed unevenly across space.

The uneven distribution of economic activity has important economic and political consequences. Because economic activity is lumpy, the costs of globalization fall disproportionately on some communities. Communities differ in their exposure to import competition as a result of regional variation in the importance of manufacturing for local employment (Autor et al. 2013). In regions where manufacturing is relatively more important for local employment, rising foreign imports result in higher unemployment, lower labor force participation, and reduced wages (Autor et al. 2013). But while some regions decline, at the same time others prosper. Regions less dependent on manufacturing often benefit from increased international economic integration. Regions' varied economic fortunes influence politics. In the United States, for example, voters in congressional districts exposed to larger increases in foreign imports disproportionately removed moderate politicians from

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office in the 2000s (Autor et al. 2016). In the United Kingdom, regions exposed to greater inflows of goods from China voted to leave the European Union at higher rates in the 2016 referendum on EU membership (Colantone and Stanig 2016).

Despite the political consequences of economic geography, many scholars fail to take geography seriously. Some scholars simply ignore the uneven distribution of economic activity. Persson, Roland, and Tabellini (2007) explicitly assume that "the distribution of economic groups is the same in all districts" (p. 11). Others assume that economic geography correlates perfectly with political boundaries. In Grossman and Helpman's (2005) model, each electoral district contains one unique industry by assumption. Similarly, McGillivray (1997) assumes that concentrations of industries occur entirely within separate, geographically defined electoral districts (p. 588, 590). And Cassing, McKeown, and Ochs (1986) explicitly assume that each region contains only one industry.

These assumptions bear little resemblance to observed patterns of economic geography. In reality, economic activities vary in their geographic dispersion, and this variation rarely corresponds with politically relevant boundaries. Although some economic activities are strikingly concentrated, "the world economy [does not] concentrate production of each good in a single location" (Krugman, 1998: 8). In fact, economic activity is rarely concentrated entirely in a single location. Instead, economic activities typically fall along a continuum from highly concentrated to widely dispersed. Where do different economic activities fall along this continuum and how could we know?

Few empirical measures of economic geography exist. Measuring geographic patterns of economic activities, such as sectoral employment, is difficult because doing so requires large amounts of highly disaggregate data. Information is needed about where individuals work and what industry or sector they are employed in. All of this information must be available for highly disaggregated geographic units, such as local labor markets. Given these demanding data requirements, many previous measures of economic geography fall short of capturing the theoretical concept of interest. Even more problematically, most existing measures are available only for a single country thereby making cross-country comparisons impossible.

To address these limitations, I generate a continuous empirical measure of the geographic dispersion of economic activity for multiple countries in Chapter 4. With this measure, simplifying assumptions about economic geography are no longer necessary. Instead, I can estimate the actual patterns of geographic concentration and do so for multiple countries in a cross-nationally comparable fashion. Measuring geographic concentration

is an important first step in investigating how economic geography influences politics and policy. I leave until Chapter 4 the technical details about the construction of this measure. In the remainder of this chapter, I explore the concept of economic geography: what it is, why does it vary, and how might it matter for politics?

WHAT IS ECONOMIC GEOGRAPHY AND HOW DOES IT VARY?

Economic geography refers to the geographic distribution of economic activities, such as production and employment. I focus primarily on employment because jobs are politically salient. Politicians worry about job losses, and many election campaigns focus on improving job security. Because voters care about jobs, incumbents often go to extraordinary lengths to prevent job losses. In France, for example, the national government placed an order worth €600 million for train equipment it did not need in order to save 480 jobs (Chassany 2016).[2] Jobs matter to voters and consequently the geographic patterns of employment are politically salient.

Employment opportunities are often unevenly distributed between regions within countries. People living in rural Wales, for example, face a different labor market than people living in London. And employment in certain sectors of the economy is unlikely to be distributed evenly between electoral districts or regions of a country (Kendall and Stuart, 1950: 188). In Wales, for example, 11 percent of all jobs were in manufacturing in the first quarter of 2015 (ONS Nomis Database, Workforce Jobs). In contrast, only 2 percent of jobs in London were in manufacturing during the same period (ONS Nomis Database, Workforce Jobs). As this example makes clear, employment opportunities in the manufacturing sector vary across regions within countries.

Different economic sectors exhibit different patterns of geographic concentration. While sectors' exact patterns vary between countries, some sectors are, on average, more concentrated than others. Employment in mining and quarrying tends to be highly concentrated geographically (Shelburne and Bednarzik 1993, Campos 2012). In Norway, for example, a plurality of employees in the oil industry are concentrated in a single electoral district – Rogaland (Statistics Norway 2015). Some service sector activities also exhibit high levels of geographic concentration. Employment in finance and insurance activities,

[2] The order included power units for high-speed trains that were not yet able to run on existing rail lines.

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information and communication, and professional, scientific, and technical activities tends to be geographically concentrated (Campos 2012). In contrast, other sectors, such as construction, employ people more evenly within a country.

An important distinction between concentrated and diffuse sectors is their need to be located close to their customers. Hairdressers, for example, cannot all be located in one part of the country – they need to be spread out in a pattern similar to the population. Many service providers are geographically dispersed in order to be near end markets, including, for example, hotels and restaurants (Chase 2015). In general, producers of goods or services that serve local customers need to be located close to local populations (Campos 2012). So, whether it is the provision of retail services or restaurants, or the provision of education or social work activities, the distribution of jobs in these industries is generally spread across countries in order to reflect their need to directly serve local populations (Campos 2012). Industries that do not need such close location to customers – such as car manufacturing plants – are often more geographically concentrated (Campos 2012). For example, motion picture production and investment banking are each geographically concentrated precisely because they do not need to be located close to their end customers (Kolko 2010).

Agriculture tends to be concentrated in areas where there are few alternative employment opportunities. In other words, agriculture exhibits high levels of *relative* concentration – that is, it is highly concentrated relative to the distribution of aggregate economic activity (Shelburne and Bednarzik 1993, Brülhart and Traeger 2005). In many rural communities in the Great Plains of the United States, for example, nearly everyone is either directly or indirectly employed in the agriculture sector.

The manufacturing sector on average tends to be less concentrated than agriculture. However, the geographic patterns of manufacturing sector employment vary notably between countries. Among OECD countries, manufacturing employment is the most geographically concentrated in Sweden and Australia (OECD 2007). It is the least geographically concentrated in the Czech Republic and Denmark (OECD 2007). Manufacturing employment in Sweden is 3.5 times more geographically concentrated than manufacturing employment in Denmark (OECD 2007). In the United States, manufacturing employment is nearly 1.5 times more concentrated than manufacturing employment in the United Kingdom (OECD 2007). As these data make clear, significant variation exists in the geographic dispersion of manufacturing employment between developed countries.

WHY DOES ECONOMIC GEOGRAPHY VARY?

The geographic concentration of sector employment varies within and between countries. An obvious question is why. What explains the variation in economic geography? A large literature addresses this question, and many theories seek to explain why the geographic concentration of economic activity occurs (Marshall 1920, Krugman 1991). As discussed above, a key distinction between concentrated and diffuse industries is their need to be located close to their customers. Various other factors also differentiate concentrated sectors from diffuse ones. The mobility of capital and labor can help to explain the uneven distribution of economic activity (Maloney and Nayyar 2017). Mobility refers to the costs of moving factors of production (i.e. land, labor, and capital) to a new use in the domestic economy (Hiscox 2002, Rickard 2009). These costs may systematically influence the geographic distribution of economic activities. Factors facing high adjustment costs may decide not to move. As a result, high adjustment costs reinforce existing patterns of economic geography. In contrast, factors facing low adjustment costs can move with relative ease and are therefore more likely to relocate to take advantage of attractive features (Maloney and Nayyar 2017).

In addition to adjustment costs, other factors may also influence producers' (re)location decisions. Larger markets offer better matching between employers and employees, buyers and suppliers, and entrepreneurs and financiers (Maloney and Nayyar 2017). To take advantage of better matching opportunities, producers may move to larger markets, which could lead to ever greater geographic concentration and contribute to urban agglomeration. Producers may also cluster together to learn about new technologies, market evolutions, or new forms of organization (see Krugman 1991, Marshall 1920). Additional benefits of concentration include transportation costs and intellectual spillovers (Dumais, Ellison, and Glaeser 2002). In sum, the origins of economic geography are complicated and wide-ranging.

Throughout this book, I take economic geography as given. In other words, I do not attempt to explain the geographic patterns of employment. Instead, I investigate the political implications of existing patterns of economic geography. This strategy makes sense given the focus of my argument and is reasonable given that patterns of economic geography remain relatively stable over the medium term (Dumais et al. 2002). Furthermore, patterns of economic geography appear to be largely exogenous to politics and policy.

Geographic patterns of economic activity appear to be largely immune to government subsidies. The US biotechnology industry, for example, is concentrated in five urban centers. This high level of geographic concentration persists despite the fact that forty-one out of fifty US states have significant funding programs to spur development of the life sciences industry (OECD 2007). As the US biotech example suggests, firms' location decisions are often unresponsive to government subsidies (Midelfart-Knarvik, Helene, and Overman 2002). Quantitative statistical tests show the effect of government subsidies on firms' location decisions is negligible. In the United Kingdom, an increase in the expected government subsidy of £100,000 is associated with only a 1 percent increase in the probability of (re)location (Devereux, Griffith, and Simpson 2007). Government subsidies do not appear to significantly affect firms' location decisions (Devereux et al. 2007). Furthermore, civil servants responsible for the allocation of government-funded subsidies report that they have never seen a firm relocate to try to win more subsidies.[3] Bureaucrats I interviewed in Norway acknowledged that it was more difficult for a firm in Oslo to win subsidies because of the higher concentration of firms in that district. Norway uses proportional electoral rules so this observation is fully consistent with my argument: geographic concentration handicaps groups seeking assistance from governments in PR systems. However, the bureaucrats stated that no firm had ever moved out of Oslo to increase their chances of winning subsidies from the government.[4]

Similarly, electoral institutions do not appear to significantly influence economic geography. If actors anticipated the benefits of geographic concentration in plurality systems, they would cluster together with others to win more generous subsidies. But the geographic concentration of manufacturing employment is no higher in plurality systems than in PR systems, on average.[5] Among OECD countries, those with proportional electoral systems exhibit both the highest (Sweden) and lowest (Denmark) levels of manufacturing-sector geographic concentration (OECD 2007). The highest values of concentration are observed in a PR country (Sweden) and a plurality country (Australia), and these values are similar in magnitude (54 and 51 respectively) despite the countries' different electoral systems (OECD 2007). These observations suggest that producers' location decisions are not driven by a country's electoral institutions and help to minimize concerns about causal complexity.

[3] In-person interview with Innovation Norway staff member Pål Aslak Hungnes and Per Melchior Koch in Oslo, Norway on June 19, 2014.

[4] In-person interview with Innovation Norway staff members Pål Aslak Hungnes and Per Melchior Koch in Oslo, Norway on June 19, 2014.

[5] Author's calculations.

Geographic concentration can occur "naturally" through market mechanisms (Campos 2012, Maloney and Nayyar 2017).[6] The pull factors that stimulate natural clusters to arise include the availability of raw materials, suitable climate conditions, and proximity to markets (Maloney and Nayyar 2017). Coordination on certain locations can also be achieved by the strategic actions of large players, such as universities and multinational corporations, or private groups such as export business associations, credit cooperatives, and industry associations (Maloney and Nayyar 2017). In other words, economic geography is shaped by numerous factors – many of which have little, if anything, to do with government policy.

THE GEOGRAPHY OF NARROW INTERESTS

The varied geographic distribution of sector employment illustrates an important point: special interests may or may not be geographically concentrated. Consider for example the Swedish automotive industry. It consists of three key producers: Volvo, Saab, and Scania AB. Together, these three firms employ only a small fraction of Sweden's total population. In this way, the Swedish automotive industry represents a special or "narrow" interest. *Narrow interests* are defined as a group with a common economic interest shared by a small segment of the population. In this example, the narrow interest happens to be geographically concentrated. Saab employed 4,100 people in 2009 and 3,700 of these employees, or 90 percent of the firm's total workforce, worked at its hub in the southwestern city of Trollhättan. Saab was, in fact, the largest employer in Trollhättan. The second largest employer was the municipal government. This example illustrates a geographically concentrated narrow interest.

Not all narrow interests are geographically concentrated. In fact, some are quite diffuse. In the United States, for example, the cosmetic sales industry is dominated by a single firm: Mary Kay. In 2013, Mary Kay employed approximated 5,000 people and these employees were spread out across the entire country.[7] Indeed, nearly every community had at least one Mary Kay employee. This example illustrates a geographically diffuse narrow interest. Such interests can and do win government support, particularly in PR countries. The Austrian government, for example, provided subsidies to fund the purchase of microwave ovens

[6] Given certain assumptions, most notably an economy displaying increasing returns to scale and monopolistic competition.

[7] www.forbes.com/companies/mary-kay/.

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by restaurants (Sturn 2010). This subsidy was targeted to a narrow interest group (i.e. restaurant owners) but one that was geographically diffuse. Restaurant owners across the entire country benefited from the government-funded subsidy.

As these examples illustrate, geographic concentration is conceptually distinct from the notion of narrow (or "special") interests. Scholars often conflate these two concepts by assuming that all special interests are geographically concentrated. This incorrect assumption generates confusion about when and under what conditions special interests have the most political power. Pulling apart the distinct concepts of "narrowness" and geographic concentration can help to untangle the politics of particularistic economic policies.

In this book, I use interchangeably the terms narrow interests and special interests. Both of these terms refer to a common economic interest shared by a small segment of the population. The characteristic that makes an interest "narrow" is the portion of a country's population that shares the same economic interest. The US steel industry, for example, makes up a narrow interest group because it employs just 0.3 percent of the total US population. People employed in the steel industry share a common economic interest in policies like tariffs that protect the industry from lower-cost imports from China. This narrow interest is geographically concentrated in three of the fifty US states.

Economic geography refers to the dispersion of economic activity across space. More precisely, economic geography refers to the geographic dispersion of employment in a given sector or industry. People employed in the same industry often share common economic interests, most notably in the economic fortune of their industry (Hiscox 2002). The geographic pattern of industrial employment can therefore be used to estimate the geographic concentration or diffusion of narrow economic interests. Using these definitions, I separate the concepts of narrowness and geographic concentration. Once these two concepts are disentangled from one another, new insights emerge regarding politics and policy. However, before moving on to my argument, I first briefly discuss how economic geography may influence politics.

ECONOMIC GEOGRAPHY AND POLITICS

Growing evidence highlights the political importance of economic geography. Recent studies demonstrate that economic geography mediates the impacts of globalization. Rising Chinese imports have been shown to have varied effects on different communities because of the uneven geographic distribution of manufacturing employment

within countries (Autor et al. 2013, Ballard-Rosa et al. unpublished manuscript). Some regions experience significant reductions in manufacturing employment and wages, while others see few negative effects from the rising tide of Chinese goods. Because of the uneven geographic distribution of economic activities, the losers from globalization tend to be concentrated in certain locations and falling mobility means that economic hits are not shared between regions as much as before. The costs of globalization therefore fall particularly hard on some local communities because of economic geography.

Globalization's uneven economic effects have important political consequences. In the United States, for example, voters in congressional districts exposed to larger increases in foreign imports disproportionately removed moderate politicians from office in the 2000s (Autor et al. 2016). This evidence suggests that economic geography contributes to increasing political polarization. Although economic geography likely has important consequences for politics, many – but not all – studies have overlooked the geographic distribution of economic activity to date, as I discuss below.

District Size

Economic geography has played an important – although implicit – role in theories about the consequences of district size. District size refers to the number of people living in an electoral district. An electoral district is a geographically defined area within which votes are counted and seats allocated (Cox 1997). Several scholars speculate that larger districts will better insulate politicians from protectionist demands while smaller districts will give greater influence to parochial interest (e.g. Rogowski 1987, Alt and Gilligan 1994, Mansfield and Busch 1995, McGillivray 2004). The logic of this argument relies on economic geography. McGillivray (2004: 28) provides an illustrative example:

> "An industry with 100 employees represents 10 percent of the electorate in a district with 1,000 voters. The same industry represents only 0.1 percent of the electorate in a district of 100,000 voters. In the larger district, refusing to protect the industry is unlikely to affect a politician's reelection chances in a plurality system because the industry is only 0.1 percent of the representative's electorate."

As this illustration makes clear, it is impossible to hypothesize about the effects of district size on policy "without making further assumptions about the [geographic] distribution of industries" (Hatfield and Hauk, 2014: 522). In fact, most arguments about district size make implicit

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assumptions about the geographic distribution of economic activities. Yet, few theories explicitly discuss economic geography and even fewer attempt to measure it empirically.

Many empirical studies of the policy effects of district size make cross-national comparisons. Rather than measuring district size directly, these studies instead assume that proportional systems have larger districts than plurality systems. They then compare policy outcomes in plurality countries with those in proportional countries and assert that the observed policy differences are due to district size.

Rather than assuming that PR systems have larger districts, Hankla (2006) instead constructs a direct measure of district size. He divides the total number of seats in a country's lower legislative chamber by mean district magnitude and divides that number into the country's total population to estimate the number of people living in an average district in a given country. Using this measure of district size, Hankla (2006) finds that countries with larger districts tend to have lower levels of trade protection, on average. Similarly, Rogowski (1987) reports evidence that suggests larger districts are associated with lower trade barriers. He finds a negative correlation between the number of parliamentary constituencies and trade openness and asserts that the number of constituencies is an inverse measure of average constituency size.

Although many empirical investigations of district size draw comparisons between countries, a series of studies exploit the differences in constituency size within a single country – most often the United States. Results from these intra-country studies are mixed. Some suggest that industries in smaller constituencies receive more trade protection than industries in larger constituencies (Hauk 2011). Others find no relationship between district size and trade protection (Karol 2007, Hatfield and Hauk 2014). For example, constituency size does not seem to account for the differences in trade policy preferences among the House, Senate, and presidency (Karol 2007). In fact, the positive correlation between plurality systems and trade protection remains robust to the inclusion of measures of district size (Hatfield and Hauk 2014). This evidence rules out district size as the causal mechanism linking electoral systems to policy outcomes.

Plurality Electoral Systems

Although most studies of politics overlook economic geography, some explicitly examine the political consequences of geographic concentration. Yet virtually all of these studies focus exclusively on plurality systems. McGillivray examined the effects of geographic

concentration in two plurality countries: the United States and Canada (McGillivray, 1997: 2004). In these countries, McGillivray found that concentrated industries tend to win more trade protection than diffuse industries. However, McGillivray does not test the effects of geographic concentration in PR countries. Likewise, Hansen (1990) examines the political effects of concentration only in the United States. She established that geographically concentrated industries are more likely to secure favorable rulings for antidumping claims. Similarly, Milner (1997) showed that concentrated industries in the United States made fewer concessions in negotiations over the North American Free Trade Agreement (NAFTA). In sum, previous empirical studies report a positive correlation between geographic concentration and political influence in plurality systems.

The political consequences of geographic concentration remain unknown in proportional electoral systems. Does geographic concentration confer similar benefits to groups in PR systems as in plurality systems? Busch and Reinhardt (2005) provide some evidence to suggest concentration may be politically valuable in PR systems. They report that citizens employed in more geographically concentrated industries in the Netherlands – a PR country with a single national district – are more likely to turnout to vote. However, their empirical measure of turnout is, in fact, a measure of party vote intention. Their results are therefore more correctly interpreted as evidence that citizens employed in concentrated industries are more likely to express a partisan preference. In other words, citizens employed in geographically concentrated industries may be less likely to be swing voters.

With the notable exception of Busch and Reinhardt (2005), virtually all research on the political effects of geographic concentration focuses on plurality systems. This fact presents a challenging inference problem. Existing studies examine only a subset of democracies, and the chosen subset is not random; it consists only of democracies with a specific set of electoral institutions, namely single-member districts and plurality electoral rules. It is in precisely such systems that geographic concentration is most likely to matter. Where politicians compete for office in geographically defined electoral districts, the concentration of economic interests will be important for their political influence. In other words, previous studies look for and find evidence that geography matters precisely where geography is most likely to matter – in plurality systems with geographically based electoral competition.

Existing research tell us little about how geography matters in countries with different electoral institutions. In proportional systems, for example, legislative seats are awarded to parties based on their vote shares.

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As a result, all votes may be equally valuable to parties competing in PR systems regardless of their geographic location. Given this, it is unclear what, if any, effect geography might have on politics and policy-making in PR systems. Cognizant of this issue, McGillivray recommended that future research investigate the effects of geographic concentration in proportional rule systems (McGillivray, 1997: 604). My research represents an effort to respond to this appeal by investigating the effects of geographic concentration in various electoral systems.