ECONOMIC INEQUALITY AND POLITICAL PARTICIPATION: SCALE MATTERS*

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ABSTRACT

Despite a long tradition arguing that economic inequality depresses levels of political participation, perhaps by inhibiting the trust and social capital on which organized activity depends, recent analyses have suggested that it instead increases participation by generating conflict and outrage that fuel political action. I argue that this contradiction can be resolved by attending to economic segregation, the spatial patterning of economic inequality. Evidence comes from several new measures of economic segregation linked to individual-level data from the 2000 American National Election Study, and results suggest that people participate less where *neighborhoods* are unequal and where *individuals within neighborhoods* are socioeconomically similar. That is, economic segregation—the condition of having many homogeneously rich and many homogeneously poor neighborhoods in the same county—lowers rates of political participation. Thus there is no single effect of inequality on political participation; rather, the relationship depends on how people are distributed in geographic space.

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The problem of economic inequality loomed large in the 2008 presidential campaign. Democratic candidate Barack Obama (2007) emphasized—however tentatively—the fact of rising economic inequality: "We need to reclaim the American dream. And that starts with reclaiming the White House from George Bush and Dick Cheney. We're tired of tax cuts for the wealthy that shift the burden onto the backs of working people. We're tired of waiting ten years for the minimum wage to go up while CEO pay is soaring." Republican candidate John McCain would have found it difficult to focus on inequality itself; most commentators agreed that his tax proposals were indeed regressive in nature and would have gone mostly to the wealthy, thus increasing economic inequality (e.g., Williams and Gleckman 2008). Thus he attempted to reframe the debate, arguing that his proposed tax policy would create jobs and benefit all Americans.

Obama's attacks and McCain's response say much about the politics of inequality: both major-party candidates saw (Obama more explicitly than McCain) that voters were angered by income inequality and would turn out to vote for whomever they thought could fix it. However, the empirical record on whether inequality sparks political participation is mixed. While some researchers have demonstrated a positive relationship between economic inequality and the likelihood that people will engage in political activities, others have shown that inequality may instead depress people's proclivity to participate. Far from increasing conflict and debate, inequality might undermine citizens' connection to the political system and militate against the sense of a common fate upon which democratic governance depends.[1]

I attempt to resolve these conflicting findings by attending to the spatial arrangement of inequality. This requires switching the focus from economic *inequality* to economic *segregation*. While economic inequality describes disparities in income across *individuals*, economic segregation describes disparities in income across *geographic areas*. Where there are many rich neighborhoods and many poor neighborhoods in the same county, for example, economic

[1] I focus here on inequality's *contextual effect*. While inequality can also have compositional effects on political participation by changing the relative amount of resources that individuals have to participate, contextual effects exist independently of individuals' characteristics, such that two people who live in areas with different levels of inequality would have different levels of participation even if they were identical in all other relevant characteristics.

segregation is high; where all neighborhoods have fairly similar average incomes, economic segregation is low. The ramifications of a certain amount of "inequality" for politics may thus depend on how rich and poor individuals are arranged in geographic space. Indeed, one recent paper (Galbraith and Hale 2008) provides some evidence that economic segregation but not inequality influenced voting rates in the 2000 presidential election. This research extends their investigation to more types of political participation using newly calculated and highly refined measures of economic segregation.

Below, I introduce two competing perspectives on how economic inequality affects political participation. I then explain in more detail the concept of economic segregation and offer hypotheses about its effects on political participation. After describing measures of political participation and economic segregation and the method I have used to analyze their connection, I discuss my findings and their implications for the future of American politics.

Economic Inequality: Spark or Stumbling Block for Political Action?

Seymour Martin Lipset ([1960] 1981, chap. 1) argues that stable democracies are marked by a mixture of both consensus and conflict.[2] There must be some sense of commonality to keep citizens committed to the survival of the system; otherwise the society will tend to drift apart. At the same time, though, too much consensus can be deadly: without something to spark conflict and debate across broad segments of the population, the majority can dominate the minority.

So how should inequality affect this blend? Formal tests of the relationship are scarce, but many analysts have argued that its chief effect is to erode the democratic consensus, thus driving down political participation. I begin by describing their research, then turn to others who claim instead that inequality instead generates conflict that leads people to look for political solutions.

Inequality as an Inhibitor of Democracy

Two main strands of research argue for a negative relationship between inequality and political participation: examinations of historical transitions to democracy and analyses of participation in modern democracies.

Inequality and Democratization. The foundation of this work was laid by Seymour Martin Lipset ([1960] 1981, chap. 2), who noted that economically developed nations tended to

[2] David Campbell (2006) traces these ideas in the context of American politics back to Alexis de Tocqueville (who focused on consensus) and James Madison (who argued for the importance of conflict).

be democratic. Lipset's explanation for this pattern was that development leveled differences among citizens, such that elites began to see non-elites as political equals instead of as vulgar masses to be repressed. Other analysts have elaborated on his premise. Carles Boix (2003) has argued that inequality in a pre-democratic state creates high amounts of tension between the poor and the rich because wealthy elites, fearful that democracy will result in demands for dramatic redistribution, hold onto power by force. Barrington Moore (1966) adduces detailed historical evidence for this proposition, claiming that democratic arrangements tend to emerge when capitalist revolutions have reduced the economic antagonisms between agricultural elites and peasant classes and built a robust, pro-democratic middle class. Others suggest that declining inequality advances democracy by strengthening the working class instead (Rueschemeyer, Stephens, and Stephens 1992).

Inequality and Modern Democracies. Inequality may also weaken participation in modern democratic states. Solt (2008) finds that across five advanced industrial democracies, inequality at the national level depresses interest in politics, the frequency of political discussion, and the likelihood of having ever voted—particularly for lower-income citizens. Anderson and Beramendi (2005) find a similar effect of inequality on voting, although they find that inequality's effect is similar for both lower-income and higher-income citizens. And Campbell (2006) finds that inequality in a range of areas—states, groups of counties within states, and metropolitan areas—inhibits such activities as signing a petition and participating in protests.

Reasons for a Negative Inequality-Participation Relationship. Why should inequality pose an obstacle to participation? Few mechanisms have been systematically tested, but the existing literature does present four main possibilities. First, inequality seems to depress people's trust in metropolitan areas across the country (Alesina and La Ferrara 2002), and people who are distrustful of others appear to be less likely to participate in a wide range of activities (Boeckmann and Tyler 2002; Uslaner and Brown 2005). Second, inequality might also work against political discussion and the flow of politically relevant information. Americans tend to select their discussion networks from those who are similar to them (Marsden 1987; McPherson, Smith-Lovin, and Cook 2001), and inequality might make it harder to find discussion partners—people who make it easier to participate (Huckfeldt, Mendez, and Osborn 2004; Leighley 1990).

Third, citizens in areas of high inequality may be less likely to be mobilized than others. Political parties tend to recruit selectively and concentrate their resources on wealthy areas that

will turn out to vote at high rates (Huckfeldt and Sprague 1992; Rosenstone and Hansen 1993:32-33); thus homogeneous areas (at least wealthy ones) may be more likely to be targeted for mobilization efforts than heterogeneous places, where the characteristics of residents cannot be ascertained as reliably. And simply being asked to participate does much to get people involved (Rosenstone and Hansen 1993; Verba et al. 1995).

Finally, inequality may induce frustration with the political process and thence apathy, in line with the writings of Gaventa (1980) and Lukes ([1974] 2005). More specifically, inequality could erode external political efficacy, the sense that government responds to people like oneself. To the extent that citizens view rising inequality as the outcome of a series of government decisions that they have had little say in, or as the refusal of government to address issues of concern to them, they may simply withdraw from politics out of a sense that the powers that be are too entrenched to be overturned. Indirect evidence for this proposition comes from Alesina and La Ferrara (2002), who report that residents of areas with high inequality evince less confidence in government, as well as from the "policy feedback" literature, which provides many examples of how governmental rules and benefit programs inform people about their proper role as citizens and about how the government views them (see generally Hacker, Mettler, and Pinderhughes 2005:179-92; Mettler and Soss 2004; Pierson 1993). And feeling represented by one's representatives is an important predictor of participation (see, e.g., Rosenstone and Hansen 1993).

Inequality as Fuel for Democracy

Other researchers, however, argue that inequality raises citizens' likelihood of participating in politics. Oliver (2001, chap. 3) finds that residents of more socioeconomically diverse communities tend to vote and engage in informal civic activity to a greater extent than do residents of more homogeneous areas. Inequality in municipalities appears to raise the rates of donating money or time to campaigns (Campbell 2006, chap. 3), and inequality in counties seems to raise the likelihood of voting (Campbell 2006, chap. 2).

Potential Mechanisms of a Positive Inequality-Participation Relationship. Why might this positive relationship between inequality and participation exist? There are two perspectives, both of which treat inequality as an essential ingredient in creating conflict, "the root of all politics" (Schattschneider 1960:2; see also Dahl 1971, chap. 6).

First, inequality might make one's political positions and preferences more extreme, spurring one to participate in politics to advance those positions. Brady (2004) has developed a formal model to this effect: as the average incomes of high-income citizens and low-income citizens grow farther apart—that is, as inequality rises—their preferences for policies on taxes and benefits shift. High-income people want lower taxes, even if it means reducing the benefits that they do not need; low-income people want more benefits that need to be funded by higher taxes (which will come mostly from the rich, particularly under a progressive tax regime). As their preferences diverge, then, they turn to political action to lobby government more effectively.

A second positive link between inequality and participation may be interest and attention to politics. Perhaps in part as a consequence of the political debate and tension that inequality generates, levels of political interest appear to be higher in socioeconomically diverse areas (Oliver 2001, chap. 3). And interest in politics is a key predictor of participation (e.g., Rosenstone and Hansen 1993; Verba et al. 1995, chap. 12).

Economic Inequality, Geographic Scale, and Economic Segregation

How can these two perspectives be resolved? Can inequality both raise and lower levels of participation? It can—if inequality's effects vary by geographic scale. This requires shifting the focus to economic segregation. While economic *inequality* signifies disparities in income across *individuals*, economic *segregation* signifies disparities in income across *geographic areas*. Consider the example of neighborhoods within a single county. If some neighborhoods are very rich and others are very poor relative to the overall average county income, then inequality across neighborhoods is high, and economic segregation will be high. If most neighborhoods are fairly similar in their average incomes, then inequality across neighborhoods will be low, and economic segregation will be low.

Furthermore, we can usefully consider the total amount of income inequality in a county ($Ineq_C$) to be the sum of two different portions of inequality—the inequality existing *across* neighborhoods in the county ($Ineq_{n \in C}$) and the residual inequality existing across individual households *within* those neighborhoods ($Ineq_{i \in N}$):

$$Ineq_C = Ineq_{n \in C} + Ineq_{i \in N} \quad (1)$$

A high amount of inequality in a county can represent two different things: it could mean that inequality *between* neighborhoods is high (and inequality *within* neighborhoods relatively low); or it could mean that inequality *within* neighborhoods is high (and inequality *between* neighborhoods is relatively low).

Economic segregation thus describes the level of inequality that is likely to prevail in individuals' local environments, as well as the inequality across those local environments. How should this spatial patterning matter? Figure 1 summarizes two possibilities.

(Figure 1 about here)

One is the the **participation-maximizing hypothesis: economic segregation increases political participation.** This could happen in two ways. First, the participation-inhibiting effect of inequality could be concentrated within neighborhoods, at the most local level (pathway A). Where close-by neighbors are dissimilar, the resulting distrust and a lack of readily available discussion partners should work against the formation of participation networks. Furthermore, within-neighborhood inequality should make it more difficult for political parties to target their potential supporters, since neighborhoods largely undistinguished in their economic characteristics make the characteristics of their residents harder to ascertain. Second, the participation-generating effect of inequality might operate at the between-neighborhood level (pathway B). Where neighborhoods are themselves unequal, the visibility of rich enclaves might help spur residents of poor neighborhoods to action. On the other side of the socioeconomic spectrum, residents of rich neighborhoods might take more of an interest in defending their space. In sum, the participation-maximizing hypothesis holds that areas with high economic segregation have less of the within-neighborhood inequality that should depress participation and more of the between-neighborhood inequality that should spark it.

The second possibility is the **participation-minimizing hypothesis: economic segregation reduces political participation.** Perhaps inequality's participating-generating effect dominates at the local level, such that large numbers of rich and poor people residing in the same neighborhood fosters conflict that turns people to politics. Economic segregation might limit this dynamic (pathway C), thus decreasing participation. Conversely, when people from across the socioeconomic spectrum are thrown together in the same small geographic space, conflict is likely to result (see, e.g, Crenson 1983) that could lead residents to turn to politics to advance their interests or simply to reduce the tension. And if inequality's negative effect on

participation is located mainly at the between-neighborhood level, then economic segregation (in the form of high between-neighborhood inequality) could reduce the sense that government represents the interests of all. Where there are wealthy enclaves, residents of other neighborhoods (particularly impoverished ones) might plausibly feel ignored by political leaders.

Data and Methods

Data Sources

Investigating the contextual effect of inequality requires two different sources of data: first, individual-level measures of political participation and relevant sociodemographic characteristics; and second, measures of the economic inequality and economic segregation prevailing in counties and neighborhoods. The former data come from the 2000 American National Election Study (ANES). The ANES has been carried out in every national election year since 1948, and it is one of the primary data sources on political attitudes and behavior.

Data on neighborhoods and counties come from Summary File 3 of the 2000 decennial census. The census block group (describing areas with a population of about 1,500) is the smallest geographic unit for which the U.S. Census Bureau publishes summary income data, and so I use block groups as proxies for "neighborhoods." While this unit does not necessarily correspond exactly to what individuals would consider their "neighborhood" to be, it is the most precise measurement available in nationally representative data. Importantly, the 2000 ANES allows respondents to be matched to their block group, thus providing an extraordinary opportunity for multiple scales of contextual analysis. Below, I discuss measures of economic inequality and economic segregation, then turn to individual-level characteristics available in the ANES.

Economic Inequality and Economic Segregation

Economic Inequality in Counties. As noted, economic segregation refers to disparities in average incomes between geographic areas; it is the spatial patterning of overall economic inequality. Obtaining measures of economic segregation, then, requires using inequality measures that can be additively decomposed into the portions existing across geographic areas and across individuals within those geographic areas. The Theil index and the mean logarithmic

deviation (MLD) fit these characteristics; details of their calculation and decomposition are given in the appendix.[3]

Economic Segregation in Counties. After decomposing the Theil and MLD into their two components—between-neighborhood inequality ($Ineq_{n \in C}$) and within-neighborhood inequality ($Ineq_{i \in N}$)—a summary measure of economic segregation can be constructed:

$$EconSeg_C = \frac{Ineq_{n \in C}}{Ineq_{i \in N}} \quad (2)$$

Economic segregation is high where between-neighborhood inequality is high relative to within-neighborhood inequality.

Neighborhood Income Heterogeneity and Homogeneity. It is important to note that the measures of economic segregation described above describe *counties*. That is, "within-neighborhood inequality" describes the level of inequality prevailing within the typical neighborhood in a county, not the level of inequality in any given neighborhood. Investigating the effects of inequality in individual neighborhoods, then, requires a different approach. I use the l^2 measure of ordinal variation (Blair and Lacy 2000), which ranges from a minimum of 0 (when all households are concentrated in a single income bracket) to a maximum of 1 (when all households are evenly spread across all income brackets). Because this is not a true measure of income inequality,[4] I label this "income heterogeneity." To produce measures more intuitively understandable with reference to economic segregation, I have subtracted the measure from 1 (thus reversing the sign) so that it represents income *homogeneity*.

I have calculated this index of income homogeneity at three scales:

- *local homogeneity*: the income homogeneity prevailing in the respondent's own neighborhood;

[3] The variance of individual incomes can also be so decomposed (as in Mayer 2002); however, this does not satisfy another important property of inequality measures—the welfare property, according to which (for example) inequality measures decline more when income is transferred from a rich person to a poor person than when income is transferred from a rich person to a middle-income person. The variance of *logged* incomes can also be used here, but it cannot be computed from the available data (see appendix for details). Finally, Jargowsky's (1995, 1996) Neighborhood Sorting Index (NSI) is another option here; but as the ratio of the standard deviation of neighborhood incomes to the standard deviation of individual incomes, it conflates between-neighborhood and within-neighborhood inequality.

[4] The l^2 measure fails to satisfy the principle of transfers, according to which a transfer of money from a rich person to a poorer person should reduce the measure of inequality. Because l^2 is based on grouped income data, such a reduction will take place only if one of these people is shifted to a different income group.

- *nearby-neighbors homogeneity*: the income homogeneity prevailing in neighborhoods within 1 kilometer of the respondent's own; and
- *distant-neighbors homogeneity*: the income homogeneity prevailing in neighborhoods within 4 kilometers of the respondent's own.

Economic segregation is high where income homogeneity (at whatever scale) is high; see the appendix for details on the calculation of these measures. Table 1 summarizes the key measures used in this paper.

(Table 1 about here)

Measures of Political Participation

As dependent variables I use two different measures of political participation. First, *voting* is a dichotomous variable indicating whether a respondent reported voting in the November 2000 election.[5] Second, *non-voting electoral participation* is the simple count of five items tapping respondents' self-reported activities within the formal electoral system in the 2000 election season (see Table 1 for details).[6]

Control Variables

There is far more influencing political participation than income inequality and economic segregation, and it is important to account for the effects of these exogenous factors. Given its importance to the focus of this study, income is a particularly important one, but it exists in the 2000 ANES only as an ordered set of twenty-two categories running from "less than $5,000" to "$200,000 and over." To make this measurement more precise, I fit these categories to a plausible income distribution and assigned respondents the estimated mean income of the category in which they fall. (See the appendix for more details.) I then took the natural log of these dollar amounts to address the positive skew in the income distribution.

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[5] I make no distinction at this point between those who did not vote because they were not registered to vote and those who were registered but did not vote. I have also performed supplementary analyses using voter registration as a dependent variable, as well as simultaneous-equation Heckman selection models of registration and voting; and I will address them below.

[6] Because of social desirability effects, such self-reported measures may overstate respondents' actual participation levels. While there is no way in the 2000 ANES to systematically determine whether overreporting biases the estimated effects of inequality on participation, the literature does provide hints. Bernstein, Chadha, and Montjoy (2001) found that residents of heterogeneous areas are less likely to overreport their actual levels of participation than are residents of homogeneous areas. Thus counties with high inequality could display lower *reported* participation levels than counties with low inequality, even when their actual participation levels are the same. This suggests that any negative effect of within-neighborhood inequality (or any positive effect of homogeneity) on self-reported participation could be overstated, while any positive effect of inequality (or negative effect of homogeneity) should inspire confidence.

I also include controls for educational attainment (four categories), gender (women vs. men), age (with a quadratic term to account for curvilinearity), church attendance (a five-point ordinal scale ranging from "never" to "every week"), marital status (five categories), employment status (six categories), household union membership (a dichotomous variable indicating whether anyone in the respondent's household belongs to a labor union), race and Hispanicity (four categories), residential tenure (owners vs. renters), and length of residence in one's community (in years). For the full coding, please see Table A1 of the appendix. Drawing on arguments that respondents with more political resources and more chances to be mobilized are more likely to participate (Rosenstone and Hansen 1993; Verba et al. 1995), I expect higher participation among respondents who are richer, earn more money, have more formal education, are older, attend church more regularly, are married, are working full-time, are non-Hispanic white, own their homes, and have lived in their community for longer periods of time.

Finally, I have included as a contextual control the average income in respondents' counties (logged to address skew). I expect that respondents in richer counties will be more likely to participate.[7] When using the neighborhood income heterogeneity measures, I control instead for average neighborhood income (in tens of thousands of dollars) and expect a positive effect on participation.

Analytic Strategy

The complexity of these data requires that three main problems be addressed. (The 2000 ANES sample design creates an additional set of issues, described in the appendix.) First, neither voting (a dichotomous variable) nor non-voting electoral participation (a count variable) is a continuous variable, thus making linear regression inappropriate. I therefore use logit models to analyze voting and negative binomial models to analyze non-voting electoral participation.[8]

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[7] I also examined controls for the total county population, racial residential segregation in the county, the proportion of high-school graduates in the county, county residential mobility, the average income of the respondent's neighborhood, and the racial diversity of the respondent's neighborhood. Results were substantively similar (and in many cases even stronger) when using these. For the sake of parsimony, I have omitted them from the models shown here, and they are available upon request.

[8] Poisson models are sometimes used to analyze count data, but they assume that the variance of the outcome variable is equal to the variable's mean—an assumption violated in these data, in which the outcome variable exhibits overdispersion (i.e., its variance is greater than its mean). Negative binomial models add an extra parameter to the error term to account for this additional variation. I also attempted to scale the non-voting electoral participation measure using a Rasch model (Raudenbush and Bryk 2002:365-68), which would have allowed for the possibility that there is a greater distinction between engaging in zero acts and in one acts than there is between

Second, the clustering of respondents within counties needs to be accounted for. Two respondents who live in the same county share a similar environment, and their participation levels are therefore likely to be more similar than the participation levels of two respondents from different counties. Unless this source of similarity is fully captured in models, standard errors can be downwardly biased, rendering significance tests inaccurate. I have therefore used the Huber-White cluster-corrected standard errors provided by Stata, which have performed well in simulation studies (Angeles, Guilkey, and Mroz 2005).[9]

Finally, selection bias could be a problem with this research (as it is in all contextual analysis): if respondents who are especially likely to participate in politics choose (or are otherwise sorted into) areas with particularly high or low levels of inequality or economic segregation, then spurious links between inequality and participation could emerge. However, I do not believe this to be a major problem for my analyses. The aforementioned control variables should account for this process of differential sorting. And it is unlikely that some other, unobserved property of individuals would pose a problem. For this to be the case, individuals would have to choose their residential environment *so that* they can participate in politics (that is, they evaluate some area as being more conducive to their participation and act accordingly) (Hauser 1974; Winship and Morgan 1999:679). The community's ability to support political participation in politics is not likely to be a focus of attraction. As Huckfeldt and Sprague (1993:294) point out, people select neighborhoods chiefly for schools or labor market opportunities, "and then we take the politics that accompanies the choice."

Results

I discuss my findings in two phases. First, I compare the effects on political participation of economic inequality and economic segregation at the county level. Second, I extend this analysis by showing the influence of economic segregation at the *neighborhood* level.

County-Level Measures

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engaging in two and three acts. However, the resulting scale was almost perfectly correlated ($r = 0.995$) with the raw count of acts, and I therefore retained the simpler and more flexible negative binomial specification.

[9] Adding an extra component to the error term (such as a random intercept in a multilevel model) can also solve this problem, but the average number of respondents per neighborhood and county is too low to support such an approach in these data. In the samples used here, there is an average of about 1.5 respondents per neighborhood, about 3 respondents per county, and about 2 sampled neighborhoods per county. Furthermore, 78 percent of the neighborhoods and 63 percent of the counties have only one respondent, while 68 percent of the counties contain only one sampled neighborhood. In such situations, estimates of standard errors can still be biased downwards even when using multilevel models (Clarke and Wheaton 2007).

Table 2 displays estimates of county-level income inequality and county-level economic segregation on voting and non-voting electoral participation—first for the MLD index of inequality and then for the Theil index. For comparison, it also displays the coefficients for individual income, although I have not displayed the coefficients for controls here for the sake of simplicity. (For these, see Table A1 of the appendix.)[10]

(Table 2 about here)

Total county-level inequality bears no apparent relationship to either form of participation; whether measured as the MLD or the Theil, all inequality coefficients are statistically nonsignificant. But economic segregation bears a significant *negative* relationship to voting. In counties where inequality across neighborhoods is high relative to the inequality within them, people are less likely to vote—in keeping with the participation-minimizing hypothesis. However, this relationship is absent for non-voting electoral participation (although the signs of the coefficients are in the negative direction).[11]

(Figure 2 about here)

How strong is this relationship? Figure 2 displays the predicted probability of voting across a trimmed range of county-level economic segregation (the dotted line) and individual income (the solid line) when inequality is measured by the MLD and when all other variables are held at their means. Based on the model, about 76 percent of poor individuals (the 10th percentile of individual income) reported voting in 2000, while about 85 percent of rich individuals (the 90th percentile) did. The effect of economic segregation is even stronger: 87 percent of people in counties with the lowest levels of economic segregation (the 10th percentile) voted, while only 76 percent of people in counties with the highest levels of economic segregation (the 90th percentile) did so. This amounts to cutting the odds of voting *in half*—a formidable effect.[12]

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[10] These are generally in line with expectations: those who are more educated, attend church more regularly, or own their homes participate more. Additionally, longer residence in one's community increases one's likelihood of voting, and members of union households are more likely to engage in non-voting electoral participation. However, no significant gradients in participation emerge by age, marital status, employment status, or race.

[11] It appears to be mainly a negative effect of between-neighborhood inequality, not a positive effect of within-neighborhood inequality, that produces this negative effect of economic segregation. These supplementary models are not shown here, but are available upon request.

[12] It is unlikely that this negative effect of economic segregation is an artifact of false self-reports of participation. Local neighborhoods would tend to be more homogeneous under conditions of high economic segregation, thus encouraging respondents to report voting overreporting (Bernstein et al. 2001). And alternate specifications of these

Neighborhood-Level Measures

We have seen so far that economic segregation—the spatial patterning of inequality—is more consequential for political participation than is the fact of inequality itself. Yet these analyses have two main shortcomings: the measures of economic segregation cannot be reliably computed for all counties in America; and the within-neighborhood component of economic segregation is averaged across neighborhoods within each county and does not describe the income heterogeneity prevailing in respondents' actual neighborhoods. No solution is available for the former problem, but results are similar when including the counties with potentially unreliable inequality and economic segregation measures.

For the latter problem, though, other measures of economic segregation are available—the income homogeneity prevailing in and around respondents' neighborhoods. Model 1 of Table 3 displays estimates of the effects of income homogeneity at three scales: in respondents' own neighborhoods, in nearby neighborhoods (within 1 kilometer of the respondent's own), and in distant neighborhoods (those within 4 km of the respondent's own).

(Table 3 about here)

Again in support of the participation-minimizing hypothesis, these models provide stronger evidence for the negative effect of economic segregation—provided that we consider more than individuals' own neighborhoods. Economic segregation depresses rates of voting *and* of non-voting electoral participation (recall that homogeneous neighborhoods indicate high economic segregation). But the scales of these effects differ. For voting, it is nearby neighborhoods that matter; for non-voting electoral participation, it is more distant neighborhoods.[13]

However, heterogeneous neighborhood clusters could appear to be more conducive to participation only because it is *homogeneously poor* neighborhood clusters that have especially low rates of participation. Model 2 addresses this possibility by controlling for the average income (in tens of thousands of dollars) for these three scales. For both voting and non-electoral participation, the relationships described above between income heterogeneity and participation

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models controlling for the income heterogeneity in the respondent's own neighborhood yielded substantively similar results.

[13] Importantly, alternate logit models using voter registration as a dependent variable and Heckman probit selection models analyzing registration and voting simultaneously yielded little evidence that inequality's effect on voting stems from its effect on voter registration. That is, it is not simply that individuals in areas with high inequality are more or less likely to register to vote; inequality appears to change the likelihood of voting even among the registered population.

remain strong and highly significant. Thus the link between heterogeneity and participation does not appear to be due to any joint association with average neighborhood income.[14]

Notable here is that the negative effects of living among income homogeneity outstrip the positive effect of being rich oneself. Figure 3 displays the predicted probabilities of voting for individuals across the trimmed range of nearby-neighbor homogeneity. Based on these coefficients, about 86 percent of individuals who live among heterogeneous nearby neighborhoods (the 10th percentile of the income homogeneity variable) reported voting in 2000, while only 74 percent of individuals living among especially homogeneous nearby neighborhoods (the 90th percentile of the income homogeneity variable) claimed to vote. The comparable figures for poor and rich individuals are 76 percent and 84 percent, respectively.

(Figure 3 about here)

Figure 4 shows the predicted number of non-voting electoral acts in which respondents engaged. Based on the model, residents living among heterogeneous distant neighborhoods (the 10th percentile of the income homogeneity variable) reported an average of 0.95 participatory acts, while those living within large clusters of heterogeneity (the 90th percentile of the weighted homogeneity variable) reported an average of 0.66 such acts. This is comparable to the differences between poor (0.63 acts) and rich (0.95) individuals.[15]

(Figure 4 about here)

A thorough examination of the mechanisms underlying economic segregation's negative effect on political participation is beyond the scope of this paper. However, supplementary analyses (not shown here, but available upon request) indicated that the relationship *cannot* be explained by trust in one's neighbors; trust in people in general; political discussion habits; whether one was asked to participated by a political party or anyone else; external political efficacy (a sense that the government responds to people like oneself); the extremity of one's political attitudes and behaviors; or one's interest in politics.

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[14] The association between average income and participation is interesting in its own right. Residents of richer neighborhoods are less likely to engage in forms of non-voting electoral participation, perhaps because they need fewer resources from government than residents of poor neighborhoods (Oliver 2001). But residents of places with very wealthy nearby neighborhoods are *more* likely to participate, possibly because of the multiplier effect of so many resources within a small space.

[15] Unless income homogeneity fosters a tendency to under-report participation—unlikely given the reports by Bernstein et al. (2001) that the opposite is true—these negative effects of homogeneity are not due to false self-reports of participation.

An alternative account of the inequality-participation link is thus in order: it may not be the *social psychological* effects of inequality described above that matter for political participation so much as the *social structural* effects. Perhaps ties to the rich—who tend to have more education and more political and organizational experience—are important in fostering political activity, as suggested by research on the importance of resources in social networks (Lin 2002). In this case, economic segregation (in the form of high between-neighborhood inequality) might heighten the perceived distance between citizens of differing socioeconomic backgrounds, inhibiting their ability to work together. And in the form of within-neighborhood homogeneity, economic segregation would tend to limit contact with individuals from across the socioeconomic spectrum, limiting the formation of cross-class linkages that could bolster participation rates among the poor and middle class. Such an account is consistent with other research showing the importance of some critical threshold of high-income residents in mitigating the negative impacts of high-poverty neighborhoods (Crane 1991).

Conclusion

This research has investigated a question that deserves greater attention from researchers—the relationship between economic inequality and political participation. Existing theory and research has provided contradictory statements about the direction of this relationship: some say that inequality drives down participation rates by eroding the mutual trust and democratic consensus that underpins political participation; others argue that inequality feeds participation by stoking the conflict and debate that turn people to political action.

I have attempted to resolve these opposing viewpoints by attending instead to economic segregation—the spatial structure of economic inequality. Inequality in counties has no discernible effect by itself on citizens' political participation. Economic segregation matters more, and it has a uniformly negative effect on political participation (although the evidence is stronger for voting than for non-voting electoral participation). Furthermore, these effects are comparable to (and in many cases stronger than) the effect of individuals' incomes.

Thus it is not simply the fact of "economic inequality" that influences participation; rather, it is the spatial patterning of that inequality that matters. Inequality *across* neighborhoods lowers rates of participation; inequality (i.e., low income homogeneity) *within* neighborhoods raises them. Broad social trends such as the recent growth of inequality become embedded and

institutionalized in geographic space, and it is in their local communities that individuals experience these dynamics.

In addition to shedding new light on the unclear relationship between economic inequality and political participation, this research makes two broader contributions. First, it has attempted to measure economic inequality and economic segregation precisely from grouped income data. These new specifications of economic segregation have not to my knowledge been used before, and they hold promise in more research on the causes and consequences of inequality.

More importantly, though, this research has contributed to our substantive understanding of inequality's consequences. This paper adds to previous research arguing that economic segregation—inequality across geographic space—frays the fabric of society (e.g., Mayer 2002; Savolainen 2000). However, it also cautions us that inequality's effects are not wholly negative. Some degree of inequality—as long as it is confined within small geographic areas and does not lead to the formation of wealthy enclaves—may actually be good for democratic politics (cf. Lipset [1960] 1981; Oliver 2001) in that it enables links between citizens from a range of socioeconomic statuses. The links between economic and political conditions are thus more complicated than one might think, and future researchers should attempt to elucidate further the mechanisms by which inequality acts as a sociocultural force in American society.

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Table 1. Summary of Key Measures

	Description	Source
Economic Inequality and Economic Segregation: County-Level Measures		
Total Inequality	Measured by both Theil and mean logarithmic deviation (MLD)	2000 U.S. Census (Summary File 3)
Economic Segregation	Ratio of between-neighborhood inequality to within-neighborhood inequality; measured by both Theil and MLD	2000 U.S. Census (Summary File 3)
Economic Segregation: Neighborhood-Level Measures		
Local Homogeneity	Income homogeneity (1 - I^2) in one's own neighborhood	2000 U.S. Census (Summary File 3)
Nearby-neighborhood Homogeneity	Income homogeneity (1 - I^2) in neighborhoods within 1 km of one's own	2000 U.S. Census (Summary File 3)
Distant-neighborhood Homogeneity	Income homogeneity (1 - I^2) in neighborhoods within 4 km of one's own	2000 U.S. Census (Summary File 3)
Political Participation		
Voting	Voted = 1; Did not vote = 0	2000 ANES (v1241)
Non-voting Electoral Participation	Number of five different activities in which respondent participated:	
	Attempt to sway others' votes	2000 ANES (v1225)
	Display a campaign button/sticker/sign	2000 ANES (v1226)
	Attend meetings/rallies for candidate	2000 ANES (v1227)
	Work for party or candidate	2000 ANES (v1228)
	Donated money to candidate	2000 ANES (v1229)
Individual Income	Estimated from grouped ANES income data using Pareto interpolation; logged to address skew	2000 ANES (v0994)

Table 2. Estimated Effects of County Inequality and Economic Segregation on Electoral Participation

	Voting		Non-Voting Electoral Participation	
	(1)	**(2)**	**(1)**	**(2)**
A. MLD				
Total Inequality	0.104 (1.182)		- 0.119 (0.671)	
Economic Segregation		- 3.084** (1.101)		- 0.721 (0.518)
Individual Income (ln)	0.281** (0.124)	0.287* (0.124)	0.160** (0.062)	0.163** (0.062)
B. Theil				
Total Inequality	- 0.947 (1.032)		- 0.162 (0.464)	
Economic Segregation		- 2.385* (1.060)		- 0.540 (0.460)
Individual Income (ln)	0.277* (0.124)	0.295* (0.124)	0.159** (0.061)	0.164** (0.062)
Sample Size				
Individuals	1,017		1,023	
Counties	335		336	

* $p < .05$; ** $p < .01$ (two-tailed tests).

Note: Entries are coefficients and cluster-corrected standard errors from logit models (for voting) and negative binomial models (for non-voting electoral participation). "Economic segregation" is the ratio of between-neighborhood inequality to within-neighborhood inequality (see text for details). All models include controls at the individual level (education, gender, age, church attendance, marital status, employment status, household union membership, race, residential tenure, and community length of residence) and at the county level (type of sample, logged mean household income).

Table 3. Estimated Effects of Economic Segregation (Neighborhood-Level Measures) on Electoral Participation

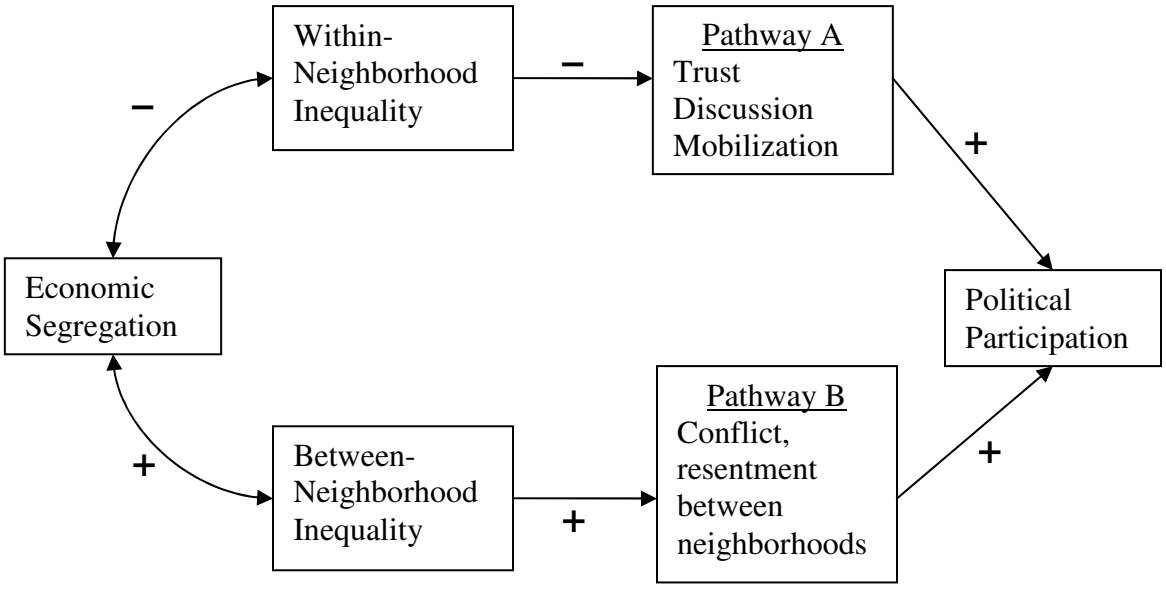
	Voting		Non-Voting Electoral Participation	
	(1)	**(2)**	**(1)**	**(2)**
Income Homogeneity				
Own Neighborhood	- 0.640	- 0.746	0.547	0.726
	(1.194)	(1.211)	(0.650)	(0.649)
Nearby Neighborhoods	- 4.541**	- 4.672**	1.373	1.249
	(1.394)	(1.445)	(1.276)	(1.145)
Distant Neighborhoods	- 1.067	- 1.153	- 3.669***	- 3.568**
	(2.279)	(2.290)	(1.023)	(1.090)
Individual Income (ln)	0.272**	0.220*	0.145**	0.193***
	(0.101)	(0.108)	(0.053)	(0.058)
Average Neighborhood Income ($10,000)				
Own Neighborhood		0.063		- 0.503**
		(0.505)		(0.191)
Nearby Neighborhoods		0.165		0.495*
		(0.554)		(0.227)
Distant Neighborhoods		0.750		- 0.136
		(0.651)		(0.237)
Sample Size				
Individuals	1,272		1,279	
Neighborhoods	854		858	
Counties	434		435	

* $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed tests).

Note: Entries are coefficients and cluster-corrected standard errors from logit models (for voting) and negative binomial models (for non-voting electoral participation). All models include controls at the individual level (education, gender, age, church attendance, marital status, employment status, household union membership, race, residential tenure, and community length of residence) and at the county level (type of sample). In addition, two dummy variables for whether the respondent's neighborhood has any defined "surrounding neighborhoods" are used (see appendix for details).

Figure 1. Two Hypotheses About Economic Segregation's Effect on Political Participation

A. The Participation-Maximizing Hypothesis



B. The Participation-Minimizing Hypothesis

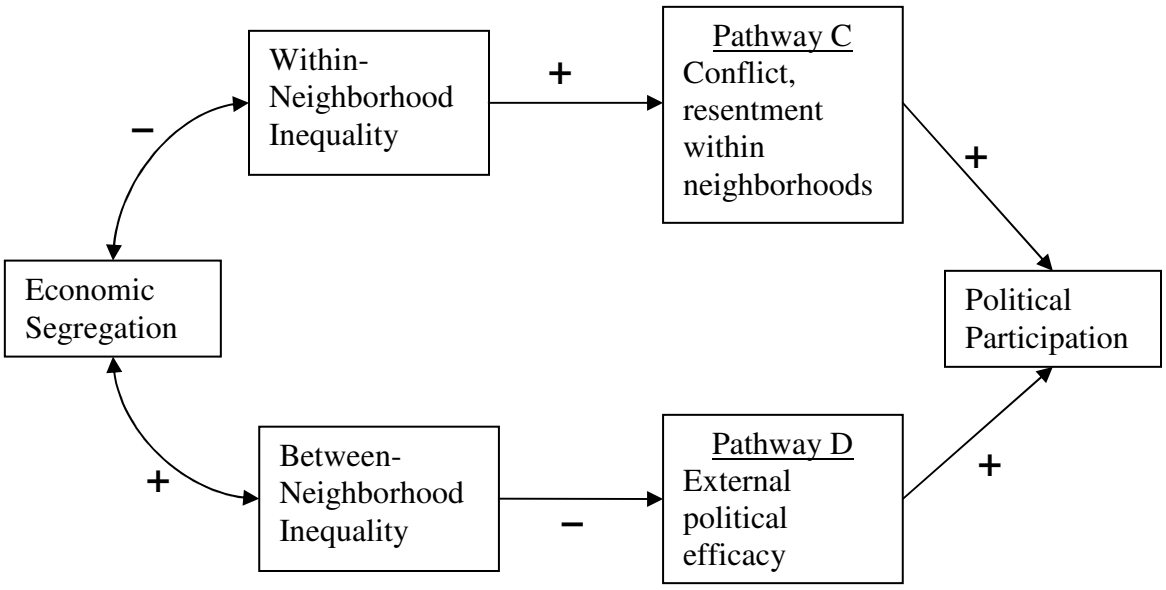
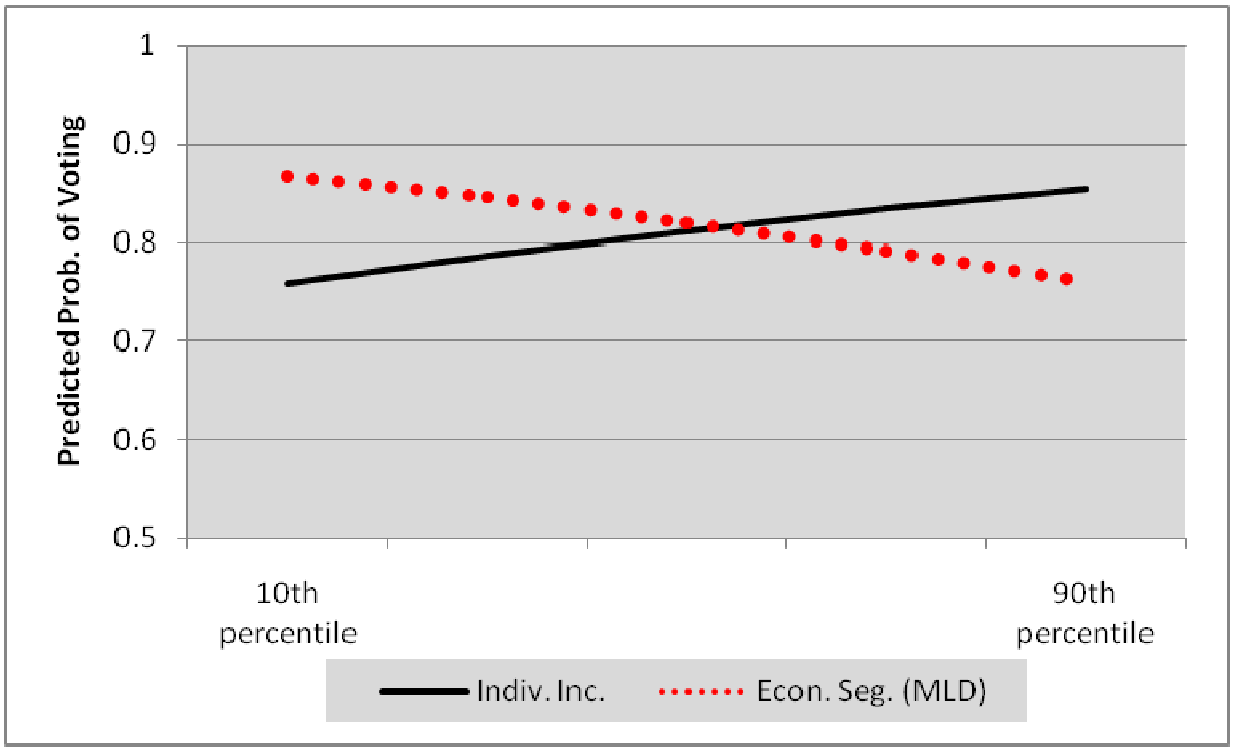
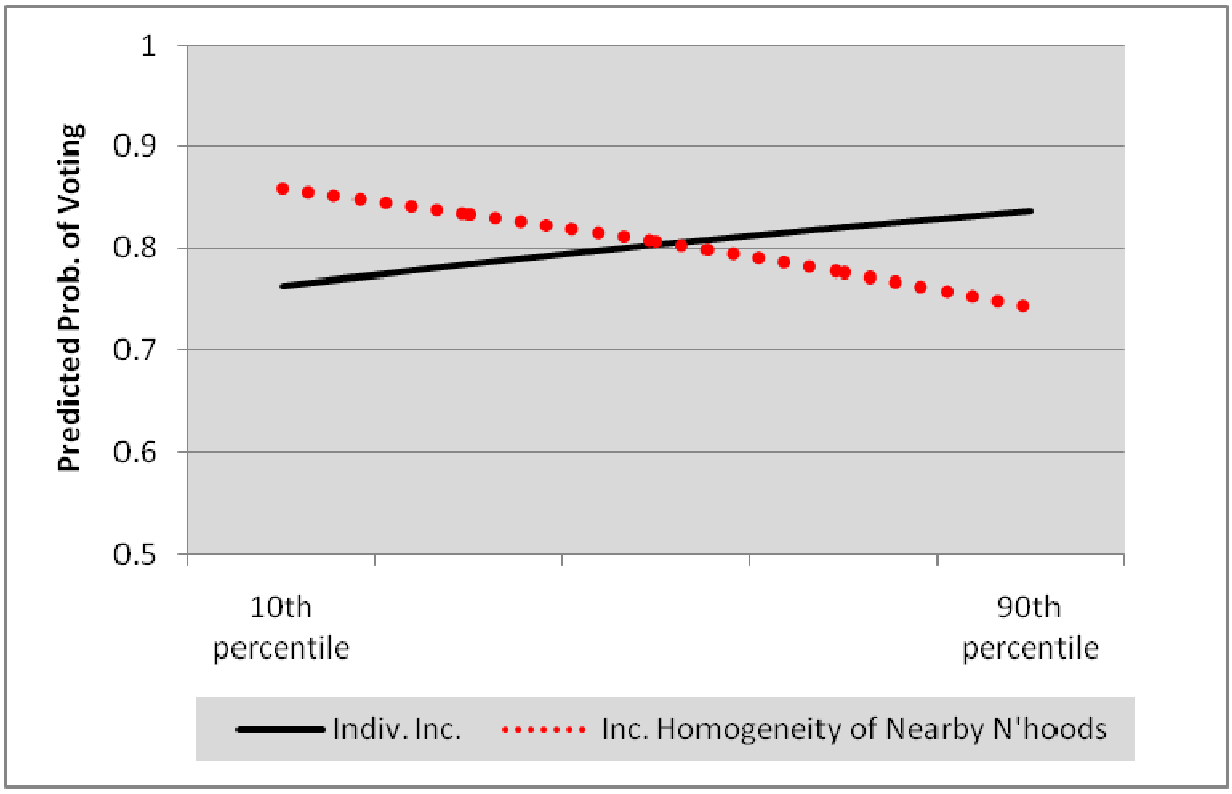


Figure 2. Effects of Economic Segregation and Individual Income on Voting



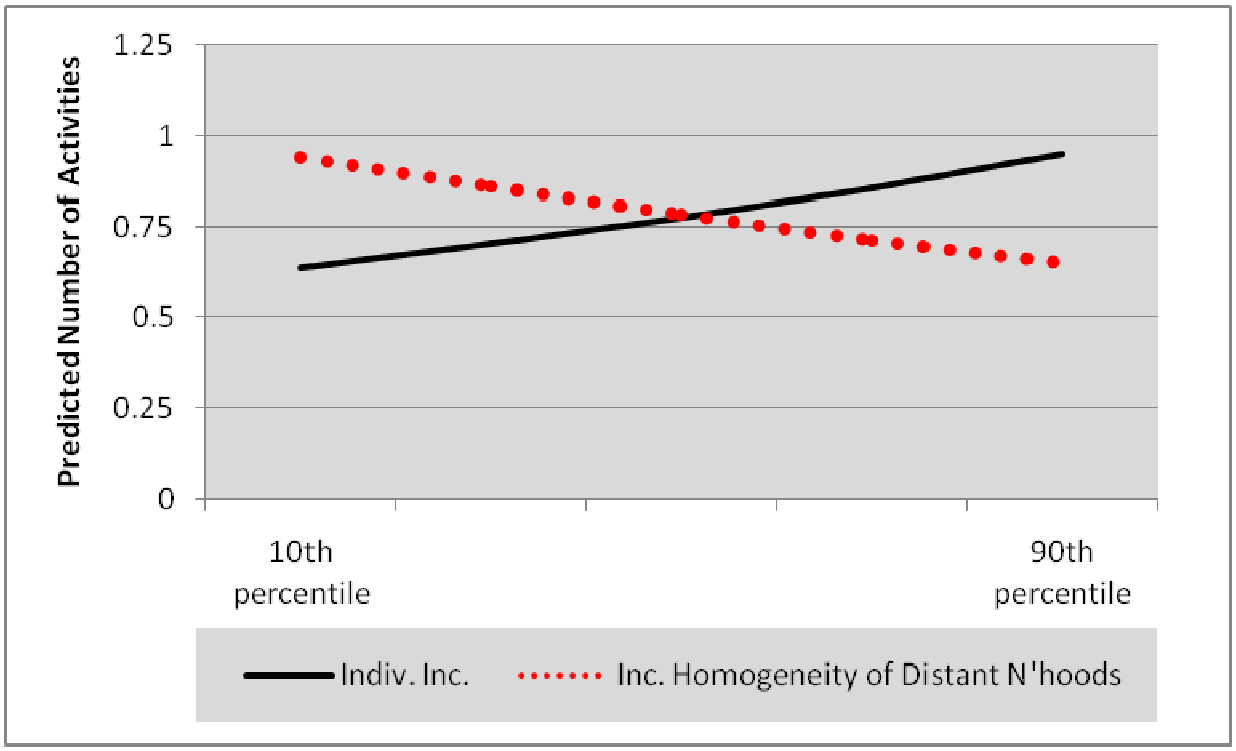
Note: Predicted probabilities of voting are based on the coefficients in Table 2. Inequality is measured as the MLD.

Figure 3. Effects of Economic Segregation (Neighborhood-Level Measures) and Individual Income on Voting



Note: Predicted probabilities of voting are based on the coefficients in Table 3. "Income homogeneity of nearby neighborhoods" is a measure of economic segregation that signifies the homogeneity prevailing in the neighborhoods within a 1-kilometer radius of respondents' own neighborhoods (see text for details).

Figure 4. Effects of Economic Segregation (Neighborhood-Level Measures) and Individual Income on Non-Voting Electoral Participation



Note: Predicted numbers of activities are based on the coefficients in Table 3. "Income homogeneity of nearby neighborhoods" is a measure of economic segregation that signifies the homogeneity prevailing in the neighborhoods within a 4-kilometer radius of respondents' own neighborhoods (see text for details).

METHODOLOGICAL APPENDIX

Calculating Total Household Income Inequality for Counties

As given by Firebaugh (2003), the Theil and mean logarithmic deviation (MLD) measures of inequality are calculated as follows:

$$Theil_k = \frac{1}{N_k}\sum_{h=1}^{H}\frac{X_{hk}}{\overline{X}_k} ln\left(\frac{X_{hk}}{\overline{X}_k}\right) \tag{A1}$$

and

$$MLD_k = \frac{1}{N_k}\sum_{h=1}^{H} ln(\overline{X}_k) - ln(X_{hk}) = \frac{1}{N_k}\sum_{h=1}^{H} ln\left(\frac{\overline{X}_k}{X_{hk}}\right) \tag{A2}$$

where X_{hk} represents the income of the h^{th} household in county k and N_k represents the total number of households in county k. These yield the total amount of household income inequality in county k, which is highest where many households' incomes diverge greatly from the county mean income.

Unfortunately, household-level income data is not available for counties due to privacy concerns, so these formulas cannot be used directly. However, it is possible to use *grouped* income data available in Summary File 3 of the 2000 decennial census (i.e., the number of people or households whose total income falls into a certain range of dollars) to estimate total county inequality. By making assumptions about the distribution of incomes within each of these categories, measures of the disproportionality of the overall income distribution can be derived.

The general strategy is to use this grouped income data to simulate an income distribution for each county. One method—also used in this paper to reduce measurement error in individual income—is to assume a uniform distribution within all brackets that have lower bounds below the median income for a county and to fit a Pareto distribution to the remaining brackets (Jargowsky 1995). The Pareto distribution is represented as:

$$N = \alpha Y^{\beta} \tag{A3}$$

where N is the number of households with an income of at least Y, α is a scale parameter, and β is a shape parameter (Jargowsky 1995). These parameters can be estimated for each income bracket directly from the data, as shown by Jargowsky (1995). For each bracket b:

$$\beta_b = \frac{ln(N_{b+1}) - ln(N_b)}{ln(Y_{b+1}) - ln(Y_b)} \tag{A4}$$

and

$$\alpha_b = \frac{N_b}{Y^{\beta_b}} \tag{A5}$$

where N is the number of households with an income of *at least* Y.

It is technically possible to simulate household-level data for these income distributions, but doing so for each county in each year would be prohibitively time-intensive. Instead, I use a shortcut adumbrated by Jargowsky (1995) that integrates the inequality function across the range of each income bracket and sums the results across the brackets to yield the total county-level inequality. A full description is available upon request. Unfortunately, such a calculation method rests on the assumption that the income distribution in each county follows a Pareto distribution. In many cases, this assumption does not appear to be satisfied, largely because some counties do not contain enough people to calculate reliably the parameters of the Pareto distribution. I have excluded residents of these counties from all analyses using these potentially unreliable inequality measures.

Calculating County-Level Economic Segregation Measures

The next step is to calculate the between-neighborhood component of total county income inequality. These are given by

$$Theil_{n \in C} = \sum_{j=1}^{J} \frac{N_{jk}}{N_k} \frac{\overline{X}_{jk}}{\overline{\overline{X}}_k} ln\left(\frac{\overline{X}_{jk}}{\overline{\overline{X}}_k}\right) \tag{A6}$$

and

$$MLD_{n \in C} = \sum_{j=1}^{J} \frac{N_{jk}}{N_k} ln\left(\frac{\overline{X}_k}{\overline{\overline{X}}_{jk}}\right) \tag{A7}$$

where *X* represents household income, *N* represents households, *j* indexes neighborhoods, and *k* indexes counties. These yield the total between-neighborhood inequality in county *k*, which is highest where the average incomes of many neighborhoods diverge greatly from the county mean income—or, equivalently, where some neighborhoods in a county are very rich and others are very poor.

Finally, the within-neighborhood inequality in county *k* is computed by subtracting between-neighborhood inequality from total county inequality, as shown by re-arranging Eq. (1) from the text:

$$Ineq_{i \in N} = Ineq_C - Ineq_{n \in C} \tag{A8}$$

The ratio of between-neighborhood inequality to within-neighborhood inequality can then be used as a summary measure of economic segregation as described in the text.

Calculating Income Heterogeneity Measures for Neighborhoods

Because not all counties have sufficient data to calculate these county-level measures (as described above), this technique will not yield accurate inequality measures for all areas. Furthermore, these measures cannot describe accurately true neighborhood contexts; the within-neighborhood component of inequality is simply averaged across neighborhoods, weighting for the neighborhood population.

Because neighborhoods are even smaller, it is even more difficult to estimate income distributions for them. For this reason, I use the I^2 measure of variation for ordinal variables (such as grouped income data), which does not depend on assumptions about the actual distribution of income (see Blair and Lacy [2000] for details). Finally, as discussed in the text, I converted this to a measure of *homogeneity* by subtracting it from 1.

However, it is also important to take into account the socioeconomic characteristics of the neighborhoods surrounding one's own; it is unreasonable to suppose that contextual effects do not cross artificially defined neighborhood boundaries (see, e.g., Lee et al. 2008). Such measures require a definition of which neighborhoods count as "surrounding neighborhoods" and were calculated using the spatial analysis software GeoDa. Figure A1 presents a stylized diagram of 121 neighborhoods, each measuring 1 kilometer by 1 kilometer, that help illustrate which neighborhoods are included in each measure.

(Figure A1 about here)

The income homogeneity of "nearby neighborhoods" is the average level of income homogeneity of all neighborhoods whose geographic center lies within 1 kilometer of the geographic center of the respondent's own neighborhood, weighted by the population of those neighborhoods. In Figure A1, the respondent's own neighborhood is the black square in the center of the diagram, while the small circle describes all the points 1 kilometer from the center of the respondent's own neighborhood. Four neighborhoods—shaded green in Figure A1—count as nearby neighborhoods according to this definition.

The income homogeneity of "distant neighborhoods" is the average level of income homogeneity of all neighborhoods whose geographic center lies within 4 kilometers of the geographic center of the respondent's own neighborhood. In Figure A1, the larger circle describes the points 4 kilometers from the center of the respondent's own neighborhood, so many more neighborhoods—shaded yellow in the diagram—are included.[16]

The 1-km distance definition (which encompasses a circle about 0.6 miles in radius) should describe an individual's immediate residential area, and the 4-km distance definition (which encompasses a circle about 2.5 miles in radius) should include most of an individual's daily activities, at least in urban areas (Reardon et al. 2008:502-03). However, neighborhoods in less densely populated places are more spread out and are not likely to have any "surrounding neighborhoods" according to these distance-based definitions. Thus I include dummy variables for whether an individual's neighborhood has any defined "surrounding neighborhoods" to purify estimates of the surrounding-neighborhood effect.

The 2000 ANES Sample Design

The complex sample design of the 2000 ANES creates some complications. In addition to the standard face-to-face (FTF) stratified area probability sample, the 2000 ANES also included a random-digit-dialing (RDD) sample. The RDD sample has a lower response rate (57.2 percent in the pre-election wave) than the FTF sample (64.8 percent in the pre-election wave); and if nonresponse is systematically related to political participation (as might be the case if apolitical people are more reluctant to participate in a political survey, or if people are more likely to give false reports of participation in a telephone interview) and to social context (as

[16] Actual neighborhood boundaries are usually far more irregular. It is thus important to note that, although this diagram appears to describe a rook-based contiguity matrix, these are distance-based definitions.

might be the case if RDD respondents live in different types of areas), estimates could be biased. I therefore include a dummy variable for the type of sample.

Another concern is that the *effects* of inequality on participation differ between the two samples: perhaps people without telephone lines (who do not appear in the RDD sample) receive less information about, and are less aware of, their social context. If this is the case, then the effect of inequality would be weaker for the FTF sample than for the RDD sample. There do not appear to be differences between the two samples in the *effects* of inequality on participation. Chow tests for the equality of coefficients between the two samples yield no cause for concern, and interaction terms between the sample type and the focal measures of inequality were not significant beyond chance levels. Thus there is no evidence that inequality's effect on participation depends on the type of sample.

There are two more minor cautions about the 2000 ANES. Two hundred respondents from the pre-election FTF sample were randomly selected to be interviewed by telephone for the post-election survey. However, there are no significant differences in participation between these and other respondents. Also, 67 respondents were incorrectly coded as the only member of their household and were therefore not asked about their total household income. There are again no significant differences in participation between these respondents and the rest of the sample.

Table A1. Estimated Effects of Control Variables on Electoral Participation

	Voting		Non-Voting Electoral Participation	
	b	**(S.E.)**	**b**	**(S.E.)**
Individual Controls				
Education (Ref. = No High School Diploma)				
High School	0.795**	(0.254)	0.312	(0.209)
Junior College	1.517***	(0.293)	0.448*	(0.200)
College Degree	2.573***	(0.356)	0.709***	(0.192)
Female	- 0.050	(0.177)	- 0.134	(0.089)
Age	0.054	(0.036)	0.012	(0.017)
Age-squared	- 3e-4	(4e-4)	- 8e-6	2e-4
Church Attendance	0.158**	(0.059)	0.053*	(0.026)
Marital Status (Ref. = Married)				
Divorced	- 0.224	(0.251)	- 0.092	(0.151)
Separated	- 0.274	(0.528)	- 0.380	(0.304)
Widowed	- 0.491	(0.328)	- 0.140	(0.179)
Never Married/Cohabiting	- 0.064	(0.240)	0.186	(0.122)
Work Status (Ref. = Currently Employed)				
Unemployed	0.129	(0.485)	- 0.155	(0.326)
Retired	0.048	(0.382)	- 0.237	(0.156)
Disabled	- 0.117	(0.460)	- 0.249	(0.395)
Homemaker	- 0.332	(0.342)	- 0.192	(0.172)
Student	1.462*	(0.631)	0.177	(0.333)
Union Household	0.151	(0.232)	0.231*	(0.114)
Race/Ethnicity (Ref. = Non-Hispanic White)				
Non-Hispanic Black	0.585†	(0.325)	0.148	(0.168)
Hispanic	- 0.047	(0.332)	0.254	(0.165)
Other	- 0.329	(0.322)	0.108	(0.168)
Homeowner	0.423*	(0.197)	0.268*	(0.104)
Length of Residence in Community	0.012*	(0.005)	0.001	(0.003)
Contextual Controls				
Type of Sample (FTF = 1)	- 0.233	(0.185)	- 0.133†	(0.080)
County Mean Household Income (ln)	0.930*	(0.415)	- 0.169	(0.211)
Sample Size				
Individuals	1,017		1,023	
Counties	335		336	

† $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed tests).

Note: Entries are coefficients and cluster-corrected standard errors from logit models (for voting) and negative binomial models (for non-voting electoral participation). Coefficients come from Model 2 of Table 1, where economic segregation is measured as the MLD.

Figure A1. Definition of Surrounding Neighborhoods