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Ecologies of Unease: Geographic Context and National Economic Evaluations

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Abstract Assessment of the nation's economic performance has been repeatedly linked to voters' decision-making in U.S. presidential elections. Here we inquire as to where those economic evaluations originate. One possibility in the politicized environment of a major campaign is that they are partisan determinations and do not reflect actual economic circumstances. Another possibility is that these judgments arise from close attention to news media, which is presumably highlighting national economic conditions as a facet of campaign coverage. Still a third explanation is that voters derive their national economic evaluations from living out their lives in particular localities which may or may not be experiencing the conditions that affect the nation as a whole. Drawing upon data from the 2008 presidential election, we find that varying local conditions do shape the economic evaluations of political independents. Moreover, unemployment is not the only salient factor, as fuel prices and foreclosures also figured prominently. Local economic factors, what we call *geotropic* considerations, shape national economic evaluations especially for those who aren't making these judgments on simple partisan grounds.

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To what extent are *national* economic conditions the product of citizen exposure to *local* conditions? From the early years of political behavior research to the present, there has been a firm consensus that citizens' economic assessments are important, if not always preeminent, in their presidential voting (Campbell et al. 1960; Schlozman and Verba 1979; Fiorina 1981; Kinder and Kiewiet 1981; Weatherford 1983; Kiewiet and Rivers 1984; Markus 1988). Contemporary research has also found considerable heterogeneity across the population in the extent of economic voting. These differences may be due to the fact that voters' experiences of economic conditions vary (Weatherford 1978, 1983) and that voters use different criteria in judging economic conditions (Kinder et al. 1989). Moreover, there is convincing evidence both in the U.S. and abroad that economic evaluations are the product of an individual's political conditioning, as expressed by their party identification, particularly in an election year (Conover et al. 1986, 1987; Duch et al. 2000; Evans and Andersen 2006; Gerber and Huber 2009, 2010). Instead of a reflection on actual economic conditions, then, citizens express optimism when an incumbent of their party holds power but express dismay or negativity when the opposing party is in control.

Geotropic Considerations

One aspect of variation that has not proven to be of great importance is personal economic hardship. Research on the origins of pocketbook voting has consistently found that individuals respond to national-level, or sociotropic, evaluations more so than to individual-level, or egotropic, considerations. We argue that while some voters may look beyond their personal situation in thinking about the national economy, they are certainly aware of and affected by the economic circumstances of their local community. We show how voters' judgments of national economic conditions are heavily informed by their workaday experience of the economies to which they are exposed (Books and Prysby 1999; Ulrich and Garand 2007; Mondak et al. 1996; Ansolabehere et al. 2008; Johnston et al. 2000). We describe these local factors as "geotropic" considerations and distinguish them from sociotropic and egotropic concerns.

Kinder and Kiewiet (1981) argue that voters rely on sociotropic, or "other regarding" judgments of the economy. Just which *others* are being regarded is not exactly clear. Could these others be those who are subject to voters' geotropic experiences of varying economic circumstances? Kinder and Kiewiet (1981) do not distinguish between geotropic and egotropic considerations, but they account for them together and find little evidence that they matter for attitudes or behavior. They indicate that neither individual nor family economic tumult is highly relevant

to evaluations of the national economy or vote choice. The relationship between personal economic experiences and attitudes toward the national economy are "surprisingly tenuous" (p. 139). Their definition of "personal" economic circumstances includes individual employment status as well as expressed anxiety and uncertainty over future economic circumstances for themselves and those in their immediate networks. They conclude that variation in national economic assessments has little to do with personal or local influences. Here, we distinguish between egotropic and geotropic considerations and use objective economic measures from more than one conception of the individual's locality. This provides a measure other than survey responses to gauge local economic circumstances. We show that even in a climate of national economic crisis, *local* (geotropic) factors were important determinants of individual attitudes toward the *national* economy, particularly for voters who are less partisan and less informed.

No one experiences *national* conditions. The state of the national economy is but a set of summary measures averaged across thousands of communities and millions of individuals. Individuals do not directly experience the national gross domestic product or the national unemployment rate. They do have personalized knowledge of economic conditions obtained through conversations with family, friends, coworkers, and neighbors. In their daily drives to work they might see factory closings, foreclosure signs being posted, or gas prices on the rise. They see nearby families disintegrate under the pressure of economic stress. These are geotropic considerations.

The national economic crisis that began at the end of 2007 was a collection of different experiences across the country, which, as we show, varied greatly across localities. Individual responses to direct and indirect economic experiences were conditioned on the substantial geographic heterogeneity of the economic conditions of 2008. Some localities were left virtually untouched by the economic collapse while others faced the full force of the downturn.

Geotropic considerations flow from the contextual environment in which voters are living and working. Individuals make observations and form impressions as they conduct their daily lives, and these shade their attitudes toward the state of the national economy. Voters live their lives in fairly restricted geographic spaces, traveling routine paths, encountering familiar people and places. Space is not some geographic anachronism that has been overcome by mass media and communications technology, as even the most wired among us continue to live a localized existence. In our daily lives we encounter information about the economic health of others and observe factors that reflect the stability and general trends in our own economic well-being. The degree of variation in local economic context is reflected in the unevenness of attitudes about the national economy. The local economy directly influences the local climate of opinion about the national economy, which in turn is an important predictor of vote choice.

As Mutz and Mondak (1997) have indicated, people do obtain information about the economic condition of specific groups, groups with which they may have regular contact. We argue by extension that individuals also have information about the economic condition of *places* they live and the people living there. These perceptions of economic conditions are traceable to objective economic realities; for

instance, changes in local employment and income levels, the performance of local industries, and ties to significant economic institutions at the core of the national and global economy.

Voters have been shown to be in possession of very little information about objective economic conditions (Conover et al. 1986, 1987).[1] What they do see and comprehend is how others are faring in the places where they live. National statistics can be ominously portrayed in mass media reporting but have little relationship to the conditions voters actually observe around them. For instance, rural and agricultural regions were largely spared the sharp pain of the recession in 2008 and 2009, as no large national banks were located in outlying areas. Small trade centers in far-flung locations never observed a rapid population influx, so they never experienced the bust associated with home loan foreclosures. These were people, according to news reports, who wondered where the economic crisis was occurring. Many of these same citizens, however, were hard hit by the farm crisis in the mid-1980s, a blow that fell during a time of booming prosperity on Wall Street and major public investment in defense industry throughout the Sunbelt.

Some sectors of consumption may drop, as in housing, automobiles, or agriculture, while demand in other sectors remains stable or even increases (Dunne et al. 1989; Davis et al. 1996). This unevenness in the sectoral impact of recession suggests that economic hardship is regularly confined to particular geographic areas, inasmuch as specific economic activities are spatially concentrated (Ellison and Glaeser 1997; Krugman 1991). On the other hand, the impact of negative economic information anchored in the usual national indicators may be greater in the presence of actual local hardship than it would be otherwise.

Throughout 2008, in fast-growing Sunbelt states, such as Nevada and Florida, voters were more likely to pass foreclosure signs on the way to work than they would if they were living elsewhere. In Michigan and Ohio, declining production lines, temporary layoffs, and the threat of shuttered factories were insomnia-inducing reminders of adversity. Moreover, media outlets pay greater heed to economic and other events when clear examples of those events are proximate—physical closeness is a critical news value (Wilkins and Patterson 1987; Shoemaker and Resse 1991; Molotch and Lester 1974). Particularly gloomy sociotropic reflections about economic conditions will result from the monitoring of local news reports emphasizing dire economic prospects (Behr and Iyengar 1985; Harrington 1989; Goidel and Langley 1995).

Geotropic considerations may affect individual attitudes through several social psychological mechanisms. An individual may be mindful of local conditions because she is motivated by either self-interest or altruism as neighbors' lives are complicated by hardship. With respect to self-interest, the economic decline increased personal financial uncertainty and brought second order effects, which were also detrimental to one's pocketbook. Foreclosures, for instance, meant that many localities saw home values plummet for those who were able to maintain their

[1] Mondak et al. (1996) finds that when voters do have information, they are more likely to hold the president responsible for local, neighborhood conditions in their evaluation of his handling of the economy.

mortgages. In localities with high unemployment, decreased consumer spending generated fear and uncertainty for merchants and other business owners. Peaking fuel prices brought increased costs of transportation and other goods including staples like food, which cut deeply into family budgets. Both pocketbook considerations as well as sociotropic considerations were at play in the 2008 election. But because of the spatially nonstationary nature of economic recessions, some localities suffered greatly while others maintained their economic footing. In turn, the economy is translated into a significant issue affecting vote choice according to the nature of geotropic considerations in the prevailing local climate of opinion.

Even when economic circumstances are the same in two locations, however, local perceptions may still differ due to the variation in human milieu which produce distinctive patterns of socialization and information transmission (Latané 1996; Johnston 1991). Trans-local messages about national conditions may be interpreted through local lenses that either exaggerate or discount the degree of threat and influence the attribution of responsibility. Locally contingent attitudes such as work ethic, individualistic outlook, class-consciousness, beliefs about fairness, and consumption habits, may each steer otherwise similarly situated individuals toward differing conclusions about economic conditions (Kluegel and Smith 1986; Kluegel 1988; Hochschild 1995).

Theories of locally contingent socialization are difficult to test without very large surveys capable of representing numerous locales, as well as the appropriate instrumentation, though such data collections will be increasingly within reach in the future. With the data presently at hand, however, we can examine the role of place-specific economic circumstances to determine whether impressions of the national economy are altered by exposure to the local economic particulars.

It is not obvious that local circumstances, however local is defined, matter at all to national economic evaluations. If economic evaluations are primarily the product of self-serving partisan assessments, for instance, then we would not expect the indigenous economy to make any difference. Economic judgments will instead be highly tainted by party identification. Similarly, if the primary information source for voters is predominantly trans-local—via national network news broadcasts, or from non-local online sources—then we would not expect the experience of local economic conditions to have much of a bearing on judgments about the national economy. National news has been found to contain pronounced geographic biases toward major cities on the East Coast, with a handful of locations commanding the bulk of the coverage (Whitney et al. 1989). Local conditions matter only if voters really are in-touch with nearby sources of information. If they are not, we will be wrong about geotropic considerations having much relevance to evaluations of the overall economy.

We develop several hypotheses about the conditional effect of geotropic considerations given particular individual characteristics. Prior research tells us that economic perceptions are shaped by varying levels of attentiveness to mass media (Behr and Iyengar 1985; Goidel and Langley 1995; Krause 1997; Hetherington 1996); by higher levels of education and political sophistication (Gomez and Wilson 2001; Mondak et al. 1996), and by the clarity of political responsibility (Rudolph

2003; Powell and Whitten 1993; Stein 1990). The implication from this research is that the influence of geotropic considerations will not at all be uniform but will be conditioned on personal traits. In particular, we do not expect the large number of voters whose economic evaluations are powerfully shaped by their partisan commitments to be as consistently influenced by local economic conditions. But we do hypothesize that independent voters, who lack dedication to party, will be more directly influenced by measures of local economic conditions than those for whom partisanship will predominate.

In addition, for those individuals who consume less television news, we hypothesize that they may misperceive economic conditions, since the most popular news source in most locations is the *local* TV newscast, not national broadcast or cable news (Kaniss 1991; Prior 2003; Althaus et al. 2009). Local news sources present regular macroevaluations of the local economy, with employment being the customary focus of attention. Frequent news consumers, therefore, will regard geotropic considerations more acutely and with more sensitivity as they formulate judgments of the national economy. Regular news exposure will likely reinforce and perhaps even augment the impact of local economic conditions on national economic evaluations.

Finally, we examine whether new residents are more responsive to geotropic considerations as they formulate their economic judgments. We expect to see this pattern because of their heightened attentiveness to the local economy. First, most residential moves are the consequence of economic pull and push factors. New employees are commonly among the first to be laid-off by businesses during periods of retrenchment. In addition, new residents are more likely to be new mortgage holders or aspiring homeowners than established residents. Even if they are not themselves victims of questionable mortgage lending practices, their status increases their awareness of the political economy of banking and lending. These characteristics, we hypothesize, will make recent transplants more attentive to the local setting than they might be otherwise.

What is Local?

If local context matters to political and economic attitudes, an important question is just how far local extends. What are the relevant geographic boundaries defining *local* experience? The question should probably best be put to survey respondents themselves, asking about the geographic extent of their daily routines, and leaving the definition open-ended (Kwan 1999). The boundaries of local influence are invariably fuzzy, as citizens are likely to hear about happenings in locations adjacent to the places where they live and work but not places that they visit regularly. Locality is generally defined in connection to the probability of having regular social interactions or exposure to the people living within the territory (Cox 1998). Typically it involves mapping the extent of daily interaction combined with measures of cultural similarity, though it may also be defined by officially drawn jurisdictional boundaries, such as neighborhoods, cities, counties, or states. Officially drawn boundaries are especially critical in defining local when the

activity studied is influenced by the distribution of public services or governed by a particular set of legal obligations. The concepts of adjacency, proximity, and distance are crucial for defining contexts, because human interaction dissipates over space.

What constitutes local context may vary not only across individuals (adults vs. children, blacks vs. whites) but also across types of events or occurrences. Locality may refer to a variety of spatial scales. What an environmental agency may define as the distance affected by a local hazard, such as a coal mine or a nuclear power plant, will likely be far more expansive than what a law enforcement agency defines as local in calculating the risk of criminal victimization. Similarly, a sharp rise in unemployment is not the kind of event that is typically localized to a particular neighborhood in the way a crime might be, but it will affect an entire region. The extent of a local labor market is typically vastly larger than a particular school's catchment area, but it may be smaller than a local media market. Local housing markets are of variable size, as are the local market areas of shopping centers. In summary, the spatial scale of activities does vary, with some scales proving to be too large and others too small to observe particular phenomena.

Using any predefined set of boundaries to segment space and define what local means is problematic for some familiar reasons (Openshaw and Taylor 1979; Tate and Atkinson 2001; Sheppard and McMaster 2004). There is spillover and frequent interaction across boundaries, and data that are not spatially aggregated are often costly or simply unavailable. The definition of local for purposes of hypothesis testing unavoidably depends upon the convenience of data availability for operationalizing alternative contexts (Huckfeldt 1983).

Using state jurisdictional boundaries often makes sense for studying political attitudes and behavior because presidential candidates are competing for state electors and strategically direct campaign efforts accordingly (Shaw 2006; Gelman 2008). In cases such as California, Texas, or even Massachusetts, states are vast spatial containers for gauging individual experience, however. Though a state's unemployment rate is more likely to reflect the experience of an individual resident than a similar national figure, statewide conditions may still bear little resemblance to the conditions voters observe nearby.[2] Smaller spatial contexts might include media market areas (Althaus et al. 2009), counties (MacKuen and Brown 1987; Dalton et al. 1998; Huckfeldt et al. 1998), and even smaller units such as neighborhoods, voter precincts, or census tracts (Mondak et al. 1996; Krassa 1988; Cho et al. 2006; Gimpel et al. 2004).

Because we are mindful of the fact that citizens traffic across a number of local contexts, often crossing jurisdictional boundaries on routine journeys without even knowing they are there, we evaluate the impact of local economic conditions using more than a single gauge of geographic context. We derive these measures using a geographic information system (GIS) to create regions of political similarity, ethnic-racial similarity, and economic similarity across the nation's 3,141 counties. To

[2] Niemi et al. (1999) find that voters distinguish between the state and national economies based on objective economic indicators. While we do not directly test this theory, we do find evidence that objective state (and other definitions of locality) influence perceptions of the national economy.

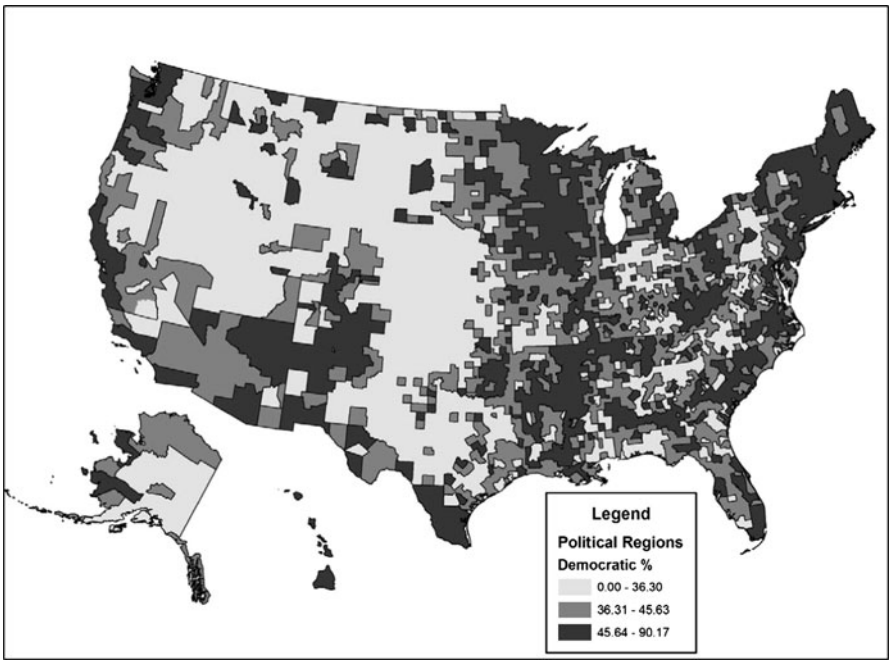

Fig. 1 Map of political regions

merge more than one county into a larger homogeneous region, that county had to share a border with another county, and be in the same one-third of the distribution of a principal components factor[3] formed of (1) past presidential voting in the case of the political regions, (2) median income and the percentage of the population in each of several components of the income distribution in the case of the economic regions, and (3) ethnic-racial composition in the case of ethnocultural regions.[4] The resulting political and economic regional maps appear in Figs. 1, 2, and 3. As these maps show, defining local contexts in terms of their political homogeneity is not the same as defining them by their similarity in economic or racial and ethnic terms. Yet, it is certainly plausible that citizens may more readily recognize their locales in terms of their own position in the socioeconomic or political distribution than by the coordinate position of legal boundaries. The goal, then, is to examine whether contextual units, defined by more than a single set of spatial boundaries, produce

[3] The principal components factor analysis for defining the similarity of political regions included the percentage Democratic of the presidential votes of 2004, 2000, 1996 and 1992, all loading on a single factor. The principal components factor analysis for defining the similarity of economic regions included U.S. Census sourced variables from 2006 estimates capturing median income, and components of the income distribution, all loading on a single factor. Each score was then subdivided into thirds, and regions were constructed based on the adjacency of counties lying within a common 33% of the distribution.

[4] Using a large administrative boundary such as county as the basic building block is not optimal, as space is continuous rather than fragmented into irregular and coarsely-sized pieces, but it proved to be the best possible option. Data at a smaller scale on home foreclosures, unemployment and fuel prices were either prohibitively costly or nonexistent.

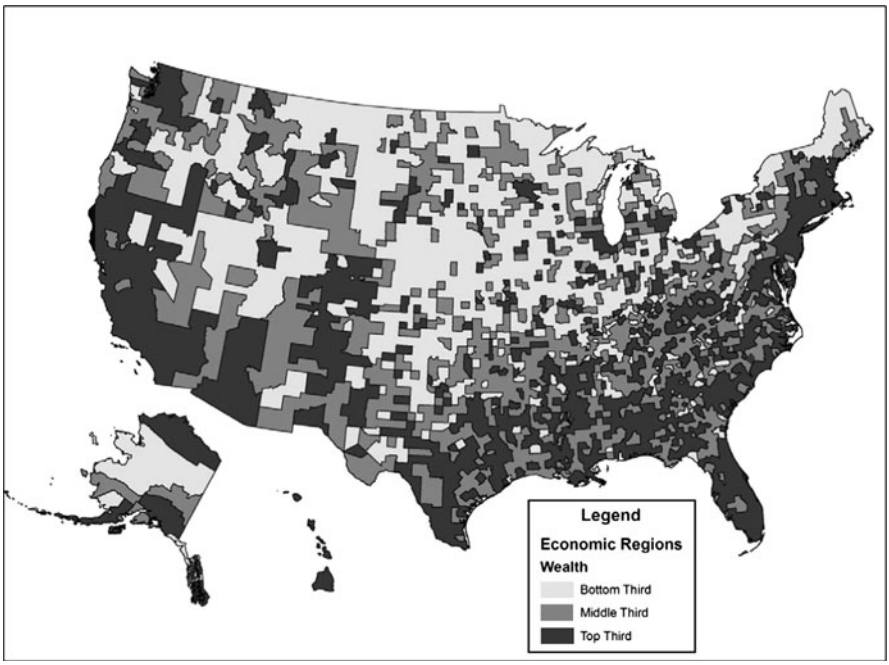

Fig. 2 Map of economic regions

different effects on individual economic evaluations. First we aggregate measures of economic hardship to not only the state and media market levels, but also to the level of the political and economic regions depicted in Figs. 1, 2, and 3. Then we use multilevel modeling to estimate the impact of the local economic climate on national economic assessments.

The 2008 Presidential Election Context

The context of the 2008 U.S. presidential election presents a reasonable test case for the impact of local conditions on economic evaluations in spite of the nearly universal consensus that the economy was important in this particular election. After all, it is not immediately clear that *local* economic conditions were important to individuals' assessments of the nation, or that they varied sufficiently across the country to be a determinant of those evaluations. Previous research has clearly shown that there are other sources of judgments about national economic conditions, including partisan preference and national news media consumption.

Among the economic indicators that were closely monitored by experts and journalists throughout 2008 were home mortgage foreclosures, the unemployment rate, and gasoline prices. The most geographically universal of the economic travails was the income-eroding peak in gas prices in July of 2008. Home foreclosures were most widespread in fast growing areas of the West and South, and

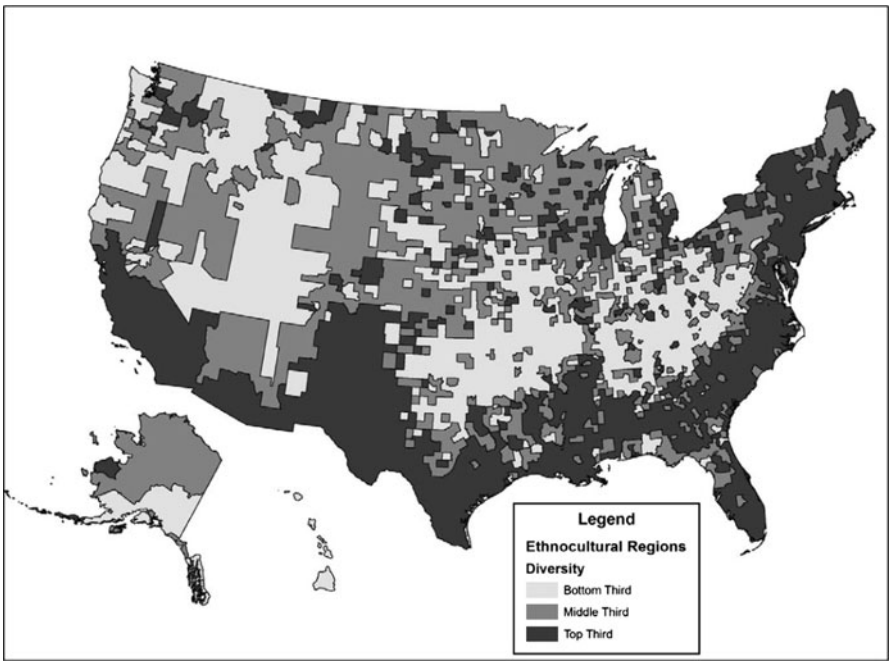

Fig. 3 Map of ethnocultural regions

particularly Arizona, Nevada, California, and Florida. The degree of variation across the country was remarkable. For instance, residents of North Dakota, South Dakota, and West Virginia saw home foreclosures up less than once percent from July to October while those in Arizona, California, and Florida saw increases of over 40%. Nevada voters were subjected to a bone-rattling rise of 76%. Unemployment was most severe in the Upper Midwest, and particularly in states and communities associated with the troubled American automobile industry. The upshot is that the economic problems shadowing the presidential race did vary across the landscape, allowing otherwise similarly situated individuals to experience very different economic environments. We are suggesting that quite aside from individual characteristics, exposure to a worsening local economy will make a difference to national economic judgments.

We emphasize *worsening conditions* because many Americans have become acclimated to longstanding blight or hardship, and that is a very different circumstance from those living in areas where hardship is a more recent development. In places with economic conditions that are deteriorating, the signal to voters that political change is needed is clearer than in those locales where dire conditions have been a long-term fact of life (Ebeid and Rodden 2006). Political resistance to hardship is built up by hardship. Many places have become so habituated to economic hardship that voters have realized that choosing at the voting booth on the basis of economic promises by candidates makes very little sense. Officeholders come and go with no appreciable change in fortunes. Because citizens become inured to difficulty and meager conditions, a demand for economic change goes unvoiced, whereas in places

where conditions have deteriorated only in the short-term, the economy is more likely to be politicized (Schlozman and Verba 1979).

Data and Methods

The survey data we use to evaluate cross-sectional variation in national economic evaluations are found in the 2008 Cooperative Congressional Election Study (hereafter CCES). The 2008 CCES survey is an opt-in Internet sample of 36,500 respondents conducted by the firm Polimetrix/YouGov in late October. Respondents were selected from a large preexisting panel according to how well they matched basic characteristics of the general population (age, race, gender, education, plus imputed values of partisanship and ideology) as gauged by the U.S. Census Bureau's American Community Survey. Compared with traditional random digit dialed (RDD) telephone samples, the CCES sample is biased toward better educated respondents who are slightly more informed about political issues, but there are only negligible biases away from the target population on a number of other criterion variables (Hill et al. 2007). Traditional sampling methods also produce bias, and sample matching based on Internet panels such as the CCES may not be appreciably worse than random digit dialing (Hill et al. 2007), particularly given the rise of households that only use cell phones.

To assess the effect of context and other individual characteristics on national economic evaluations, we use models well-suited to estimate multilevel effects (Lee and Bryk 1989; Raudenbush and Bryk 1986, 2002). We employ a multilevel model because our data occur at two levels, the individual level and the regional level where the individuals are thought to share a common environment. Level-one variables are observed at the individual level and are characteristics of the individual survey respondent, and level-two variables are observed at the region level and describe the state, media market, or region.

Our dependent variable measures national economic evaluations and ranges from 1 to 5, where 1 reflects an opinion that the economy has "gotten much better" and 5 reflects an opinion that the economy has "gotten much worse." The higher the value, the more negative the perception of the national economy. In 2008, a year that saw one financial disaster after another, it is little surprise that 59% of the sample viewed the economy as having gotten much worse while only half a percent of the sample viewed the economy as having gotten much better. In understanding the effects of our independent variables, it is important to note that positive effects reflect increasingly negative perceptions of the national economy.

We consider a number of level-one variables to be essential to explaining economic assessments, including the sex, education level, income, age, race/ethnicity, their current employment status, their length of residence in the community where they presently reside, their party identification, and their interest in television news. Of these, we consider sex, age, income and education level to be control variables, included primarily to reckon with the fact that women, lower income, less educated, minority, and younger individuals are ordinarily more sensitive to the onset of economic recession than men, the affluent, better educated, and older (Brown and Pagan 1998). This is because the former occupy more vulnerable positions in the

American labor market, with less work experience and less market mobility.[5] These are some of the very same populations who ran up massive credit card and related consumer debt (Bird et al. 1999). Furthermore, it is low and moderate-income borrowers who are most likely to default on home loans, given their high debt-to-income ratios and low equity (Ding et al. 2008; Anderson and VanderHoff 1999). The affluent are better able to cope with the prospect of layoffs and pay and workload reductions, as well as service whatever debts they incur.

There is clear evidence from previous studies that economic evaluations are shaped by partisan identification, and for this reason we include at level-one a variable using the familiar 7-point scale to measure this construct, as well as a variable capturing independence from partisanship.[6] We hypothesize that because independents lack the attitude constraint of partisans (see, for example, Gerber and Huber 2010), they will be sensitive to local economic conditions in rendering their national economic judgments. Our expectations for news consumption are very similar. Regular consumers of television news will be hearing about conditions in various parts of the nation and not just the location where they reside (Holbrook and Garand 1996, p. 355). Those who are less exposed to these reports are likely to lean more upon their impressions of local conditions based on everyday experience.

Ordinarily, we might not consider newly relocated residents to be any more likely to lean on local information in making judgments about national economic circumstances than we would those of long tenure. But in some economic downturns, residential mobility is an important consideration. First, those who are newer residents are likely to be living in newly purchased homes, and they will be acutely aware of issues surrounding home mortgage finance even if their own household budgets are sound. They may also be working new jobs, possessing less seniority. Commonly employees with less tenure are among the first to be dismissed, following the "last hired, first fired" rule designed to preserve human capital (Becker 1962; Abraham and Medoff 1984). We expect newer residents, *ceteris paribus*, to be more reliant on nearby conditions as a referent than longer-term residents when formulating their assessments of the national economy.

Since we hypothesize that national economic evaluations are a function not merely of individual characteristics but also of local economic context, we include variables that describe the changing economic circumstances of the locale. These variables capturing the cost of gas at the summer peak, the change in home foreclosures, and the change in unemployment, originate from several sources,[7] and are the level-two variables. We also hypothesize that the competitiveness of the

[5] In related research, political scientists have found that women are more likely to engage in sociotropic economic *voting* than men (Welch and Hibbing 1992). The research on the extent to which other subgroups *vote* in sociotropic fashion is mixed, but our concern is less with the vote in this paper, and more the nature of economic evaluation itself.

[6] For statistical estimation, independence is coded: 0 = strong partisans, 1 = weak partisans, 2 = leaning partisans and, 3 = independents.

[7] Monthly home mortgage foreclosure data are available from the company *RealtyTrac*, at www.realtytrac.com. The monthly gasoline price data originate from www.GasBuddy.com. The monthly unemployment rate is available at the U.S. Department of Labor, Bureau of Labor Statistics, and reported at the county level 2 months after the data are collected at: www.bls.gov/data/home.htm.

election in particular locales may have an impact on heightening awareness of national economic conditions, given that closely contested locations attract candidate and party activity and higher levels of campaign spending.

The main difficulty with the traditional ordinary least squares model for our data is that it rests upon a basic assumption of the spatial independence of observations. This assumption is problematic because our observations are grouped into regions. Individuals within a locale share certain characteristics (i.e. geographic context) and tend to be more similar to others within close proximity than they are to those in more distant locations. Hence, individuals in different neighborhoods may be independent, but individuals within a location share a host of similar traits. Accordingly, a hierarchical linear model (HLM) that incorporates the multilevel structural characteristic of our data is appropriate.

The standard HLM uses a normal sampling model with an identity link function, which is most appropriate for continuous dependent variables. Our dependent variable for assessment of national economic conditions takes on five values: gotten much better; gotten better; stayed about the same; gotten worse; and gotten much worse. While a hierarchical generalized linear model (HGLM) with an ordered logit link function is appropriate for estimating these outcomes, we found that we obtained almost identical results with the straightforward HLM model so we present those results here. Regression parameters for the voter-level covariates may vary across regions, depending upon theoretical expectations. The level-two variables capturing changing economic conditions can be used to predict this variation in both the intercept and the regression coefficients.

For our application, the level-one model can be written as:

$$\begin{aligned}\text{Economic Evaluations}_{ij} =& \beta_{0j} + \beta_{1j}(\text{Age})_{ij} + \beta_{2j}(\text{Age65 Up})_{ij} + \beta_{3j}(\text{Female})_{ij} \\ &+ \beta_{4j}(\text{Minority})_{ij} + \beta_{5j}(<\text{High School})_{ij} \\ &+ \beta_{6j}(\text{Income} < \$25\,\text{K})_{ij} + \beta_{7j}(\text{Unemployed})_{ij} \\ &+ \beta_{8j}(\text{News Interest})_{ij} + \beta_{9j}(\text{Republican})_{ij} \\ &+ \beta_{10j}(\text{Independent})_{ij} + \beta_{11j}(\text{New Resident})_{ij} + r_{ij}\end{aligned} \tag{1}$$

where i indexes individuals, j indexes locations, and r_{ij} represents the residual for individual i in region j. At the region level, we model β_{0j} as a function of five level-2 predictors: percent in the region voting Democratic in the previous three elections, the political competitiveness of the region in the previous three presidential elections, the change in home foreclosures per 1000 households from July to October, the change in unemployment between July and September,[8] and the peak price of gasoline in July.[9]

[8] Unemployment rates for October 2008 at the county level were not reported until December, after the election.

[9] In other specifications of the model, we include the change in gas prices but present only the peak price in July here. This is because those locations showing low values of change from the July peak would have residents complaining about the sustained high cost of fuel. But at the other end of the distribution, residents from locations experiencing high values of change might exhibit concern because their peak

The level-1 coefficients are modeled as shown below.

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\%\ \text{Democratic})_j + \gamma_{02}(\text{Competitiveness})_j + \gamma_{03}(\Delta\ \text{Foreclosures})_j + \gamma_{04}(\Delta\ \text{Unemployment})_j + \gamma_{05}(\text{July Fuel Price})_j + u_{0j} \quad (2)$$

$$\beta_{8j} = \gamma_{80} + \gamma_{81}(\Delta\ \text{Foreclosures})_j + \gamma_{82}(\Delta\ \text{Unemployment})_j + \gamma_{83}(\text{July Fuel Price})_j + u_{8j} \quad (3)$$

$$\beta_{10j} = \gamma_{100} + \gamma_{101}(\Delta\ \text{Foreclosures})_j + \gamma_{102}(\Delta\ \text{Unemployment})_j + \gamma_{103}(\text{July Fuel Price})_j + u_{10j} \quad (4)$$

$$\beta_{11j} = \gamma_{110} + \gamma_{111}(\Delta\ \text{Foreclosures})_j + \gamma_{112}(\Delta\ \text{Unemployment})_j + \gamma_{113}(\text{July Fuel Price})_j + u_{11j} \quad (5)$$

$$\beta_{pj} = \gamma_{p0} \quad \text{for } p = 1 - 7, 9 \quad (6)$$

Equations 3, 4, and 5 assess the extent to which level-2 indicators (i.e., for political leaning and competitiveness; and for foreclosures, unemployment and gasoline prices) at the region-wide level moderate the relationship between independent party identification, news consumption, and recent residential mobility on national economic evaluations. Note that for the regional political orientation variables capturing partisan leaning and competitiveness, we are hypothesizing that they influence the overall mean level of economic evaluation (the level-1 intercept, see Eq. 2), but do not influence any of the level-2 regression coefficients. We obtain the full model by substituting Eqs. 2 through 5 into Eq. 1. By including the error at both the individual and regional levels, we avoid the problem with single level estimation—underestimation of the standard errors and likely biasing of the coefficients.

Results of Estimation

Tables 1 and 2 present HLM estimates of the models described in the previous section. We examine the direct effects of local economic variables (changing unemployment, foreclosures, and gas prices at their July peak) on perceptions of the national economy as well as their effects conditioned on individual-level characteristics of political independence, attention to news, and residential tenure. We formulate the local economic variables using five different criteria for what we

Footnote 9 continued
prices were usually the highest—often shockingly high. The pungent memories of the extraordinary summer spike proved lasting for many voters, in spite of a significant fall in prices by October and November.

Table 1 Attitudes toward the state of the national economy, voters nested within state and media market

Variable	Group level effects	
	State coefficient (standard error)	Media market coefficient (standard error)
Intercept	4.86 (0.264)**	4.779 (0.235)**
Median household income	0.001 (0.001)	0.001 (0.001)
% Democratic	0.001 (0.001)	0.0003 (0.001)
Competitiveness	−0.0002 (0.001)	0.001 (0.001)
Change in unemployment	0.013 (0.032)	0.014 (0.021)
Change in foreclosures	0.002 (0.001)**	0.002 (0.001)**
July gas	−0.026 (0.068)	−0.017 (0.062)
Independent	−0.202 (0.092)**	−0.193 (0.098)**
Change in unemployment	0.008 (0.009)	0.009 (0.007)
Change in foreclosures	0.00005 (0.0003)	−0.0001 (0.0002)
July gas	0.062 (0.024)**	0.060 (0.025)**
Low news interest	0.067 (0.093)	0.074 (0.114)
Change in unemployment	−0.02 (0.01)**	−0.016 (0.009)*
Change in foreclosures	−0.0002 (0.0003)	−0.0002 (0.0003)
July gas	−0.023 (0.024)	−0.024 (0.03)
New resident	0.616 (0.384)	0.306 (0.334)
Change in unemployment	0.032 (0.039)	0.003 (0.035)
Change in foreclosures	0.002 (0.001)**	0.003 (0.001)**
July gas	−0.175 (0.099)*	−0.096 (0.086)
Age	0.0002 (0.0003)	0.0002 (0.0003)
Gender	0.055 (0.006)**	0.055 (0.006)**
Minority	−0.097 (0.012)**	−0.101 (0.01)**
Income < *$25 K*	−0.033 (0.01)**	−0.03 (0.011)**
Unemployed	0.059 (0.01)**	0.059 (0.013)**
Republican	−0.112 (0.002)**	−0.112 (0.002)**
Less than high school	−0.026 (0.007)**	−0.025 (0.009)**
N (Level 1)	32,800	32,800
N (Level 2)	51	210

Two-level hierarchical linear model, slopes and intercepts estimation, level-one variables appear in italics

* Indicates significance at $p < 0.1$

** Indicates significance at $p < 0.05$

define as local. These include the respondent's state, their local media market (or DMA), and the regions defined by indicators of political, economic, and ethnic similarity (see Figs. 1, 2, 3).

Taken together, Tables 1 and 2 show that local economic factors influence attitudes about the national economy.[10] For some economic factors these effects are

[10] In the *Supporting Information,* we present a basic analysis of the effect of geotropic factors on vote choice. We ran a straightforward one-level logistic regression model with presidential vote as the dependent variable, and placing national economic evaluation, July gas prices, the change in

Table 2 Attitudes toward the state of the national economy, voters nested within local regions

Variable	Group level effects		
	Political coefficient (standard error)	Economic coefficient (standard error)	Ethnic coefficient (standard error)
Intercept	4.976 (0.309)**	4.679 (0.22)**	4.753 (0.313)**
Median household income	0.001 (0.001)	0.002 (0.001)**	0.000 (0.001)
% Democratic	0.001 (0.001)	−0.0003 (0.001)	0.0004 (0.001)
Competitiveness	0.0001 (0.0004)	0.0005 (0.001)	0.0001 (0.001)
Change in unemployment	0.063 (0.019)**	0.036 (0.02)*	0.047 (0.026)*
Change in foreclosures	0.001 (0.001)	0.002 (0.001)**	0.002 (0.001)**
July gas	−0.064 (0.081)	0.005 (0.057)	0.0003 (0.081)
Independent	−0.276 (0.121)**	−0.15 (0.081)*	−0.149 (0.114)
Change in unemployment	−0.006 (0.009)	0.003 (0.008)	−0.003 (0.009)
Change in foreclosures	0.0002 (0.0002)	0.0001 (0.0003)	0.00003 (0.0004)
July gas	0.081 (0.032)**	0.048 (0.022)**	0.048 (0.029)
Low news interest	0.121 (0.114)	0.077 (0.087)	0.024 (0.148)
Change in unemployment	−0.019 (0.011)*	−0.019 (0.009)**	−0.017 (0.012)
Change in foreclosures	−0.0001 (0.0003)	−0.0004 (0.0003)	−0.0003 (0.0005)
July gas	−0.037 (0.03)	−0.025 (0.023)	−0.009 (0.038)
New resident	0.285 (0.368)	0.041 (0.297)	0.212 (0.48)
Change in unemployment	−0.022 (0.039)	−0.014 (0.029)	−0.023 (0.04)
Change in foreclosures	0.002 (0.001)**	0.003 (0.001)**	0.003 (0.002)
July gas	−0.089 (0.094)	−0.026 (0.079)	−0.071 (0.124)
Age	0.0002 (0.0002)	0.0001 (0.0002)	0.0002 (0.0003)
Gender	0.055 (0.007)**	0.053 (0.006)**	0.054 (0.007)**
Minority	−0.101 (0.009)**	−0.1 (0.013)**	−0.101 (0.01)**
Income < *$25 K*	−0.031 (0.01)**	−0.032 (0.011)**	−0.034 (0.011)**
Unemployed	0.06 (0.013)**	0.059 (0.013)**	0.061 (0.015)**
Republican	−0.113 (0.002)**	−0.112 (0.002)**	−0.112 (0.002)**
Less than high school	−0.025 (0.008)**	−0.046 (0.025)*	−0.025 (0.008)**
N (Level 1)	32,757	32,800	32,785
N (Level 2)	354	445	328

Two-level hierarchical linear model, slopes and intercepts estimation, level-one variables appear in italics

* Indicates significance at $p < 0.1$

** Indicates significance at $p < 0.05$

Footnote 10 continued
unemployment and accumulated foreclosures on the right-hand side as explanatory variables. We also controlled for a number of the usual predictors of vote choice, including party identification, income, race/ethnicity and whether the respondent claimed to be a born again Christian. These estimates show is that foreclosures drive up support for Obama, as does the peak in July gas prices, independently of national economic evaluations. Change in unemployment has no statistically significant impact on vote choice.

direct while other factors are conditional on characteristics of the respondent. The magnitude of the effect also depends on how we define the geographic context. Higher foreclosure rates caused more negative evaluations of the national economy among respondents for all but one definition of local region. The effect was even stronger among those respondents who had recently moved to a community. Increased unemployment produced more negative evaluations of the economy only when local regions were defined more organically based on politics, wealth, and ethnicity (see Figs. 1, 2, and 3, respectively). The effect of local unemployment on national economic evaluations was greater among those who consumed high levels of news suggesting that news consumption heightened sensitivity to nearby circumstances. Although gas prices did not independently influence economic attitudes in any definition of local region, they were consistently influential among political independents.[11] Those independents living in areas that saw the highest gas prices during the summer had more negative evaluations of the economy than independents elsewhere. We now turn to further substantive interpretation of the results and a consideration of each of the models, which are distinguished by different definitions of locality.

Table 1 presents the results of our HLM estimation for state and media market context. States are important units of territorial conquest in pursuit of Electoral College majorities, and much information is organized and reported by government agencies and the media at the state level. Because of this, for many voters the relevant referent for how the economy is performing may be what they happen to hear about the state's economy.

States as Contexts

If states are considered appropriate containers of economic experience, we find that rising state-level foreclosures, alone among the economic variables, elevated harsh average economic evaluations overall. Based on the coefficients for the level-2 estimates on the model intercept from the first column of Table 1, a one standard deviation increase in the state-level foreclosure rate from July to October ($\sigma = 13.2$) increased negative evaluations of the economy by about .026, or by about the same impact in a negative direction as having less than a high school education exerts in a positive direction ($\beta = -.026$). Because of the high degree of variation in foreclosure rates across the country, some electorally critical areas experienced sizeable baseline shifts in the evaluation of the national economy as a direct result of extraordinary foreclosure rates. Figure 4 presents the effect of the local foreclosure rate on a state-level and Fig. 5a and b present the effect of varying local foreclosure rates at the media market level divided into four regions. Each point in these figures represents the estimated effect of the change in home foreclosures on the negative evaluations of the national economy. Bars reflecting the 95% confidence intervals are included and are very small. In order to better interpret the relative sizes of the effects, Figs. 4, 5a and b include the estimated effects of the respondent being

[11] The interaction of low news interest and July gas price is positive in all specifications of the model and statistically significant in all but one specification of local region.

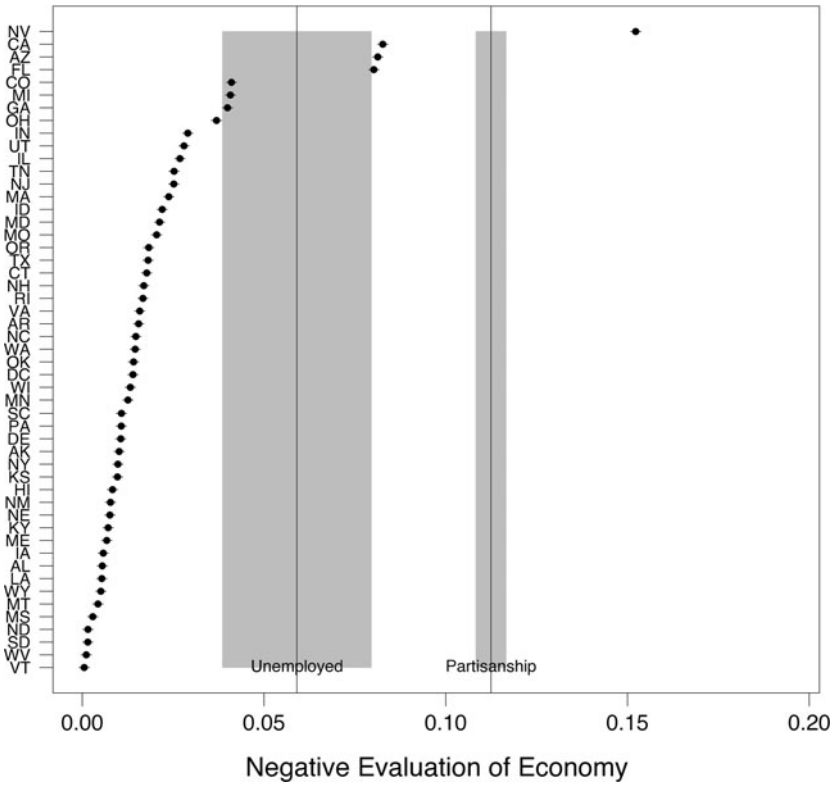

Fig. 4 Effect of increasing state-level foreclosure rates on evaluations of national economy. Each point is calculated as the observed state-level foreclosure rate multiplied by the coefficient estimated in the model for the effect of foreclosures in column 1 of Table 1. The bars around each point represent 95% confidence intervals. For comparison, the impacts of unemployment and partisanship (measured at the individual-level) on perception of the national economy are also shown. Across states, variation in foreclosure rates was high and so too was its effect on perceptions of the economy

unemployed and the estimated effect of a unit move along the seven point partisanship scale on the respondent's evaluation of the economy. The gray bars reflect the uncertainty around the estimates.

In Nevada, a battleground state, where foreclosures increased 76%, an individual's baseline negative economic evaluation of the economy was nearly a quarter point higher (i.e., more negative) on the five-point scale than a voter in Vermont, where foreclosures increased less than 1%. This difference represents over a 6% shift on the five-point scale and a shift equal to nearly two-fifths of a standard deviation of the dependent variable.[12] As seen in Fig. 4, for Nevada voters the effect of foreclosures on negative evaluations of the economy outweigh even partisanship! In California, Arizona, and Florida, the foreclosure crises had a more sizeable effect

[12] The dependant variable is a five-point measure anchored at 1 through 5. Therefore a movement of 0.025 on the scale is 6.25% (.025/4).

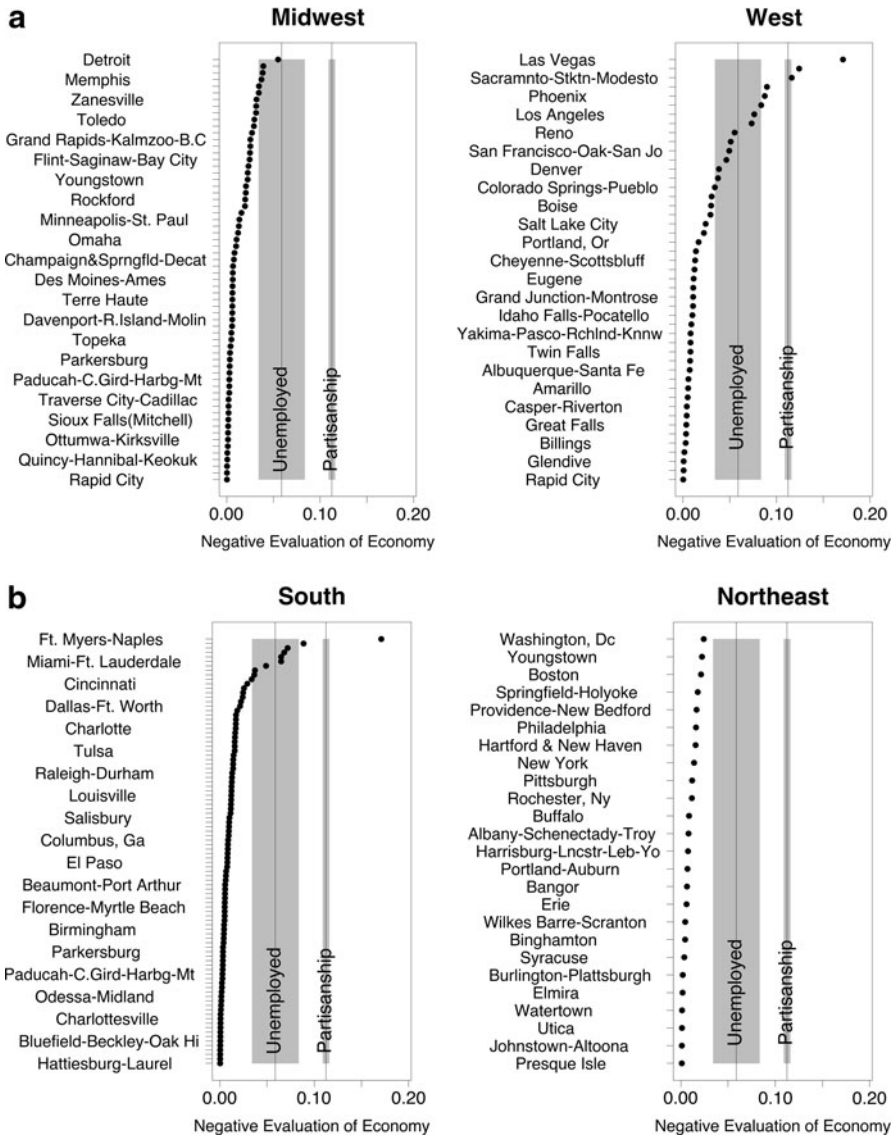

Fig. 5 Effect of increasing foreclosure rates by media market for west and midwest regions (**a**) and northeast and south regions (**b**). Each point is calculated as the observed state-level foreclosure rate multiplied by the coefficient estimated in the model for the effect of foreclosures in column 2 of Table 1. For comparison, the impacts of unemployment and partisanship (measured at the individual-level) on perception of the national economy are also shown. Across media markets, variation in foreclosure rates was high and so too was its effect on perceptions of the economy

than being personally unemployed. Meanwhile, in states like Vermont, West Virginia, and the Dakotas, locations that have largely escaped the economic crisis, local foreclosure rates had a negligible impact on attitudes toward the national

economy. Even while controlling for a host of individual-level characteristics, the magnitude of the foreclosure crisis in hard-hit states strongly and directly influenced individuals' view of the national economy, even though housing-market problems were quite local and regional, and not nationwide in scope. We also find that the other level two economic variables measuring the change in unemployment and July gas prices had no substantial influence on average economic assessments as represented by the model intercept. But these variables did significantly influence the attitudes of specific blocs.

The effects of foreclosure were acutely felt among recent movers, a very large part of the electorate in many Southern and Western states. As can be seen in Table 1, there is a statistically significant and positive interaction between whether the respondent is a new resident and the change in the foreclosure rate. For these new residents, foreclosures were the only local statistically significant influence on national economic evaluations. Those who had lived in a community less than a year, undoubtedly alarmed by the precipitous drop in their newly purchased properties, were .032 points more negative than those of longer tenure for each standard deviation increase in accumulated foreclosures (see Table 1).[13] For comparison purposes, this magnitude of effect is comparable to the effect of individual income and stronger than the impact of education on national economic evaluation. That any aspect of *state* economic context would exert that kind of influence, net of individual characteristics, is quite remarkable.

While July gas prices do not have a statistically significant impact overall, we find substantial effects for political independents nested within states. The interactive effect between peak July gas prices and political independents indicates that negativity increases by .062 points on the five-point scale for every $1 increase in the price per gallon. Since the measure of political independence is a four-point scale, the effect for true independents is largest. Compare a state like California where gasoline typically reached $4.20 to states like North Dakota or Missouri that saw the peak reach only $3.61. The predicted effect for a true independent in California is 0.78 while the effect in North Dakota is 0.67.[14] This is a difference of .11 points, which is a 2.7% shift on the five-point scale, and a shift of .16 of a standard deviation in attitudes toward the national economy. Like foreclosure rates, there was considerable local variation in peak summer gas prices, although the observed impact is not as dramatic.

For those with high levels of news interest, presumably among the better informed of voters, the increase in local unemployment is associated with a small but statistically significant increase in negative economic assessments. The inattentive, on the other hand, may have frequently misjudged the local labor market, even in the presence of locally high unemployment in their states. Consider Arizona, which saw unemployment increase more dramatically than all but five states. Based on the predictions of the model in Table 1, those respondents who paid

[13] This effect is calculated as the standard deviation of the change in foreclosure rate (13.23) times the coefficient for interaction between new resident and the foreclosure rate (0.0024).

[14] These effects are calculated as the highest value for independents (3) times the highest and lowest observed peak gas prices ($4.20 and $3.61 respectively) times the coefficient for the interactions between independent and July gas price (.062).

attention to the news hardly at all were likely to evaluate the national economy more favorably with negative evaluations decreasing by .044, a movement of just over 1% on the five point scale.[15]

The Media Market as Context

At the level of the media market (or designated market areas, DMAs), where local takes on a different meaning, we again find that foreclosure rates shaped national economic evaluations. The rise in home foreclosures had approximately the same average impact at the media market level that it did when states were considered the relevant contextual container. Because media markets are more granular than states, we see a wider range of variation in home foreclosure rates and also a wider range of effects. Figure 5a and b plainly show the effects of the foreclosure rate on all media markets divided into regions. From a regional perspective, it is striking the extent to which the foreclosure crisis affected judgments throughout media markets in the West and South disproportionately when compared to the Northeast and Midwest. These effects are of a similar magnitude as those presented in Fig. 4. Individuals in places like Ft. Meyers, Florida and Las Vegas, Nevada were almost two-tenths of a point more negative (on the five point scale) than those individuals living in places like the Johnstown-Altoona area of Central Pennsylvania that was not immediately hit by the foreclosure crisis. This difference reflects a 5% movement in the five-point scale or approximately a quarter of a standard deviation of the dependent variable. The magnitude of this effect is further explored in Figs. 5a and b. For media markets such as Atlanta or San Francisco-Oakland-San Jose, the effect of local foreclosures on perceptions of the national economy was comparable to the effect of being unemployed. For others, like the Las Vegas and Ft. Meyers-Naples media markets, the effect of local foreclosures eclipsed the magnitude of an individual moving one unit along the 7-point party identification scale.

At the media market level, we discovered that the impact of several contextual variables is similar to what we found at the state level. Those with greater news interest exhibit greater sensitivity to rising unemployment levels in local media markets as they offer their assessments of the economy, and presumably those with no interest also misjudge it. Political independents are again influenced by peak July gas prices with a similar average effect as observed in the state-level analysis. The results in Table 1 indicate that in places where gasoline prices peaked in July, we observe a substantial 20% jump in negative economic evaluations among independent voters compared with strong party identifiers ($p \leq .05$) when we define the locale in terms of the media market. Gas prices may have been in decline by September, but independent voters did not soon forget the impact of the price spike from several months earlier.

Consistent with our expectations, for short-term residents it is home foreclosures above other local factors that most dramatically influence negative judgments about

[15] This effect is calculated as the change in unemployment for Arizona (0.73) times the value indicating the lowest level of interest in the news (3) times the coefficient for the interaction between news interest and unemployment (−0.02).

the national economy. Each standard deviation increase in foreclosures per household ($\sigma = 14.1$) increases negative evaluations by approximately four-hundredths of a point, or around 1.1%, on the five-point scale among new residents. Although in some locales this was a very small increase, this effect exceeds the impact of having less than a high school education or earning less than $25,000 in income, on national economic assessments. Moreover, given that some media markets experienced a dramatic rise in foreclosed mortgages across the third quarter of the year, the geographic variation of this effect was very high, exhibiting a decisive impact in locations such as Florida, Nevada, and North Carolina—all formerly Bush states in 2004, which turned toward Obama in 2008. In the end, the home mortgage crisis contributed to a marginal, but in the aggregate, electorally consequential, move toward the out-party among recent migrants concerned for their own financial security (see Table 1) (Hood and McKee 2010).

Political, Economic and Ethnic Regions

Political Regions as Contexts

Based on the local regions we constructed (see Fig. 1) from county political similarity and adjacency, we first estimated the model capturing local economic conditions across 350 geographic units. These results are presented in the initial column of Table 2. Notably, changes in unemployment negatively influenced average economic evaluations when we considered voters in one of 350 political regions but not when we defined locales broadly as states or media markets (compare Tables 1 and 2). There are also similarities. Those with high (or low) levels of news interest were most influenced by unemployment. We also observe that the evaluations of political independents are clearly moved by high July gas prices, with the effect of the summer spike on national economic assessments being slightly higher than it was at the media market level ($\beta = 0.060$ for media markets, and $\beta = 0.081$ for political regions). We also find that accumulated foreclosures exercise the same defining impact on the views of short-term residents, significantly heightening their economic anxiety, as we observed in the models presented in Table 2 for states and media markets.

Economic Regions

When we divide the country into local regions based on economic characteristics shown in Fig. 2, we see some of the same level-2 effects, again demonstrating the influence of geotropic considerations on national economic assessments—this time across 438 level-2 units. For instance, when we examine the level-2 effects on overall evaluations, we observe that both accumulating foreclosures and the change in unemployment increase the impact of average negative evaluations of the economy.

When we analyze economic regions, there are similar interactions between level 1 and level 2 variables observed in the other specifications of local regions. Summer

gas prices affected economic evaluations only for political independents. For those with high levels of news interest, negative national economic assessments were driven by rising local unemployment. The effect of increasing foreclosures on the negative economic assessments of the newly relocated ($\beta = .003$) is significant and slightly greater than what it was in the other models. This result suggests that larger numbers of new residents concentrated within homogeneous middle-to-high income locales and were more influenced by the ecology of high foreclosures than smaller numbers of new residents scattered among a variety of lower and higher income areas.

Ethnocultural Regions

Finally, as an alternative examination of the effect of context, we nested our respondents within 325 homogeneous ethnocultural regions of the country, as shown in Fig. 3. Here, again, looking at the influence of the level-2 variables on the model intercept, it is apparent that the impact of foreclosures and the rise in unemployment on the average respondent's economic assessments is substantively important and a statistically significant force behind more negative economic assessments.

Political independents and recent residents are sensitive to local economic variation in ways very similar to what we have observed elsewhere. For independents, high July gas prices were again associated with negative national economic evaluations but this effect just misses conventional levels of statistical significance. The effect of home foreclosures on new residents is similar to the effect observed in all other specifications of the model, however it is outside the threshold for statistical significance.

As for the remaining level-1 variables we have included principally as controls, the results are similar in magnitude and direction across all models. While women were more negative about the economy than men, minorities were actually less negative than whites. Those with less than a high school education were less critical of the economy than those with higher levels of education. Lower income citizens were generally less negative about the economy than more highly aware middle and upper income respondents. Age was not a significant predictor of national economic evaluation. Predictably, there was a distinct partisan component to economic assessment, with Republicans assessing it much more favorably than Democrats.

Finally, the multilevel structure of the models does provide some explanatory power not available in a model that includes only the individual level covariates. Table 3 indicates that there is at least a 1–3% reduction in error from adding the level-2 contextual variables. Clearly economic evaluations are primarily a function of a person's other political attitudes, socioeconomic standing, and their information levels. Geotropic considerations are determined by prevailing local economic conditions, and we find that they play both a direct and conditional role in shaping the views of voters. These considerations are especially powerful among the less partisan, recent migrants, and for infrequent news viewers.

Table 3 Reduction in variance statistics for HLM models reported in Tables 1 and 2

	State	Media market	Political regions	Economic regions	Ethnic regions
Residual variance τ_{00}					
Intercept	.451	.459	.451	.451	.451
Level 1 covariates only	.399	.394	.400	.400	.400
Level 1 + Level 2 covariates	.392	.392	.392	.392	.393
Reduction in error					
Level 1 covariates only	.113	.141	.113	.113	.113
Level 1 + Level 2 covariates	.131	.146	.130	.130	.129

Cell entries under residual variance indicate the error variance for each model estimated

Cell entries under reduction in error provide some indication of fit for models with level-1 covariates only, and with level-1 and level-2 covariates combined

Discussion

Several insights emerge from these results. First, just what the economy "is" varies from place-to-place, at least in some election years. What needs to be "fixed" about the economy depends both on individual circumstances and the locally variable nature of economic problems. The housing market, inflationary gasoline prices, and accumulating home foreclosures, each had an impact, but not the same kind of impact on everyone, everywhere. For example, the effect of rising local unemployment was especially influential on national economic evaluations when conditioned by an individual's attentiveness to news. For all definitions of local, *new residents* in areas with increasing foreclosure rates expressed strikingly negative views of the national economy compared with more established residents, and those living in areas with no foreclosures. Given the high level of mobility in American society, recent movers are not a trivial number of voters once summed (Perry 2006).

Geotropic consideration do have an impact on judgments about how the national economy is faring independent of a host of individual-level characteristics, including partisan identification, individual income, education and even an individual's own employment status. Moreover, geotropic considerations are a function of local economic circumstances beyond just unemployment rates, the dominant component of typical economic models. We have found that foreclosure rates, in particular, operated to shape economic perceptions at the broad media market and regional level in 2008. In the case of media markets, information diffusion is approximately structured by the boundaries within which television and radio stations focus their coverage (Althaus et al. 2009). For the other definitions of local we have used, we suspect the effect is robust because individuals' social networks, from which economic and other election-related information are obtained, are geographically diffuse and not necessarily tied to the exact place of residence (Baybeck and Huckfeldt 2002).

Because the 2008 presidential general election occurred in an environment in which economic concerns were at the forefront, there was a nationwide shift of perceptions that was independent of context. Because we focus on a single election, our results do not account for this uniform national movement. Even with a dire economic outlook nationwide, however, we still detect significant effects of geotropic considerations even when one might hypothesize that the tide of national concern would obliterate the impact of local stimuli. Even during the "great meltdown" of 2008, citizens' economic perceptions were still very much informed by what was going on in their own communities and among their friends and neighbors.

From forecasting models to models of individual vote choice, evaluations of the economy are central to political scientists' studies of how individuals engage with politics. In this paper we have shed light on the local factors that contribute to the formation of this most important attitude. Far from being an echo chamber of the national media, voters form their attitudes about the economy based on their limited exposure to their localities, variously defined. To be sure, these geotropic considerations matter for some voters more than they do for others.

Finally, our findings suggest that national presidential elections may ultimately come down to the forces of local context that shape voter judgment and decision-making. It is particularly the hotly contested independent bloc of voters in electorally crucial states like Florida, North Carolina, Indiana, Nevada and Michigan that showed a high propensity for being influenced by their economic context. In many elections, such as 2000 or 2004, in which economic conditions were thought to be a relatively inert influence generally, it may well be that local economic circumstances had a more profound impact than previous research has revealed.

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Ecologies of Unease: Geographic Context and National Economic Evaluations

Supporting Information

Table S-1. Attitudes Toward the State of the National Economy, Voters Nested within Local Regions. Alterative specification including change in gas prices and summer peak gas prices.

Variable	Group Level Effects	
	State Coefficient (Standard Error)	Media Market Coefficient (Standard Error)
Intercept	4.859**	4.609**
	(0.323)	(0.288)
Median household income	0.001	0.001
	(0.001)	(0.001)
% Democratic	0.001	0.0002
	(0.001)	(0.001)
Competitiveness	-0.0002	0.0004
	(0.001)	(0.001)
Change in Unemployment	0.012	0.015
	(0.032)	(0.022)
Change in Foreclosures	0.002**	0.002**
	(0.001)	(0.001)
July Gas	-0.027	0.001
	(0.072)	(0.065)
Change in Gas Price	-0.0002	-0.004
	(0.005)	(0.004)
Independent	-0.24**	-0.13
	(0.096)	(0.116)
Change in Unemployment	0.009	0.009
	(0.009)	(0.007)
Change in Foreclosures	0.0001	-0.0001
	(0.0002)	(0.0002)
July Gas	0.065**	0.052*
	(0.023)	(0.027)
Change in Gas Price	-0.001	0.001
	(0.002)	(0.001)
Low News Interest	0.219*	0.203
	(0.113)	(0.131)
Change in Unemployment	-0.021**	-0.016*
	(0.01)	(0.009)
Change in Foreclosures	-0.0004	-0.0003
	(0.0003)	(0.0003)
July Gas	-0.04*	-0.04
	(0.023)	(0.03)
Change in Gas Price	0.004	0.003*
	(0.002)	(0.002)
New Resident	0.111	0.203
	(0.422)	(0.131)
Change in Unemployment	0.034	-0.016*
	(0.039)	(0.009)
Change in Foreclosures	0.003**	0.003**
	(0.001)	(0.001)
July Gas	-0.109	-0.006
	(0.093)	(0.088)
Change in Gas Price	-0.011	-0.006
	(0.008)	(0.088)
Age	0.0002	0.0002
	(0.0003)	(0.0003)
Gender	0.055**	0.055**
	(0.006)	(0.006)
Minority	-0.097**	-0.101**
	(0.012)	(0.01)
Income < $25K	-0.033**	-0.03**
	(0.01)	(0.011)
Unemployed	0.059**	0.059**
	(0.01)	(0.012)
Republican	-0.112**	-0.112**
	(0.002)	(0.002)
N (Level 1)	32,800	32,800
N (Level 2)	51	210

Two-level Hierarchical Linear Model, Slopes and Intercepts Estimation,
Level-one variables appear in boldface.
* indicates significance at $p < 0.1$.
** indicates significance at $p < 0.05$.

Table S-2. Attitudes Toward the State of the National Economy, Voters Nested within Local Regions. Alterative specification including change in gas prices and summer peak gas prices.

Variable	Group Level Effects		
	Political	Economic	Ethnic
	Coefficient (Standard Error)	Coefficient (Standard Error)	Coefficient (Standard Error)
Intercept	4.659**	4.421**	4.142**
	(0.407)	(0.296)	(0.353)
Median household income	0.001*	0.002**	0.000
	(0.001)	(0.001)	(0.001)
% Democratic	0.001	-0.0003	0.0004
	(0.001)	(0.001)	(0.001)
Competitiveness	0.0002	0.001	0.00006
	(0.0004)	(0.001)	(0.001)
Change in Unemployment	0.065**	0.038*	0.049**
	(0.019)	(0.02)	(0.02)
Change in Foreclosures	0.001	0.002**	0.003**
	(0.001)	(0.001)	(0.001)
July Gas	-0.023	0.035	0.084
	(0.088)	(0.063)	(0.076)
Change in Gas Price	-0.007	-0.006	-0.013**
	(0.005)	(0.004)	(0.004)
Independent	-0.129	-0.108	0.014
	(0.153)	(0.099)	(0.14)
Change in Unemployment	-0.007	0.002	-0.003
	(0.008)	(0.008)	(0.006)
Change in Foreclosures	0.0001	0.00004	-0.0001
	(0.0002)	(0.0003)	(0.0003)
July Gas	0.061*	0.043*	0.026
	(0.034)	(0.023)	(0.031)
Change in Gas Price	0.003	0.001	0.003*
	(0.002)	(0.001)	(0.002)
Low News Interest	0.172	0.236**	0.205
	(0.138)	(0.106)	(0.178)
Change in Unemployment	-0.019*	-0.02**	-0.018
	(0.011)	(0.009)	(0.011)
Change in Foreclosures	-0.0002	-0.0005*	-0.00041
	(0.0003)	(0.0002)	(0.00043)
July Gas	-0.044	-0.044*	-0.033
	(0.031)	(0.023)	(0.04)
Change in Gas Price	0.001	0.004**	0.004**
	(0.002)	(0.002)	(0.002)
New Resident	0.114	-0.045	0.054
	(0.462)	(0.396)	(0.573)
Change in Unemployment	-0.022	-0.013	-0.023
	(0.039)	(0.029)	(0.044)
Change in Foreclosures	0.002**	0.003**	0.003*
	(0.001)	(0.001)	(0.002)
July Gas	-0.065	-0.016	-0.048
	(0.098)	(0.085)	(0.124)
Change in Gas Price	-0.004	-0.002	-0.003
	(0.007)	(0.006)	(0.008)
Age	0.0002	0.0001	0.0002
	(0.0002)	(0.0002)	(0.0003)
Gender	0.055**	0.053**	0.054**
	(0.007)	(0.006)	(0.006)
Minority	-0.101**	-0.1**	-0.101**
	(0.009)	(0.013)	(0.006)
Income < $25K	-0.031**	-0.032**	-0.034**
	(0.01)	(0.01)	(0.012)
Unemployed	0.06**	0.059**	0.062**
	(0.013)	(0.013)	(0.01)
Republican	-0.113**	-0.112**	-0.112**
	(0.002)	(0.002)	(0.002)
Less than High School	-0.025**	-0.046*	-0.025**
	(0.008)	(0.024)	(0.005)
N (Level 1)	32,757	32,800	32,785
N (Level 2)	354	445	328

Two-level Hierarchical Linear Model, Slopes and Intercepts Estimation,
Level-one variables appear in boldface.
* indicates significance at $p < 0.1$.
** indicates significance at $p < 0.05$.

Table S-3. Vote choice in the 2008 election as a function of national economic evaluations controlling for media market-level local context. Logistic regression (0 = McCain, 1 = Obama). Even after controlling for national economic evaluation and a host of other individual level characteristics, local factors still influence vote choice. This suggests that local forces may exercise an independent effect on presidential vote choice in additional to indirect effects through their impact on national evaluation of the economy. Media market indicator variables included in the model but not reported here.

Variable	Coefficient (Standard Error)
Evaluation of national economy	0.948**
	(0.036)
Republican	-2.623**
	(0.064)
Democrat	2.283**
	(0.058)
Income < $25K	0.371**
	(0.092)
Income $25K to $60K	0.09
	(0.076)
Income $60K to 100K	-0.006
	(0.08)
Income 100K to 150K	-0.007
	(0.093)
Born Again	-0.432**
	(0.035)
Black	2.503**
	(0.109)
Latino	0.575**
	(0.087)
Change in Unemployment	-0.017*
	(0.028)
July Gas	3.799**
	(1.739)
Change in Foreclosures	0.017*
	(0.009)
N	25,954

* indicates significance at p < 0.1.

** indicates significance at p < 0.05.