Geography, International Trade, and Political Mobilization in U.S. Industries

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From studies of “Silicon Valley effects” to regional economic development, the spatial proximity of firms is shedding new light on some of the most enduring puzzles in business and economics. Yet few studies examine whether spatial proximity leads individuals with shared interests to be more politically active. We address this question by examining whether geographic concentration makes individuals in industries exposed to international trade (i.e., through export orientation or import competition) more likely to mobilize politically. Studying U.S. manufacturers in 1988 and 1990, we find that, for trade-exposed industries, geographic concentration strongly increases (a) the formation of common trade policy preferences among workers; (b) employees’ contributions to political campaigns; and (c) voter turnout. This activism traces not to the behavior of political elites, but rather to the increased possibility for collective action that spatial proximity affords individuals in trade-exposed industries.

Geography is everywhere in vogue. From studies of “Silicon Valley effects” and industrial agglomeration (Audretsch 1998; Dyer 1994) to the pricing practices of monopolies, from corporate alliances to regional economic development (Porter 1998), the spatial proximity of firms is shedding new light on some of the most enduring puzzles in business and economics. Yet despite this interest in industrial “clusters,” few studies have asked—and fewer still have empirically assessed—how spatial proximity conditions an industry’s political behavior. This link is particularly important for sectors exposed to international trade, given the long-standing debate over how geographic concentration affects an industry’s ability to secure import relief. Recent studies (Busch and Reinhardt 1999; McGillivray 1997) find that spatially proximate industries are, indeed, more successful in gaining protection, although the mechanisms by which they exert greater political influence remain little understood. We seek to explain how geographic concentration facilitates political mobilization on the part of trade-exposed industries.

Geographic concentration bolsters an industry’s capacity for collective action. In particular, as a wide variety of literatures insists, spatial proximity facilitates greater “face-to-face” communication, aids in the diffusion of specialized political knowledge, provides the basis for denser social networks, and enables more effective monitoring and sanctioning of those who might free-ride on the political contributions of others. In short, individuals in geographically concentrated groups are more likely to recognize and act upon their collective interests. Yet spatial proximity alone is not sufficient to motivate political mobilization: underlying common interests must exist as well. Looking at manufacturing industries, we hypothesize

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that those exposed to international trade are especially likely to benefit from collective action. This is because trade policy directly influences the market opportunities of both export-oriented and import-competing industries and indirectly influences their demands concerning a host of other policies that shape their competitiveness, from anti-trust legislation to health care. Putting the pieces together, we hypothesize that, among trade-exposed industries, those more geographically concentrated are likely to exhibit greater political mobilization.

We test this argument for employees in U.S. manufacturing industries in 1988 and 1990, using multiple indicators of political mobilization, including opinion formation, campaign contributions, and voter turnout. The results are striking: for employees in industries that compete for export markets or against imports, geographic concentration strongly conditions whether a person forms an opinion about trade policy, the direction that opinion takes (i.e., for or against protection), whether that person contributes money to political campaigns, and whether he exercises his vote. This greater political activism may result from either “grass roots” initiatives by employees or the prodding of managers, both of which are more likely when there are greater opportunities for contact among individuals due to spatial proximity. But, as our results testify, this heightened activism does not owe to the “top down” coaxing of politicians, unions, or industry associations.

The article has several broader implications. Echoing Olson (1971), we argue that common interest alone is not sufficient to motivate group mobilization—i.e., even industries that are highly penetrated by imports may be incapable of rallying to lobby for protection. Our main contribution is to show that collective action need not be impeded by group size per se, so long as members are geographically concentrated. This insight has been overlooked for the simple reason that the most popular measures of geographic concentration (i.e., the widely used Gini and Herfindahl indices) all fall victim to the same problem: they quantify only the (un)evenness of an industry’s spread across regions without taking the distances among those regions into account. Our measure of geographic concentration corrects this problem (Busch and Reinhardt 1999) and thus permits a more direct test of the effects of spatial proximity.

Another implication of our study concerns the importance of distinguishing political from geographic concentration. These variables are often conflated in the literature, even though an industry’s dispersion across electoral districts may reveal surprisingly little about an industry’s concentration in physical space (Busch and Reinhardt 1999). Moreover, the two variables tap very different hypotheses: political concentration affects an industry’s electoral representation, whereas geographic concentration alters the transaction costs impeding collective action. Add to this the highly skewed physical sizes of U.S. House districts, and it is little wonder that there is only a weak correlation between political concentration, on the one hand, and our measure of geographic concentration, on the other. In fact, having disentangled the two variables, we find that the extent to which a trade-exposed industry is concentrated in physical, as opposed to electoral, geography is crucial to understanding the political mobilization of its employees.

Finally, by helping to explain which employees are likely to mobilize politically, geographic concentration also sheds light on which industries are likely to get what they ask for. Indeed, the article empirically identifies the causal mechanisms responsible for the finding that spatially proximate industries are markedly more successful in obtaining non-tariff barrier protection (Busch and Reinhardt 1999). More broadly, since spatial proximity should facilitate collective action wherever a group possesses common interests, our results suggest the need to revisit how geographic concentration affects policy outcomes in issue areas beyond trade.

Geographic Concentration and Collective Action

This section presents a theory of how spatial proximity bolsters the capacity for collective action. Specifically, we argue that closeness of contact facilitates greater face-to-face communication, aids in the diffusion of specialized knowledge, fosters dense social networks, and reduces the costs to monitoring and sanctioning noncontributors. We further claim that a necessary condition for collective action is a common—even if unarticulated—interest that might motivate a group. For manufacturing industries, such common interests derive in large part from exposure to international trade. We then deduce individual-level hypotheses that link political mobilization to the interaction between geographic concentration and an industry’s exposure to trade, emphasizing both the capacity for collective action and the commonality of interests.

Spatial proximity enables collective action for four reasons. First, it permits face-to-face communication, the most effective means of information exchange. As Tocqueville observed, when face-to-face interaction is possible, "Men have the opportunity of seeing one another; means of execution are combined; and opinions are maintained with a warmth and energy that written lan-
guage can never attain" (1990, 192). Evidence of this is not hard to find. For example, Zahn (1991) shows that interactions among workplace colleagues are greater the lesser the distance between their offices. Numerous laboratory experiments find that face-to-face interaction, rather than long-distance and computer-mediated discussion, promotes not only the exchange of information, but group cohesion (Straus 1997), the level of cooperation and contributions made to collective goods (Ostrom 1998, 6–7; Rocco and Warglien 1996), and even the quality of collective decision making (Hedlund, Ilgen, and Hollenbeck 1998). Face-to-face communication, as Ostrom succinctly puts it, assists in "increasing trust, creating and reinforcing norms, and developing a group identity" (1998, 7).

Second, closeness of contact promotes the exchange of specialized political knowledge in particular. Specialized knowledge of any sort tends to diffuse through a process of "learning-by-doing," becoming highly localized as a result. For instance, complex industrial technologies often foster regional clusters (Porter 1998; Dyer 1994). The kind of political knowledge necessary to mobilize a group is likewise often specialized. For example, campaign consultants often claim that impersonal mass mailings "bore them [i.e., the group's members] with information" (Berry 1997, 71). One consultant observes that "eye contact" is key, noting that "Nothing beats a personal visit. Nothing" (Faucheux 1994, 22). In more heterogeneous groups, it is especially important that political entrepreneurs frame issues in ways tailored to each audience (Greenbaum and Greenbaum 1985). The bottom line is that specialized political information—which is important for group mobilization—is more influential and more easily obtained through face-to-face communication.

Third, geographic concentration enables collective action by improving social networks. Social networks are notably denser among neighbors, for instance (Greenbaum and Greenbaum 1985). Proximity improves inter-firm networks in particular (Camagni 1993; Mizruchi 1992). Denser social networks, in turn, shape identity formation, preferences (Martin 1995), and group mobilization (Snow, Zuricher, and Ekland-Olson 1980). Dyer (1994), for instance, finds that greater face-to-face communication between suppliers and end-users speeds up product development cycles in the auto industry and in the long run builds up trust. Put simply, denser social networks give rise to more frequent inter-

actions and longer-term relationships. In this sense, spatial proximity lengthens the "shadow of the future," facilitating cooperation through reciprocity (Axelrod 1984), thereby heightening the prospects for collective action.

Fourth, geographic concentration reduces the costs of monitoring and sanctioning members' contributions toward the public good. Reliably and cheaply observing a "defection" is a prerequisite for reciprocity strategies to induce cooperation from partners (Axelrod 1984, 182). Yet the actions that would benefit an industry's trade lobby, like turning out to vote, are often anonymous, increasing the risk of shirking. Spatial proximity makes it much easier for group members to observe the contributions that others make directly, or at least indirectly, via word-of-mouth from third parties in the social networks with which they are affiliated. Likewise, punishing defectors may be easier the more spatially proximate an industry's members. For instance, employing face-to-face contact for maximum effect, participants in laboratory experiments have been found to "lash out verbally" at shirkers, "using such evocative terms as scumbuckets and finks," explains Ostrom (1998, 7). Viewing such penalties firsthand is also likely to deter those contemplating defection in the future. In addition, spatial proximity strengthens the "meta-norm" of punishing violators: experimental subjects tend to encourage each other to retaliate against shirkers by "frequently go[ing] around the group and ask[ing] each person to promise the others that they will follow the joint strategy" (Ostrom 1998, 7).

The other component of our argument, of course, is that political mobilization requires common interests. For manufacturing industries, the most salient common interests are likely to trace to their international trade exposure, whether through export dependence or import penetration. The key distinction here is between industries exposed to trade, like electronics, and those not so exposed, like hair styling. More exposed industries are likely to have common interests on a wide variety of policies that bear directly on their market opportunities and indirectly on their competitiveness. Trade policy has clear implications for these industries, although concerns for anti-trust legislation and health care (for example) also influence their competitiveness vis-à-vis industries abroad. Given at least some factor specificity,

1 The point is not that face-to-face contact is more cost effective overall, but that, when face-to-face contact is made practicable due to proximity, greater mobilization is achievable with the same resources. As another lobbyist put it, "Personalized is better than mass, but mass is better than nothing" (Faucheux 1994, 22).

2 Goods and services are not exposed to trade if the cost of transport is prohibitive relative to the cost of the product, e.g., haircuts or cement (Krugman and Obstfeld 1997, 31–32).

3 Boeing, for example, has been among the most vocal proponents of health care reform in the United States, along with the auto industry, both of which incur sizable outlays relative to foreign competitors.
the collective interests of an industry exposed to trade will depend on whether it competes more for export markets or against imports, leading the industry to favor freer trade or protection (Milner 1988), respectively. Either way, individuals in trade-exposed industries are more likely to share interests in common than those employed in nonexposed industries, whose fate is more loosely tied to policies aimed at wealth-creation more broadly (Scheve and Slaughter 1998).

Trade policy, in particular, often calls for collective action, since market-access agreements and protectionism are typically doled out to industrial constituencies that turn out at the ballot box in large numbers or make substantial donations to campaigns (Goldberg and Maggi 1999). Even in the case of administered protection (i.e., antidumping and countervailing duties), issues of “standing” under U.S. trade law place a premium on collective action, as with antidumping petitions, which can only be filed by (individual or groups of) firms that constitute a significant share of the domestic market. As we have already noted, however, intense common interests attributable to trade exposure are necessary but not sufficient for collective action. Spatial proximity increases the likelihood that members of an industry exposed to international trade can articulate, and act collectively to pursue, their common interests.

With this discussion in mind, we derive hypotheses about individual political mobilization. First, we expect a worker or manager in an industry exposed to trade to be more likely to form an opinion about trade policy (i.e., either for or against protection) the more geographically concentrated his industry. Economic theory, of course, predicts that individuals in export-oriented and import-competing industries should hold strong views on trade policy. Our point is that these trade-exposed industries are likely to be more politically active across the board, since a wide range of policies shape their competitiveness. The key here is that, in light of the transaction costs of political mobilization, spatial proximity gives industries exposed to trade a considerable leg up on others that are dispersed in physical space. We thus hypothesize that individuals in geographically concentrated industries are more likely to have an opinion about trade policy than are those in industries equally exposed to trade but geographically dispersed. Second, we hypothesize that individuals in more geographically concentrated industries will have a higher probability of supporting or opposing protection in line with their industries’ comparative advantage. That is to say, an employee in a dispersed import-competing (export-oriented) industry will support (oppose) protection less intensely than an employee in a concentrated, but otherwise identical, industry. Because geographic concentration increases information flows and the exchange of opinions, it intensifies the impact of the industry’s international trade position on employee attitudes. Third, and for the same reason, we hypothesize that geographic concentration increases the political mobilization of individuals employed in trade-exposed industries, measured in terms of donating money to campaigns and voting, for instance.

Are these effects of geographic concentration grassroots- or elite-mediated? One might argue that political elites (politicians, unions, or trade associations) deserve the real credit for mobilizing an industry. Politicians, for example, are likely to take up the cause of a locally concentrated industry, responding to electoral incentives. Similarly, workers and managers may take cues from opinion leaders in unions and trade associations rather than from spatially proximate coworkers, dealing a blow to our account of geographic concentration. We posit four ways to empirically distinguish between this competing explanation, on the one hand, and our hypotheses on geographic concentration, on the other. First, recall that an industry concentrated in physical space may nonetheless be dispersed across electoral districts. Yet politicians’ incentives to help an industry are bound by electoral, and not physical, geography. This suggests that if mobilization owes primarily to the efforts of elected representatives, then controlling for political concentration should largely wash out the effect of geographic concentration in our results. As we will show, it does not.

Second, if the effect of geographic concentration on attitudes and political behavior is mostly mediated through political elites, then it should also spill over to the neighbors of an industry’s workers. After all, politicians—and even the media in pursuit of an audience—stand to benefit from mobilizing not only the industry’s workforce, but other people in the community as well. More telling still, the technology used by elites to influ-

4 It should be noted that an industry not exposed to trade will suffer from protection of another industry to the extent that it consumes the products of the protected industry or competes for inputs (land, labor, capital) with the protected sector. However, these effects are typically dispersed across many industries, severely attenuating a nonexposed industry’s interest either way in protection, whereas the stakes for the industry exposed to trade are quite concentrated (Scheve and Slaughter 1998, 8).

5 This should at least be true in a world of imperfect mobility of labor across sectors, which is a reasonable assumption for the short- or medium-term (Krugman and Obstfeld 1997, 78) most important to the livelihood of individuals, if not whole industries or nations.
ence political mobilization has limited potential to discriminate between an industry’s workers and nonworkers in the local audience. In stark contrast, our emphasis on the spatial proximity of an industry’s employees leads us to discount what we would call a “neighborhood spillover effect,” at least to the extent that the community’s welfare is independent of the industry’s welfare. (On this point, it is worth noting that geographically concentrated industries are disproportionately centered in urban areas, which are home to many industries, and therefore less dependent on the welfare of any particular sector. In other words, these are not “company towns.”) Of course, if an industry is geographically concentrated, then workers live closer together and thus have more opportunities to interact and share information in their neighborhoods, as well as on the job. Thus, the effect of geographic concentration might not, in this sense, be restricted to job site as far as the industry’s employees are concerned. But the crucial point is that the effect of geography should be restricted to workers and managers in the particular industry. In other words, we do not expect other residents to share the industry’s interest in trade policy. To preview our results, there is no evidence of a neighborhood spillover effect.

Third, individuals are not equally sensitive to the mobilization efforts of political elites. For instance, Price and Zaller (1993) find that people with greater “generalized political knowledge” are more likely to be receptive to “potentially influential political communication” in the media (with respect to the existence if not the direction of opinion and political action). Accordingly, if geographic concentration is really just a proxy for the interventionist impulses of political elites, then the effect we anticipate should increase opinion formation and participation disproportionately among individuals with greater generalized political knowledge. Workers in this camp, after all, are the ones most primed to take cues from elites. If, however, geographic concentration works in line with our expectations, then its effect on mobilization should apply regardless of an individual’s generalized political knowledge. As we report below, the results bear out our hypothesis.

Fourth, we can control for elite-directed mobilization attempts using conventional measures, thereby sterilizing the findings on geographic concentration per se. Contested state- or district-level elections, contacts made to individuals by political parties and groups, a person’s exposure to the media, the resources of political action committees (PACs) in a person’s industry, and a person’s membership in a union all proxy top-down mobilization efforts. If, controlling for these other factors, we still find that the geography of trade-exposed industries matters, then our theory should be afforded extra weight. This is precisely what we find.

These four tests give us a clear basis for discriminating between our expectations and these competing views that geographic concentration affects political elites and industry groups first, and workers only indirectly. However, we do not have a basis for judging whether geographic concentration increases mobilization more effectively among managers as opposed to workers within an industry. It could be that spatial proximity facilitates networking among different firms’ managers and that managers then transmit their views to workers. Alternatively, workers may articulate and act upon shared interests without managerial leadership. In the absence of data on individual contacts at the plant level, we cannot distinguish between these two scenarios. Nevertheless, both testify to the importance of spatial proximity: either workers are mobilizing at the grassroots level or their managers are finding it much easier to mobilize them because they are geographically concentrated.

Research Design

We conduct two sets of cross-sectional tests drawn from the United States in 1988 and 1990. Specifically, we analyze trade policy opinion and political campaign contributions using the National Election Studies (NES) survey of 2040 persons in 1988 (Miller et al. 1996). We examine voter turnout with the Current Population Survey (CPS) of November 1990 (U.S. Bureau of the Census 1990), which covers many more people than the NES (163,927) but which lacks opinion and other mobilization variables.

Industry-Level Variables

Our tests utilize some shared industry-level variables, of which geographic concentration is the most important.

6Political discussion of the sort that might occur in close physical proximity, unlike generalized political knowledge, is not a useful predictor of receptiveness to politically influential news (Price and Zaller 1993, 151, 158).

7We restrict our tests to these years, rather than the late 1990s, to provide the closest possible match to the trade policy outcomes analysis performed in Busch and Reinhardt (1999) and to take advantage of data already collected for that study. All data analyzed in this article are publicly available at userwww.service.emory.edu/~erein/. To save space here, we report descriptive statistics there as well.
We begin with data from various Census sources, reported along four-digit 1987 Standard Industry Classification (SIC) lines. However, the NES and CPS categorize industries only by three-digit 1980 Census Industry Classification (CIC). Thus, before merging in the industry-level variables, we match SIC to CIC codes using concordance files from Miller et al. (1996, appendix) and Bartelsman, Becker, and Gray (1999).

Geographic Concentration is based on the distance between each employee and the national “centroid,” or mid-point, for a given industry. We start with very precise estimates of four-digit 1987 SIC employment by county (Busch and Reinhardt 1999, 1034; McGillivray 1997, 594; U.S. Bureau of the Census 1991a, 1991b), denoting industries as $i$, $i \in \{1,2,\ldots,n\}$ counties as $k$, $k \in \{1,2,\ldots,m\}$, and the number of jobs in industry $i$ in county $k$ as $j_{ik}$. Then we take the latitude and longitude of the population-weighted centroid of county $k$, labeled $p_k = (p_k^{lat}, p_k^{long})$ (U.S. Bureau of the Census and Consortium for International Earth Science Information Network [CIESIN] 1998). After matching SICs to CICs, weighting by the number of employees in each industry category per county, we average the latitude and longitude for each county-industry, yielding the national industry centroid, or $c_i = (c_i^{lat}, c_i^{long})$, where $c_i = \frac{\sum_{k=1}^{m} p_k j_{ik}}{\sum_{k=1}^{m} j_{ik}}$.

Then, for each industry, we average the (exponent of the scaled negative value of) distance from each county to the national industry centroid in that industry, weighted by the number of employees in each county and industry. That is, calculating distance as:

$$d_{ik} = 3949.99 \cdot \text{arccos} \left( \frac{\sin(p_k^{lat} \text{arctan}(1)/45)}{\sin(c_i^{lat} \text{arctan}(1)/45)} \right)$$

$$+ \cos(c_i^{lat} \text{arctan}(1)/45)$$

$$\cdot \cos(p_k^{lat} \text{arctan}(1)/45)$$

$$\cdot \cos \left( \left| c_i^{long} \text{arctan}(1)/45 \right| - \left| p_k^{long} \text{arctan}(1)/45 \right| \right),$$

the result is:

$$\sum_{k=1}^{m} \frac{f(d_{ik}) j_{ik}}{m \sum_{k=1}^{m} j_{ik}},$$

where $f(d_{ik}) = e^{-d_{ik}^s}$, which ranges in principle between 0 and 1, with higher values signifying greater concentration. In practice, Geographic Concentration exhibits a near normal distribution across industries. Employees in the typical (three-digit 1980 CIC) industry are located about 660 miles from the industry centroid, with the equivalent figure for the most concentrated industry being 220 miles, and for the most dispersed, 1,010 miles.

Geographic Concentration stands apart from traditional measures. Specifically, the widely used Herfindahl and Gini indices ignore the spatial relationship among geographic units or regions, assessing only the distribution of employment across them. Put another way, these measures rank regions by employment, but do not take into account whether regions with similar ranks are actually physically close, which is obviously the key to measuring geographic concentration. For instance, these indices cannot distinguish an industry with a (same-sized) workforce in Florida, Oregon, and Maine (but no employees elsewhere) from one with employment in just Connecticut, Rhode Island, and Massachusetts, even though the latter is clearly more geographically concentrated. This is what is known as the “checkerboard problem” (White 1983, 1010–1011). By way of contrast, Geographic Concentration quantifies the distances between workers in physical space, regardless of their electoral district boundaries (which is an issue of political concentration), thereby resolving this checkerboard problem. Not surprisingly, Geographic Concentration is only weakly correlated with any of the conventional measures.

Our variable Political Concentration is a Herfindahl index over all 102nd U.S. House districts of each

\[9\text{Here, } s = 631.43, \text{ or the mean distance from county centroid to national (nonindustry-specific) centroid, chosen arbitrarily to scale the index so that extreme distances do not receive undue weight. White (1983, 1013) recommends the use of the exponent of negative distance.}\]

\[10\text{Hawaii and Alaska are not included, although, as it turns out, our results are not at all sensitive to their inclusion.}\]

\[11\text{For their formulas, see userwww.service.emory.edu/~erein/}.\]

\[12\text{Using 1987 employment figures and three-digit CIC industries (N = 77), Geographic Concentration exhibits a partial correlation of just 0.283 with a Herfindahl index across counties, 0.298 with a Gini across counties, 0.428 with a Herfindahl across 102nd U.S. House districts (which we call Political Concentration below), and 0.164 with Industrial Concentration, the fraction of the industry’s market dominated by the top four firms.}\]
industry’s employment, concorded from counties (U.S.
Bureau of the Census and CIESIN 1998), and starting
with the county-industry workforce estimates discussed
earlier (Busch and Reinhardt 1999, 1035–1036). Industrial
Concentration is the 1987 fraction of the industry’s
market share possessed by the top four firms, using ship-
ment-weighted averages from the appropriate four-digit
SICs (U.S. Bureau of the Census 1998).

The variable Trade Exposure is the extent to which
the industry is exposed to foreign trade: it is the value of
import penetration or export dependence, whichever is
higher. Disadvantage represents revealed comparative
disadvantage, or how much more the industry is chal-
lenged by imports than it is dependent upon exports; it is
the level of import penetration minus export depen-
dence, as a fraction of whichever one is greater. Import
penetration, in turn, is the value of imports (for domes-
tic consumption only) over imports plus domestic ship-
ments; export dependence is exports (of domestic pro-
duction only) divided by exports plus domestic ship-
ments. For use with the NES 1988 analyses, we ob-
tain 1987 annual shipments, import, and export figures
from Feenstra (1998). For the CPS 1990 analysis, we ob-
tain 1989 annual shipments data from U.S. Bureau of the
Census (1997) and export and import figures from U.S.

Individual-Level Opinion Formation

The first tests, using the 1988 NES, concern the determi-
nants of trade-policy opinion. We want to know
whether a person has any kind of opinion on trade
policy as well as the direction that opinion takes, if ex-
pressed. Thus, two dependent variables are based on the
NES question (880376), “Do you favor or oppose plac-
ing new limits on imports, or haven’t you thought much
about this?” Opinion is 0 if the respondent failed to an-
swer or said “don’t know” or “haven’t thought much” to
this question and 1 otherwise. Protectionist is 1 if the
person answered “favor new limits” and 0 if the response
was “oppose new limits.” 65.8 percent of the 2,040 re-
spondents expressed an opinion, and of those, 67.4 per-
cent were protectionist.

We identify the industry of present or former occu-
pation for the respondent (NES field 880467, reporting
three-digit 1980 CIC codes), or spouse (880509), if the
respondent did not work in a manufacturing industry
and the spouse did. Then we merge in three-digit CIC
industry explanatory variables for the 499 people for
whom a manufacturing industry could be so assigned.
Those people lacking an association to a manufacturing
industry are not included in the models described here
or in the following section.

Persons whose industries have high values of Trade
Exposure should be more likely to form some kind of
opinion on trade policy, especially when their industries
are heavily concentrated geographically. That is, we ex-
pect the interaction term Geographic Concentration *
Trade Exposure to increase the probability that Opinion
equals one. Similarly, high values of Disadvantage should
make a respondent more likely to support protectionism
over freer trade, particularly when his or her industry is
highly localized. Namely, we expect Geographic Concen-
tration * Disadvantage to increase the probability that
Protectionist equals one.

For controls, we include Political Concentration and
Industrial Concentration to isolate the impact of Geo-
graphic Concentration, in addition to a number of vari-
bles from the NES with well-established lines of influ-
ence on political awareness (Brians and Wattenberg
1996; Rosenstone and Hansen 1993), and protectionist
attitudes in particular. These include Education (highest
grade completed, from field 880419), Age (880414),
Married (i.e., married or living with partner, 880423),
Male (880413), Minority (i.e., nonwhite, 880412), Ho-
meowner (880552), Union (i.e., someone in the house-
hold is a union member, 880517), House (the respond-
ent’s U.S. House general election is contested by more
than one major party candidate, 880050), Contacted
(whether political contributions were solicited from the
respondent by mail, telephone, or in person, fields
880836, 880839, and 880842), TV (days per week the
person watches television, 880128), and Newspaper
(days per week the person reads a newspaper, 880130).
Education, Age, Married, Male, Homeowner, Union,
House, Contacted, TV, and Newspaper should positively
influence Opinion, while Minority may decrease it.
Union should increase the value of Protectionist, while
Education may decrease it (Schaeve and Slaughter 1998).
Since Opinion and Protectionist have shared causes, the
errors in their equations will be correlated, and thus es-
timates from separate probit models would be biased.
Hence we analyze both the existence of a trade-policy
opinion and its direction, if any, in a probit model with
explicit sample selection, which provides consistent es-
timates in the presence of correlated errors (Timpone
1998).13

13We use the heckprob, robust command in Stata 6.0 for this proce-
dure, and the probit, robust command for the procedures described
in the following two sections. We run diagnostics with reg and sub-
stantive impact assessments with predict as well as Tomz, Witten-
berg, and King’s (1999) CLARIFY software.
Individual-Level Mobilization:
Campaign Contributions and Turnout

The second set of tests, using the 1988 NES data and the November 1990 CPS data, respectively, analyzes individual contributions to political campaigns and voter turnout. The dependent variable, Contributed, is 1 (0) if the person gave (did not give) money to a candidate, party, or other political group during the campaign (NES questions 880830, 880832, and 880834). Another dependent variable, Turnout (CPS field A-S34), is 1 if the person reportedly voted in the November 6, 1990 general election; 0 otherwise. Just as in the analysis of opinion formation, we are primarily concerned with the effect of Geographic Concentration’s interaction with Trade Exposure. The analysis of Contributed incorporates these industry variables based on an individual’s (or, if necessary, the spouse’s) manufacturing industry. Since the CPS includes information on industry-of-occupation for household members in addition to the spouse, for the analysis of Turnout we select the industry of the individual, spouse, or oldest other household member employed in a manufacturing industry, in that order of preference (CPS field A-IND, in three-digit 1980 CIC codes). Again, respondents without such a manufacturing industry affiliation are not included in the regression.

In keeping with existing studies of political participation, we incorporate a number of control variables capturing relevant socioeconomic characteristics and elite-level mobilization attempts (e.g., Timpone 1998; Rosenstone and Hansen 1993; Leighley and Nagler 1992). In particular, the model of Contributed includes Education, Age, Union, and Contacted, in addition to Income (measured in twenty-three ordered categories, NES question 880520) and Independent (a dummy for those the NES scores as political independents, i.e., values 2–4 on 880274). All but Independent should increase a person’s chance of making campaign contributions. The Turnout model contains Age (CPS field A-AGE), Veteran (A-VET), Male (A-SEX), Residence Duration (i.e., a dummy, 1 if the person had lived in the current residence for more than twelve months, A-S36), Education (highest grade completed, from A-HGA and A-HGC), Minority (i.e., black or Native American, A-RACE), Married (including separated, A-MARITAL), and Unemployed (i.e., unemployed or laid off, A-LFSR). From the Almanac of American Politics (1994), we also include dummies, capturing the mobilizing effects of local elections, for whether a general U.S. Senate (Senate) or gubernatorial (Governor) election involving more than one major party candidate occurred in the person’s state in 1990.

We estimate separate probit models of Contributed and Turnout conditioned on the above variables, plus the interaction of Geographic Concentration and Trade Exposure, which should have a positive effect on both dependent variables. Each model also includes Political Concentration and Industrial Concentration as controls.

Results

Findings from both sets of analyses bear out our hypothesis that geographic concentration bolsters political mobilization, revealing the critical importance of spatial proximity on the part of employees in trade-exposed industries. Conditioned on an industry’s international trade position, geographic concentration strongly influences whether employees hold opinions about trade policy, the direction these opinions take (i.e., for or against freer trade), and the likelihood that employees will vote and give money to political campaigns. In other words, when a group has the potential to benefit from collective action, as defined here by an industry’s international trade position, spatial proximity causes greater political mobilization across the board.

Opinion Formation

The models of opinion existence and direction in Table 1 fit the data closely, predicting around 70 percent of the observations correctly. We hypothesized that employees in trade-exposed industries would be more likely to both form an opinion on trade policy and adopt the particular opinion that is consistent with their industry’s comparative advantage (i.e., for or against freer trade),

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11.8 percent of the (1766) answering respondents self-reported such specific forms of contributions, which, it should be noted, do not count the tax return campaign matching fund option.

52.6 percent of the 97,091 people of whom this question was asked reportedly voted. Many studies observe that self-reported turnout figures are often biased upwards, but as Burden (1999) shows, such bias is much greater in presidential election years than in midterm elections, and the bias is ameliorated with larger samples. Since the CPS has eighty times as many respondents as the NES, and 1990 was not a presidential election year, our turnout analysis is on relatively solid footing.

16Collinearity, perhaps surprisingly, is largely absent in the control variables. When each explanatory variable is regressed (using OLS) on all the others, none exhibits an $R^2$ greater than 0.409 in either equation. The only exceptions are Geographic Concentration, Trade Exposure, and their product, which exhibit an average collinearity $R^2$ of 0.736 in the two equations. However, such collinearity causes a conservative bias, thereby increasing our confidence in the significance of the interaction term.
Table 1: Probit Model of Trade Policy Opinion with Sample Selection, NES 1988

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Robust SE</th>
<th>Coefficient</th>
<th>Robust SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>0.115***</td>
<td>0.026</td>
<td>0.045*</td>
<td>0.025</td>
</tr>
<tr>
<td>Age</td>
<td>0.010***</td>
<td>0.003</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Married</td>
<td>0.135</td>
<td>0.121</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Male</td>
<td>0.292**</td>
<td>0.108</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Minority</td>
<td>-0.334**</td>
<td>0.131</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Homeowner</td>
<td>0.143**</td>
<td>0.055</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Union</td>
<td>0.263*</td>
<td>0.151</td>
<td>0.340*</td>
<td>0.147</td>
</tr>
<tr>
<td>House</td>
<td>0.201*</td>
<td>0.118</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Contacted</td>
<td>0.085</td>
<td>0.124</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>TV</td>
<td>0.010</td>
<td>0.021</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Newspaper</td>
<td>0.016</td>
<td>0.020</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Geographic Concentration</td>
<td>-0.289</td>
<td>0.888</td>
<td>-0.469</td>
<td>0.823</td>
</tr>
<tr>
<td>Disadvantage</td>
<td>-0.223</td>
<td>0.148</td>
<td>0.726**</td>
<td>0.244</td>
</tr>
<tr>
<td>Trade Exposure</td>
<td>1.920***</td>
<td>0.522</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interaction</th>
<th>Coefficient</th>
<th>Robust SE</th>
<th>Coefficient</th>
<th>Robust SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geographic Concentration * Disadvantage</td>
<td>—</td>
<td>—</td>
<td>2.291*</td>
<td>1.320</td>
</tr>
<tr>
<td>Geographic Concentration * Trade Exposure</td>
<td>8.698*</td>
<td>4.955</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Political Concentration</td>
<td>-5.408</td>
<td>6.743</td>
<td>14.078*</td>
<td>7.069</td>
</tr>
<tr>
<td>Industrial Concentration</td>
<td>-0.006</td>
<td>0.004</td>
<td>-0.009*</td>
<td>0.004</td>
</tr>
<tr>
<td>Constant</td>
<td>-1.856***</td>
<td>0.474</td>
<td>-0.818**</td>
<td>0.381</td>
</tr>
</tbody>
</table>

Number of observations: 408 total, 272 with Opinion = 1
Model $\chi^2$: 7 d.o.f., 48.32***
Percent correctly predicted: 69.1%
LR test that $\rho = 0$: $\chi^2(1) = 12.38***$

* denotes 1-tailed $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Geographic Concentration is "centered" (to reduce collinearity with Geographic Concentration * Trade Exposure without other effect) by subtracting 0.561.

the more geographically concentrated their industry. The results in Table 1 bear out both of these expectations. In the Opinion equation, Geographic Concentration * Trade Exposure is positively signed and statistically significant ($p = 0.042$), revealing that individuals in geographically concentrated, trade-exposed industries are more likely to form an opinion on trade policy than those in dispersed, trade-exposed industries, controlling for a host of other variables. Also, Geographic Concentration * Disadvantage is positively signed and statistically significant ($p = 0.042$) in the Protectionist model, indicating that, conditioned on those holding an opinion about trade policy, individuals in geographically concentrated industries tend to support or oppose freer trade (given their export- or import-competing orientation) a great deal more than others in less spatially proximate industries with identical comparative advantage. Indeed, when Trade Exposure is fixed at its maximum sample value, and all other variables are held at their means, Geographic Concentration increases the predicted probability of expressing either opinion about trade policy by up to 57.2 percent. Likewise, given the existence of an opinion in the first place, for maximum Disadvantage (with the other variables at their means), Geographic Concentration makes a protectionist opinion up to 31.5 percent more likely. For minimum Disadvantage (i.e., when export dependence is much greater than import penetration), Geographic Concentration makes a freer trade opinion up to 38.0 percent.

17 Table 1 shows the results of a likelihood ratio test of the null hypothesis that the errors in these two equations are uncorrelated. This test statistic is highly significant, which testifies to the powerful selection bias that exists due to nonresponse on this question—selection bias which our model corrects.

18 We report one-tailed tests for Geographic Concentration * Trade Exposure throughout, since no theory suggests the interaction term should have a negative coefficient.

19 This occurs if Geographic Concentration goes from its sample minimum (0.230) to maximum (0.729) values. Holding Geographic Concentration at its largest value, Trade Exposure can have a maximum impact of 38.6 percent. Comparable figures for other variables, holding Geographic Concentration, Trade Exposure, and the remainder at their means, and varying the term in question from minimum to maximum, are 9.1 percent for Union, 60.8 for Education, 25.3 for Age, 10.4 for Male, 31.3 for Minority, 5.2 for Homeowner, and 7.3 for House.
more likely. 20 Put another way, changing the comparative advantage of a person’s industry has only a very small impact (up to 2.3 percent) on that person’s support for protectionism (given that he expresses an opinion either way) if the industry is highly dispersed. However, if the industry is maximally concentrated, Disadvantage’s effect is 28.7 times greater, changing the probability of supporting protectionism by fully 67.2 percent. In effect, individuals form trade-policy preferences consistent with their industry’s international trade position only if their industries are geographically concentrated. 21

### Campaign Contributions and Voter Turnout

The models in Tables 2 and 3, of Contributed and Turnout, have adequate overall explanatory power, correctly predicting 93 and 67 percent of the cases, respectively. 22

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Probit Model of Campaign Contributions by Individuals, NES 1988</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prob(Contributed = 1)</td>
</tr>
<tr>
<td></td>
<td>Coefficient</td>
</tr>
<tr>
<td>Education</td>
<td>0.099</td>
</tr>
<tr>
<td>Age</td>
<td>0.015*</td>
</tr>
<tr>
<td>Income</td>
<td>0.114**</td>
</tr>
<tr>
<td>Union</td>
<td>-0.126</td>
</tr>
<tr>
<td>Contacted</td>
<td>0.634*</td>
</tr>
<tr>
<td>Geographic Concentration</td>
<td>-3.251</td>
</tr>
<tr>
<td>Trade Exposure</td>
<td>4.533**</td>
</tr>
<tr>
<td>* Geographic Concentration</td>
<td>21.986*</td>
</tr>
<tr>
<td>Political Concentration</td>
<td>-6.704</td>
</tr>
<tr>
<td>Industrial Concentration</td>
<td>-0.002</td>
</tr>
<tr>
<td>Independent</td>
<td>-0.501*</td>
</tr>
<tr>
<td>Constant</td>
<td>-6.017**</td>
</tr>
<tr>
<td>Number of observations</td>
<td>376</td>
</tr>
<tr>
<td>Percent correctly predicted</td>
<td>93.1</td>
</tr>
<tr>
<td>Pseudo-R²</td>
<td>0.312</td>
</tr>
</tbody>
</table>

* denotes 1-tailed p < 0.05; **, p < 0.01; ***, p < 0.001. Geographic Concentration is “centered” (to reduce collinearity with Geographic Concentration * Trade Exposure without other effect) by subtracting 0.561.

<table>
<thead>
<tr>
<th>Table 3</th>
<th>Probit Model of Voter Turnout, CPS 1990</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prob(Turnout = 1)</td>
</tr>
<tr>
<td></td>
<td>Coefficient</td>
</tr>
<tr>
<td>Age</td>
<td>0.023***</td>
</tr>
<tr>
<td>Veteran</td>
<td>0.046*</td>
</tr>
<tr>
<td>Male</td>
<td>-0.042*</td>
</tr>
<tr>
<td>Residence Duration</td>
<td>0.602***</td>
</tr>
<tr>
<td>Education</td>
<td>0.148***</td>
</tr>
<tr>
<td>Minority</td>
<td>0.140***</td>
</tr>
<tr>
<td>Married</td>
<td>0.201***</td>
</tr>
<tr>
<td>Unemployed</td>
<td>-0.075*</td>
</tr>
<tr>
<td>Geographic Concentration</td>
<td>-0.526***</td>
</tr>
<tr>
<td>Trade Exposure</td>
<td>0.210</td>
</tr>
<tr>
<td>* Geographic Concentration</td>
<td>2.263*</td>
</tr>
<tr>
<td>Political Concentration</td>
<td>0.876*</td>
</tr>
<tr>
<td>Industrial Concentration</td>
<td>0.002***</td>
</tr>
<tr>
<td>Senate</td>
<td>0.118**</td>
</tr>
<tr>
<td>Governor</td>
<td>0.129***</td>
</tr>
<tr>
<td>Constant</td>
<td>-3.802***</td>
</tr>
<tr>
<td>Number of observations</td>
<td>23,962</td>
</tr>
<tr>
<td>Percent correctly predicted</td>
<td>67.1</td>
</tr>
<tr>
<td>Pseudo-R²</td>
<td>0.127</td>
</tr>
</tbody>
</table>

* denotes 1-tailed p < 0.05; **, p < 0.01; ***, p < 0.001. Geographic Concentration is “centered” (to reduce collinearity with Geographic Concentration * Trade Exposure without other effect) by subtracting 0.561.

We hypothesized that employees in trade-exposed industries would be more likely to contribute to political campaigns and vote, the more geographically concentrated their industries. The findings confirm both expectations. Beginning with campaign contributions, Table 2 reports that Geographic Concentration * Trade Exposure is positively signed and statistically significant (p = 0.037), controlling for obvious predictors of contributions like education, income, and party and union affiliation. With respect to voter turnout, Table 3 likewise reports that Geographic Concentration * Trade Exposure is positively signed and statistically significant (p = 0.012), controlling for personal characteristics like socioeconomic status, race, and age, as well as for top-down mobilization attempts, reflected in contested gubernatorial and senatorial elections. 23 Both equations, moreover, control for Political Concentration and Industrial Concentration, so

20 Among those expressing either opinion, moving from minimum to maximum, and holding Geographic Concentration, Disadvantage, and remaining variables at their means, Union raises the predicted probability of a protectionist opinion by up to 13.5 percent; Political Concentration, 28.1; Industrial Concentration, 28.2; and Education, 26.3.

21 Interestingly, neither industry size (i.e., number of employees) nor its interaction with Geographic Concentration has a significant effect when added to these models.

22 Here, too, collinearity, as revealed by OLS regressions of each independent variable on the others, is only noticeable for Geographic Concentration, Trade Exposure, and the interaction term (with an R² around 0.83 for these variables, and no higher than 0.40 and 0.25, respectively, for the other terms in the Contributed and Turnout models), which if anything should make our estimates of those variables more conservative.

23 Geographic Concentration’s effect is not conditional upon industry size, as reflected in insignificant results for the product of Geographic Concentration and number of employees, when added to the model.
we know Geographic Concentration’s effect is not attributable to these other sources of concentration. Fixing Trade Exposure at its maximum value, and holding other variables at their means, Geographic Concentration boosts the probability of (a) donating money to campaigns by up to 97.5 percent; and (b) voting by up to 15.4 percent. Indeed, no other determinant of campaign contributions has so large a predicted influence, and factors like contested gubernatorial and senate elections, race, sex, unemployment, and marital status all have a smaller effect on the probability of voting.24

**Auxiliary Tests**

Do the above results hold up if we use a conventional measure of geographic concentration instead? To find out, we compute a Herfindahl index of employment across counties, per industry, using the same figures as for Geographic Concentration. Then we rerun all four equations in Tables 1–3 using this alternative Herfindahl index in place of Geographic Concentration, also substituting it for Geographic Concentration in the interaction term in each equation. As it turns out, the coefficient of the interaction term, so modified, loses its significance in three of the four equations, and changes its sign in two of these runs as well. Hence, if we use a measure that fails to correct for the “checkerboard problem,” the impact of geographic concentration is ambiguous, at best.

So far, our tests have exclusively focused on people who live in households in which there is at least one manufacturing industry employee. Do geographic concentration and other industry-level characteristics affect mobilization on the part of people who are not connected to these manufacturing industries? To check, we compute county-specific industry characteristics by averaging the value of Geographic Concentration (and, separately, Political Concentration and Industrial Concentration), across all industries, weighted by their employment in that county. We then assign values of these industry variables to people, based on their counties of residence, and run the individual-level models in Tables 1–3 using only those people not affiliated with manufacturing industries (1,289 for the 1988 NES and 72,455 for the 1990 CPS).25 We find that the coefficient of Geographic Concentration’s interaction with trade position (a) retains a positive sign but loses its significance (p = 0.214 and p = 0.434) in the Opinion and Protectionist model of Table 1; (b) acquires a negative sign and loses significance (p = 0.158) in the Contributed model of Table 2; and (c) takes on a negative sign, losing significance (p = 0.120), in the Turnout model of Table 3. Thus, surprisingly, residents of regions that are home to geographically concentrated, trade-exposed industries, but who are not themselves affiliated with the manufacturing sector, are not more mobilized than analogous residents of regions that are home to geographically dispersed, trade-exposed industries.

As we noted in a previous section, a competing argument is that geographic concentration causes mobilization not because of a grassroots effect, but because of greater activism by political elites. If so, we would expect individuals with greater receptiveness to politically influential communication, owing to their greater “generalized political knowledge” (Price and Zaller 1993), to be more sensitive to the effect of their industries’ geographic concentration than less knowledgeable, but otherwise comparable individuals. However, coding “generalized political knowledge” exactly as Price and Zaller (1993, 141, 162) do, we find no such difference. That is, looking only at people connected to the top third of all industries scored by Geographic Concentration and Trade Exposure, the top half of NES respondents sorted by “generalized political knowledge” is no more likely than the bottom half to form an opinion either way on trade policy ($\chi^2(1) = 0.05, p = 0.821$) or to contribute money to political campaigns ($\chi^2(1) = 2.65, p = 0.103$). And if we reestimate the models in Tables 1 and 2, including the interaction of generalized political knowledge with Geographic Concentration * Trade Exposure (or Geographic Concentration * Disadvantage as appropriate), its coefficient is not simultaneously positive and significant. This constitutes strong evidence against the view that geographic concentration disproportionately affects those with greater receptiveness to signals from elites.

We can also provide evidence that the activity of trade associations does not account for the effect of geographic concentration on political mobilization. In particular, from the Center for Responsive Politics (CRP), we obtain an exhaustive list of political action committees (PACs) registered in the 1989–1990 federal election cycle, along with their industry codes where appropriate.

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24Comparable increases in the probability of campaign contributions due to changing other variables from the minimum to maximum values, holding the rest at their means, include 17.2 percent for Income, 4.2 for Contacted, 10.0 for Age, and –2.3 for Independent. Similarly, the probability of voting rises by up to 57.7 percent with Age, 74.5 percent with Education, –1.7 with Male, 4.7 with Senate, 5.1 with Governor, 1.8 with Veteran, 22.8 with Residence Duration, 5.5 with Minority, 8.0 with Married, –2.8 with Unemployed, 6.2 with Industrial Concentration, and 10.4 with Political Concentration.

25Replicating the Turnout model in this way necessitates state-level industry data, since respondents’ counties are not indicated in the CPS.
We then include the resources of the PACs in a person's industry (i.e., the total contributions to those PACs from individuals, in amounts over $200) as a regressor in the models in Tables 1–3. In no case does Geographic Concentration * Trade Exposure then change sign or significance. The financial ability of an industry's trade associations to engage in top-down mobilization efforts does not account for the pronounced effect of geographic concentration on the industry's workers.

Implications

We began this article by asking whether geographically concentrated industries that are exposed to trade are distinctive when it comes to their participation in politics. The answer is a resounding yes. Among trade-exposed industries, those which are geographically concentrated are exceptional across every measure of political mobilization. Whether employees in trade-exposed sectors hold an opinion on trade policy, which direction their opinion takes, whether they contribute money to political campaigns, and whether they exercise their vote, are all strongly influenced by geographic concentration. The effect is consistent across the board, which is all the more striking since our models control for all the usual determinants of each different form of political mobilization. And the results are no mere statistical curiosity: in each case geographic concentration has a strong substantive impact on political mobilization, testifying to the significance of this variable for real-world electoral outcomes.

Consider the following illustration. Figure 1 displays the distribution of employment across counties for two highly trade-exposed industries in 1987. Jewelry manufacturing, on top, is dispersed across the Pacific coastline, the Northeast, Florida, and the heartland, with the average employee located 839 miles from its "national centroid" (denoted with the asterisk and circle on the map), ranking sixty-third out of seventy-nine industry groups for its Geographic Concentration score. The manufacture of oilfield equipment, however, is tightly packed into Texas and Oklahoma, and the average employee is only 430 miles from the centroid there, giving rise to a Geographic Concentration rank of sixth out of seventy-nine industry groups. We thus expect the oilfield equipment industry to be much more politically mobilized. As Table 4 shows, this is indeed the case.26 Even though jewelry is more penetrated by imports, for instance, oilfield-equipment employees express more frequent opinions about trade policy; 5.5% more of them voted in 1990, and oilfield equipment is significantly better represented in campaign contributions as well. The contrast between these two otherwise similar industries speaks loudly to the importance of geographic concentration.

The results, then, are fully consistent with our hypothesis that geographically concentrated and trade-exposed industries are more likely to mobilize politically. When individuals have the potential to benefit from collective action—e.g., in trade politics, when they work in highly trade-exposed industries—proximity to others promotes interaction, communication, and the sharing of political knowledge. The result is a greater ability to articulate common preferences and to mobilize for the collective good. In many ways this argument should not be surprising; it accords greatly with intuition and anecdotal evidence. But the literature on the political economy of trade, and interest group politics more generally, has failed to bring spatial proximity to the fore. Such neglect is not surprising given the literature's mixed findings about geographic concentration, which trace back to the checkerboard problem that plagues conventional measures of the concept. As our article makes clear, only when we fully account for spatial proximity (in physical rather than political space) do we find that geographic concentration strongly conditions the political mobilization of trade-exposed industries. The article thus makes the case for redressing the literature's insufficient attention to spatial proximity and for distinguishing geographic from political concentration.

One of the most important implications of our findings is that, as Olson (1971) highlighted, common interest alone is not sufficient to spark political mobilization. People in industries facing a flood of imports are not especially more likely to form trade-policy opinions or to weigh in on politics through other means, even though intuition suggests that they should lobby heavily for protection. What is needed is not just an underlying interest, but a capacity to act—a capacity that we trace back to spatial proximity. Indeed, our findings suggest that industries that otherwise seem to face substantial collective-action problems—i.e., given large numbers of employees or firms, or near-perfect competition—can surmount these obstacles, so long as they are geographically concentrated.

In interpreting our results, it is worth flagging two variables that should not be confused with geographic concentration: namely, political and industrial concentration. Although long conflated, the spatial proximity of an industry is not the same as its dispersion across electoral districts, nor is it highly correlated with the market share held by the top few firms. Having disentangled

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26 The individual-level variables in Table 4 reflect actual data from survey respondents linked with the two industries. There are five people associated with the oilfield equipment industry in the 1988 NES and 283 in the 1990 CPS. Jewelry manufacturing has 16 and 480 affiliates, respectively.
**Figure 1** 1987 Employment in Jewelry and Oilfield Equipment Manufacturing

**Jewelry**

**Oilfield Equipment**
Table 4  Selected Characteristics of the Jewelry and Oilfield Equipment Industries

<table>
<thead>
<tr>
<th>Variable</th>
<th>Jewelry</th>
<th>Oilfield Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade Exposure</td>
<td>0.324</td>
<td>0.201</td>
</tr>
<tr>
<td>Import Penetration</td>
<td>0.324</td>
<td>0.153</td>
</tr>
<tr>
<td>Export Dependence</td>
<td>0.113</td>
<td>0.201</td>
</tr>
<tr>
<td>Employees</td>
<td>61,300</td>
<td>26,100</td>
</tr>
<tr>
<td>Shipments</td>
<td>$6.47 bill</td>
<td>$3.31 bill</td>
</tr>
<tr>
<td>Geographic Concentration, %tile</td>
<td>21</td>
<td>92</td>
</tr>
<tr>
<td>Industrial Concentration, %tile</td>
<td>5</td>
<td>28</td>
</tr>
<tr>
<td>Political Concentration, %tile</td>
<td>90</td>
<td>78</td>
</tr>
<tr>
<td>(Has Trade Policy) Opinion, 1988</td>
<td>50.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Protectionist, of those with Opinion, 1988</td>
<td>87.5%</td>
<td>20.0%</td>
</tr>
<tr>
<td>Contributed ($ to Candidates), 1988</td>
<td>0.0%</td>
<td>20.0%</td>
</tr>
<tr>
<td>Turnout, November 1990</td>
<td>45.0%</td>
<td>50.5%</td>
</tr>
</tbody>
</table>

Each of these variables, we can state unequivocally that geographic, and not political or industrial, concentration drives our results. There are two reasons why this is important. That is, the variables themselves are conceptually and empirically different, making it necessary to include all three if the conclusions drawn from empirical work are to be taken seriously. And if geographic, rather than political, concentration is indeed driving our results, this suggests that our findings have implications for a wider variety of electoral systems. Indeed, were political concentration the key, it could be argued that our findings pertain only to electoral systems in which, as in the United States, smaller single-member districts abound. By way of contrast, our findings concerning geographic concentration, which focus on spatial proximity regardless of how an industry maps on to electoral districts, are as relevant to the political economy of proportional representation systems (Busch and Reinhardt 1999).

Heeding the distinction between geographic and political concentration eliminates one alternative interpretation of our results. One might still suspect, however, that a geographically concentrated industry mobilizes not so much because of its workers, but because of political elites or industry groups. The idea is that politicians, unions, trade associations, and the media are more likely to engage in top-down publicity and mobilization attempts when there is much for them to gain by promoting the interests of a locally concentrated industry. And yet, these competing explanations are not borne out by the data. First, political elites should be concerned only with those industries that are concentrated in their districts, but our results control for such political concentration and still find an independent role for geography.

Second, the centers of geographically concentrated industries are typically not "company towns," but rather urban areas which are home to a great variety of industries (Busch and Reinhardt 1999, 1046). An industry’s employees may live and work close to one another, but the allegiance of politicians, the local media, and even the workers’ neighbors may just as easily lie with one of the many different industries located in the same space. Coming as close to a smoking gun as one could have, the regressions in Tables 1–3, replicated with those not affiliated with manufacturing industries, show that the (county) neighbors of a worker in a trade-exposed industry do not receive the same boost in mobilization that the worker receives when his industry is geographically concentrated. This belies the competing view that activity by politicians and the media should increase participation and awareness on the part of all local residents, not simply the industry’s workers. Rather, the finding is that the effect of spatial proximity on political mobilization may apply at work and at home, but it does not spill over to neighbors employed by other industries. This finding undermines the view that geographic concentration boosts activism by workers primarily by attracting the interest and mobilization efforts of political elites.

Third, contrary to the expectations of the elite-centered perspective, geographic concentration does not differentially affect people who are more receptive to media signals from politicians, i.e., those with a greater storehouse of political knowledge in the first place. Fourth, our models control for conventional proxies of elite-driven mobilization efforts, like contested campaigns, media exposure, the role of trade associations, union membership, and contacts from political campaigns.
These results imply that geographic concentration is not, after all, increasing political elites’ attempts to mobilize an industry’s workers.

The results of these four auxiliary tests cast doubt on the elite-centered view of geographic concentration’s influence on workers’ opinion formation and political participation. Hence, we infer that spatial proximity increases mobilization from the bottom up and not just from the top down. Of course, we do not directly measure attempts by managers to mobilize geographically concentrated industries: that task requires firm-level data, the collection of which we leave to future research. The point to emphasize, though, is that, regardless of whether employees are mobilizing themselves, or managers are mobilizing employees, geography matters. Proximity is central to both scenarios, since either employees are vetting ideas at the grassroots level, or managers are finding each other and, ultimately, their employees in close physical proximity.

However convincing our efforts to define and measure geographic concentration, it might still be argued that this variable is a proxy for the intensity of preferences owing to some underlying economic variable, most notably asset specificity. In other words, perhaps those industries that are spatially proximate are more fully vested in immobile factors (i.e., capital and labor) and are thus more likely to weigh in on trade politics to defend these investments. While not definitive, our results cast doubt on this competing explanation. In particular, the models control for asset specificity with variables often associated with immobile factors, such as education, age, home ownership, marriage, and income (Scheve and Slaughter 1998). Additionally, Geographic Concentration’s effect is not attributable to trade exposure and comparative disadvantage, since we control for them in each model. Our results thus speak not to the effect of geographic concentration on underlying economic preferences, but rather to its effect on the capacity for collective action, given an underlying common interest.

A further objection is that the “information age” might render geographic concentration less important, given the remarkable ease with which even the most distant contacts keep in touch. However, there are a variety of reasons to doubt the much anticipated “death of distance” (Audretsch 1998, 19). For example, evidence from a variety of sources suggests that the resources of the information age disproportionately benefit those already mobilized for exogenous reasons (Blanchard and Horan 1998). One early study of the spread of specialized software in a scientific community found that the typical user adopted the program only after hearing about it from a co-located colleague (Carley and Wendt 1988), suggesting that the optimal sharing of information hinges on users being close by, even when looking at only the most computer-savvy individuals. Along the same lines, a large mid-1990s survey concluded that using the Internet for political communication was “an act of self-selection” (Hill and Hughes 1998, 183), in that, rather than instigating mobilization, use of the Internet was most clear where activism was already evident. Late-1998 survey results tell the same story: the “facilities and ability of the Internet to give political information will be extraordinary, but it will be limited by the public’s desire to have that information” (Martin 1999, 11). Thus, we submit that the information age most likely intensifies the importance of mobilization through face-to-face communication.

What implications does geographic concentration have for policy outcomes? The findings here, of course, concern industry mobilization. Does such mobilization, as conditioned by geographic concentration, ultimately affect policy making? The answer, at least in the case of trade protection for a similar sample of industries in the U.S. in 1990, is yes: geographically concentrated industries with an interest in protection are substantially more likely to receive nontariff barriers (Busch and Reinhardt 1999). Are similar patterns to be expected in other electoral systems? If our results were being driven by political concentration, there might be reason to doubt their applicability to proportional representation systems, for example. Yet, given that geographic concentration is doing the heavy lifting for us, we see no reason to doubt the wider applicability of these results, nor their implications for who gets what in the policy-making process. For this reason, it seems only a slight exaggeration to suggest that the political economy literature ignores geography at its peril.

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References


27Indeed, in no case is Geographic Concentration correlated with Trade Exposure at more than 0.123. In the opinion formation model, Geographic Concentration’s correlation with Disadvantage is a relatively small 0.301 as well.


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