Racial Context and Voting over Taxes:
Evidence from a Referendum in Alabama

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ABSTRACT

We investigate the impact of racial diversity and segregation on white voter support for a comprehensive, progressive tax reform. We focus on a 2003 referendum held in Alabama, which if approved would have raised substantial additional revenues for public education and at the same time greatly increased the progressivity of the tax system. We use King's (1997) method of ecological inference to obtain estimates of white and black support for the referendum proposal, and we then attempt to explain the variance across counties in white voter support. We find that the degree of racial segregation, rather than the proportion of blacks in a given county, is most critical in predicting support for the referendum among whites at the county level.

Keywords: Voting, Race, Segregation, State Tax Policy

JEL Classifications: D72, H71, J15

1. INTRODUCTION

In a multi-ethnic or multi-racial environment, how does the demographic mix affect the willingness of voters to support progressive taxation and the financing of public goods? In the U.S., are white voters more, or less, inclined to support redistributive taxation when they live in more racially diverse, or more racially segregated, areas? Evidence, based on surveys, voting patterns, and actual policies has been mixed.

In September 2003, Alabama residents voted on a referendum on amending the state's Constitution, which if approved would have raised substantial additional revenues for public education and at the same time greatly increased the progressivity of the tax system. The campaign drew national and even international media attention, especially from the novelty of a Republican governor promoting tax reform from an explicitly religious standpoint.[1] The proposal failed by a two-to-one margin. The vote provides an interesting case study, given the magnitude of the proposed reforms and Alabama's history of racial tension and distrust.

We investigate the results of the referendum in order to provide further evidence on the issue of support for redistributive tax policy and the public provision of services where there is racial diversity. In particular, will support for an increase in tax progressivity, and for increased revenues overall in order to finance public expenditure, vary not only by race but also by the local racial context in terms of diversity and segregation? We use King's (1997) method of ecological inference to obtain county-level estimates of white and black voter support for the referendum, and, in turn, to investigate the influence of racial context on support.

In the following section of the paper we review the literature on racial diversity and segregation and support for redistribution and public goods. This is followed by a description of the issues at stake in the referendum on amending Alabama's Constitution. We then provide an

analysis of the vote and the importance of racial and social context, first using a weighted least-squares method suggested by King (1997) and used in a significant number of other studies of white voting behavior in racially diverse settings, and second using the feasible generalized least squares (FGLS) method proposed by Lewis and Linzer (2005). Our results from both regression techniques suggest that segregation, rather than the percentage of black residents within a given county, significantly influenced white support for the referendum; in particular, we find that whites in more segregated counties were more likely to oppose the referendum, lending support to what is known as the "racial contact hypothesis."

2. TAXES, RACE, AND SOCIAL CONTEXT

We are particularly interested in how majority support for taxes and spending is influenced by the presence of racial minority groups. Given the context of our study, the American South, we focus on how voting by whites is affected by the presence of blacks, and do not attempt to analyze black voting. This focus is in keeping with the extant research program in this field; there is a more developed theoretical literature on white voter preferences (e.g., Oliver and Mendelberg 2000; Tolbert and Hero 2001; Branton 2003). We account for the racial make-up of counties in two ways: the proportion of blacks in the county and the degree of residential segregation in the county.

2.1. White Voter Preferences in Multi-racial Environments

There are multiple ways in which an individual voter's preferences over taxes and government spending might be influenced by the degree to which some of the revenues raised and funds spent will involve people who identify with other racial or ethnic groups. One

possibility is that individuals exhibit a stronger "loyalty" to members of their own group and are resistant to fund redistribution through transfers or public expenditures if the beneficiaries are to a significant degree from other groups. As Schrag (1998, 15) describes the Californian case, ballot initiatives have pitted "white, affluent, elderly taxpayers who vote … against the younger, preponderantly black and Latino people who use the services but vote in much smaller numbers." Ethnic or racial divisions may also make it more difficult to negotiate political solutions to problems of poverty or the financing of public expenditures. If ethnic or racial divisions tend to be associated with differences in preferences over public expenditures, whether it be the optimal level of provision or the way in which goods and services are delivered (e.g., divided opinion over what ought to be the curriculum of public schools), then the subjective benefits of public expenditures are lower, entailing less public support (Weitzman 1977; Alesina and Spolaore 1997). There is evidence from developing countries that ethnically diverse societies have less public funding of pure public goods and lower quality of government in general (Easterly and Levine 1997; Alesina et al. 2003; Miguel and Gugerty 2005). Using U.S. survey data, Luttmer (2001) finds that individuals are more supportive of welfare spending the larger the proportion of welfare recipients that come from the individual's own racial group. Furthermore, survey evidence suggests that individuals are less supportive of redistributive policies the more they believe that individual economic outcomes are a result of good or bad choices rather than luck (Fong 2001; Alesina and La Ferrara 2005a), and that these beliefs may vary by ethnic or racial group.

If we simply consider actual public finance practices across jurisdictions, there is evidence that more diverse societies are less willing to fund public goods. When the elderly and the school-aged are from different racial groups, Poterba (1997) found that for U.S. states the

"generational competition" between elderly people and school-age children, as evidenced by spending on public education, is heightened, resulting in lower educational expenditures. (However, also see Duncombe, Robbins, and Stonecash (2003) for survey evidence suggesting the elderly do not have markedly different preferences on education funding from the general population, although their survey does not consider racial diversity.) Alesina, Baqir, and Easterly (1999) looked at U.S. urban areas, and found that shares of spending on productive public goods, including education and basic infrastructure, were inversely related to racial diversity even for areas with otherwise similar socioeconomic characteristics. Alesina, Glaeser, and Sacerdote (2001) suggest that racial divisions are a significant part of the explanation for why the U.S. never developed a European-style welfare state. (See Alesina and La Ferrara (2005b) for a general survey of the evidence.) On the other hand, Hero (1998) finds no correlation across the American states between racial diversity and tax progressivity.

In the American South, the seminal work is Key (1949), whose study of voters (virtually all of whom were white in the South of the early twentieth-century) proposed the hypothesis of white racial intolerance as a function of "racial threat" from an increased presence of blacks. Thus, Key's work suggests that white voters are more reactionary as the local presence of minority groups increases. Some recent empirical analysis of voter behavior in Louisiana supports Key's hypothesis (Giles and Buckner 1993; Giles and Hertz 1994), while other research has provided more mixed support. For instance, Glaser (1994) finds that whites in southern counties with higher percentages of black residents have more "racially conservative" attitudes on such matters as the pace of expanding civil rights and the role of the government in providing targeted assistance for blacks, but that diversity had no effect on racial prejudice per se, or on general political attitudes such as self-identification as liberal or conservative, or the role of

government in the economy. In a critique of the empirical methods of Giles and Buckner 1993), Voss (1996) also states that the Southern "racial threat" hypothesis is questionable, finding that in three statewide campaigns in Louisiana fought by ex-KKK member David Duke, whites living in more racially diverse areas of metropolitan areas were less likely to vote for Duke.

There also exists empirical evidence supporting the racial threat hypothesis outside of the American South. Radcliff and Saiz (1995) are able to explain how it is that increased levels of black voter participation lead to *less* liberal state policies by showing that white voters react to the increased black vote with more conservative voting patterns. Bowler, Nicholson, and Segura (2006) also find evidence of racial threat in California ballot propositions, where higher Latino concentrations lead to more conservative voting by non-Hispanic whites. Tolbert and Grummel found that the white vote for ending affirmative action in California in the 1996 vote on Proposition 209 steadily increased as the minority population in the census tract increased; also see Alvarez and Bedolla (2004) on Proposition 209, who find that racial divisions better explained the voting patterns than did any economic anxieties among whites.

2.2. White Voter Preferences, Contact, and Segregation

An alternative hypothesis is that increased racial diversity leads to *greater* support for policies that could generally be labeled progressive, if the diversity is associated with greater *contact* between individuals of different races; other things equal, high levels of local residential racial segregation would have a negative effect on white support for policies that benefit blacks.

For evidence on the influence of segregation, a nice illustration is presented by Boisjoly et al. (2006), who found that white college students who were randomly assigned black roommates were more likely to be comfortable in their interactions with other minority groups,

and were more likely to be supportive of affirmative action policies. In their study of the racial attitudes and policy preferences of Texas adults, Stein, Post, and Rinden (2000) found that white attitudes towards immigration were less favorable the more diverse the county if contact with Hispanics was low, but not if the diverse context led to frequent contact with Hispanics, in which case there were more favorable attitudes to immigration. Other studies finding increased harmony between blacks and whites resulting from regular contact include Sigelman and Welch (1993), Yancey (1999), and Dixon and Rosenbaum (2004). However, Pettigrew (1998) warns about the selection bias that may be present; that is, individuals living in non-segregated neighborhoods could have chosen to do so on the grounds that they are already relatively free of racial animosity.

Clearly, the literature on racial context and white voting behavior is far from conclusive. However, we discern two types of hypotheses. The first has to do with white preferences and local racial diversity, where the evidence is mixed as to whether an increased *presence* of blacks increases or decreases white support for redistributive policies. The second concerns *contact* between whites and blacks, and in this case the evidence is somewhat more consistent, finding that less segregation, and therefore greater contact between whites and others, leads to whites being more supportive of policies that benefit minorities. We use the 2003 referendum on tax reform in Alabama to provide further evidence on each of these two questions.

3. THE ALABAMA CONSTITUTIONAL REFERENDUM OF 2003

In a survey of state tax systems from early 2003, less than a year before the failed attempt to amend the tax provisions of the state constitution, *Governing Magazine* gave its lowest ranking to Alabama – one star out of four – on both "adequacy of revenue" and "fairness to

taxpayers."[2] With combined state and local tax revenues at just 9.4 percent of personal income, Alabama ranked 49th among the states. Personal income tax rates, as well as property tax rates and the proportion of property value to be used as the property tax base, are enshrined in the state constitution, which has made them very difficult to change (Ely and Walthall 2003). The constitutional limitations would have led to a higher reliance on sales taxes (Chaney 2001), with over half of state government revenue coming from excise and general sales taxes. Property tax rates in Alabama are capped at the state, county, and local levels in the state constitution, and are applied to a base skewed in favor of agricultural and rural property owners. A locally influential study by the Public Affairs Research Council of Alabama (PARCA 2001), noting that Alabama had the lowest per capita property tax revenues of the fifty states, calculated that the effective tax rate on homestead and agricultural property was just 0.33 percent of value, about one-third of the national average. State income taxes are also constitutionally restricted, with a top rate of 5 percent. The income tax system in practice lacks progressivity, since the income tax exemption levels are set so low – a family of two parents and two children begins to pay income tax at an annual income level of just $4,600 per year, the lowest level in the U.S. (PARCA 2001) – and taxpayers are able to fully deduct federal taxes in their calculation of state tax, which works mostly to the benefit of high-income earners.

Governor Bob Riley, a Republican, put forward a proposal that combined education policy with tax reform. The proposed income tax reform would have: increased the exemption so that the hypothetical two-parent/two-children family would see their state tax threshold raised from $4,600 to about $20,000, achieved in part by a significant increase in the child exemption; maintained a tax rate of 5 percent up to $75,000 of annual income for a single and $150,000 for a married couple, but set a marginal tax rate of 6 percent above those income levels; increased the

tax rate on business from 4.2 percent to 6 percent; and ended the federal income tax deduction. These measures would all have worked to increase the progressivity of the income tax system. The proposed property tax reform would have lowered the state rate from 6.5 mills to 3.5 mills, and increased the homestead exemption from $40,000 to $50,000, but would have assessed property at 100 percent of market value, instead of the extant system that assessed at rates ranging from 10 to 30 percent of market value. In general this proposal would have generated an increase in property taxes for residential properties worth more than about $50,000.

It was estimated that over half of all Alabama residents would have enjoyed, on the whole, a tax cut (Hamill 2004), even though total tax revenues would have increased in the first year alone by about $650 million (and in the long run by an estimated $1.2 billion per year).

The proposal was put to voters on a ballot in the form of an amendment to the state constitution, and was the only item on the ballot. It was defeated on September 9, 2003, with 67 percent voting "no". Turnout was 53 percent of active registered voters; by comparison, the 2002 general election for state governor had 58 percent turnout, and the 2000 presidential election had 66 percent turnout. Only 13 out of 68 counties supported the Constitutional Amendment; these counties are contiguous from the west to the east of the state, known as the "Black Belt", both for its rich agricultural land and for its high concentration of black citizens. (Alabama's population as a whole is about 26 percent black). In general the Black Belt has the lowest average incomes in the state. The strongest opposition to the Constitutional Amendment was in the south-west and south-east corners of the state, and also in the northern part of the state. Figure 1 shows the support for the Constitutional Amendment, by county, and Figure 2 shows the percentage of the population that is black, by county. Casual observation suggests a correlation, albeit not perfect, and our principal task in this paper is to investigate the relationship in more depth.

In late September 2003 the Center for Government Services at Auburn University conducted a poll of 803 Alabama residents who said they had voted in the referendum (Bernstein and Seroka 2004). The poll estimated that 55 percent of black voters voted "yes", compared to 32 percent for all others. Note that given the overall support for the referendum according to votes cast was only 33 percent, and given also that blacks are just over one quarter of the state population, then either (if the poll is accurate) the black voter turnout rate must have been about 10 percent compared to 68.4 percent for whites, or the poll overestimated white support.

To what extent was race a factor in the referendum? Although the issues at stake were complex in the details, it would have been undeniable during the campaign that the proposed changes would both have increased the progressivity of the tax system and have generally increased total revenues, with all additional revenues devoted to education. It is hard to imagine, given the general income disparities between whites and blacks in Alabama, that people would not have recognized that blacks, on the whole, would have been the primary beneficiaries of the changes.

4. ESTIMATION OF VOTING BEHAVIOR BY RACE AND COUNTY

To analyze the influence of race, ethnicity and social context on support for the referendum, we rely on aggregate county level data on voter turnout and outcome, race, segregation, and other socio-economic contextual variables described later in the paper. While it would be ideal to be able to perform the analysis with data at the Census Tract level, it was not feasible to accurately match precinct-level voting results with Census Tract socio-economic data. That being said, counties are frequently used as the geographical unit in studies of white attitudes and racial context; see, for example, Branton and Jones (2005), Soss, Langbein, and Metelko

(2003), Stein, Post, and Rinden (2000), and Tolbert and Hero (2001). Data on turnout and vote choice were obtained from the Alabama Secretary of State.

Of course, we cannot directly observe how individuals voted in the referendum, and so we need to construct county-level estimates of white and black support for the proposal. We use the methods developed by King (1997) for ecological inference (EI) to obtain county-level estimates of white and black voter turnout and vote choice. King's technique is a way of avoiding the "ecological fallacy" that occurs when using ordinary regression techniques and aggregate data, such as that at the county level, to make inferences about the behavior of individuals of a particular sub-group, such as members of a particular racial group (Robinson 1950; Shively 1969; Schuessler 1999). Thus, King's method allows us to generate estimates of white and black support for the tax reform, while minimizing the aggregation bias often resulting from the use of other methods. Furthermore, as discussed by Tolbert and Hero (2001), this method allows researchers to consider a greater range of geographic units than is often possible when relying on survey data; for instance, most surveys draw disproportionately from larger counties and contain very small numbers or no respondents from smaller counties. The value of this method is also evident in its use in a growing volume of research (Liu 2001; Tolbert and Hero 2001; Tolbert and Grummel 2003).

In order to obtain estimates of white and black vote, we relied on the two-step process derived by King that involves first constructing estimates of voter turnout by race, and then in turn generating estimates of voter support by race. In this process, we used county-level data on the total number of active voters, the proportion of active voters that are black, the proportion of voters that voted yes, and the proportion of active voters that turned out to vote.

We first generate estimates of voter turnout by race for each county relying on King's EzI program (v.2.7) for ecological estimates. The procedure can be illustrated by first considering a single county. Table 1 shows the data for Autauga County.

There are no data on the proportion of blacks and whites who actually voted, although we do know the racial mix of registered voters (82.9 percent white; 17.1 percent black) and the aggregate voter turnout (53.5 percent turnout). So we must construct estimates of the unknown numbers in the interior of the Table.

King's method is to first consider the range of possibilities for the unknown values. Given the data we actually have, we can easily determine the maximum and minimum possible levels of voter turnout by race, and also the linear relationship between white turnout and black turnout. For Autauga County, the known data indicate that:

Percent turnout for whites = 64.5 – 0.206 · (Percent turnout for blacks)   (1)

Since blacks are a small portion of the population, it is at least possible that black voter turnout could be anything between 0 and 100 percent. For whites however, the possibilities are more restricted, and it is not possible, given total voter turnout, that white turnout is more than 64.5 percent or less than 43.9 percent.

We can perform the same analysis for each county, and this gives us a set of "lines" relating white turnout and black turnout. Intuitively, King's method is to generate maximum likelihood contours that center around the values where the lines relating white and black turnout cross most densely, and by this method we are able to derive maximum likelihood estimates of voter turnout by race in each county. In other words, while the data for Autauga County alone cannot pinpoint white or black turnout, we can use the data from all the other counties to suggest the most likely values for actual turnout by race in Autauga County.

State-wide, we estimate a slightly higher turnout rate for whites than for blacks: 54.5 percent compared to 47.3 percent. (The known state-wide turnout in total was 53 percent.) For Autauga County specifically, we estimate white voter turnout of 54.6 percent and black voter turnout of 48.2 percent. This implies that 84.6 percent of voters in Autauga County were white.

In the next step of the analysis, we use King's EI2 procedure in order to generate estimates of voter support. In this step we work with data on the known voter support of the ballot proposal by county, and our estimates of voter turnout by county, to generate estimates of voter support by race. The method is similar to the one used to estimate voter turnout by race. Continuing to use Autauga County for illustration, we are trying to generate estimates as shown in Table 2.

The EI2 procedure relies on a method of multiple imputation that incorporates the extra uncertainty associated with the vote choice estimates, since they are in part based on the first stage estimates of voter turnout (King 1997). As with the first step in the process of estimating white and black support, we see that the available data for a single county provide a range of possible true values, and we use data from other counties to generate a maximum likelihood point estimate. Applying King's technique, for the case of Autauga County given in Table 2, we estimate that 30.7 percent of whites voted in favor and that 76.9 percent of blacks voted in favor.

Using King's method we estimate that state-wide white support for the proposal was at 21 percent and black support was at 75 percent. Given the progressivity of the proposal at stake, and the economic disparities between whites and blacks in Alabama, where Census estimates for 2000 are for average white and black household income at $50,631 and $31,620, respectively, the difference in levels of support is not at all a surprise. This difference in support also is consistent with the hypothesis that individuals are more likely to support proposals that benefit

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members of the same racial group. Our estimates for white support vary from 6 percent in Washington County to just over 50 percent in Lee County (which includes Auburn and its surrounding area). Estimates of black support have less variance, from 69 percent in Greene County to just over 80 percent in Chambers and Perry counties. Note that when we estimated the referendum support by race using Goodman's (1959) technique, which has the limitation that it assumes the identical levels of white and black support across all counties, we obtain the same aggregate result for support – 21 percent by whites and 75 percent by blacks – as we did with King's more nuanced method.

Our focus is on white voter behavior, for two reasons. First, there is a growing literature on the behavior of white voters in response to racial context to which this analysis provides a contribution. Second, it is the white vote that is far more variable across counties, and so lends itself to analysis that would explain the variance.

5. ANALYSIS OF VOTING BEHAVIOR

5.1. Weighted Least Squares Results

We begin our investigation of the influence of racial and social context on white support by using a weighted least squares (WLS) regression model, with a weight based on the inverse of the standard error of the estimates for support. This method is suggested by King (1997), and is used in second-stage regressions in the voting studies of Tolbert and Hero (2001) and Tolbert and Grummell (2003).

Our primary goal is to examine the ways that the racial mix of counties, in terms of both the proportion of the population that is black and the degree of racial segregation, influence white voting.

Our explanatory variables are as follows. First, we include the percentage of the county that is black, plus a squared term to capture the possibility that white support for the ballot might not be monotonically increasing or decreasing with the proportion black.

Second, we control for the degree of racial segregation. We expect segregation to influence the likelihood of contact; thus we expect that increased segregation will be associated with decreased support for the Amendment. Our measure of segregation by county, S_i, is the measure for "dissimilarity" proposed by Duncan and Duncan (1955). Here we use a measure of white segregation from other groups. Let x_k be the proportion of County i's non-whites living in Census Tract k, and let y_k be the proportion of County i's whites living in Tract k. Then:

$$S_i /100 = \tfrac{1}{2} \Sigma_{\forall k} \left| x_k - y_k \right| \tag{2}$$

If each Tract is the same proportion of white and non-white as the county as a whole, then segregation is zero. S_i can be interpreted as the proportion of the county's nonwhites who would need to move to a different Tract in order to reduce segregation to zero, and so this measure of segregation is also known as a measure of "displacement" (Duncan and Duncan 1955). In Alabama we find segregation has a mean value of 0.32, ranging from 0.04 (Lamar County) to 0.66 (Jefferson County).

Third, we add some further socio-economic contextual variables to the analysis, including the percentage of the county living in poverty, median income by race, the percentage over the age of 25 holding at least a bachelor's degree, the percentage living in urban areas, and, to capture the political ideology of the county, the proportion who voted for George W. Bush in the year 2000 Presidential election. Note that in Alabama voters do not register by party affiliation, so we cannot use numbers of registered Republicans and Democrats as a proxy for ideology. Each of these variables is meant to capture some aspect of the overall environment of

the county; we are not attempting to make inferences about how people in poverty, or people with college degrees, might have voted. Higher status environments should be associated with lower levels of poverty and higher levels of education. Note that counties with these environments may also be particularly well positioned to benefit from new investments by industry attracted by tax and education-spending reform.

Estimates of the WLS regression are given in the first column of Table 3. The F-statistic is significant, and the adjusted R-squared is 0.46. The results indicate a significant *negative* influence of segregation (p<.05) on the likelihood of support for the amendment, providing support for a racial contact hypothesis, and consistent with the findings in other contexts of Boijoly et al. (2006), Stein, Post, and Rinden (2000), Sigelman and Welch (1993), Yancey (1999), and Dixon and Rosenbaum (2004). We exercise some caution with this result, aware that there could be a selection bias as whites with liberal attitudes to government finance choose to live in relatively de-segregated counties.

The percentage black in the county is positively signed, and the percent black squared is negatively signed, suggestive of a curvilinear relationship in which support for the amendment increases as the percentage of blacks in a county increases and then declines at increasingly high levels. These variables, however, are not significant in the model. As we noted earlier, research findings have been divided in the decades since Key (1949) first articulated the racial threat hypothesis. Our estimation does not provide evidence in support of Key's observation.

Two of our socio-economic explanatory variables – white median income and percent over-25 with at least a bachelor's degree – are significant (p<0.01). To consider more carefully the effects of changing levels of the statistically significant variables – white median income, percent over-25 with at least a bachelor's degree, and segregation – we calculated the predicted

level of white support for intervals of each variable, holding the values of all other explanatory variables held constant at their mean levels.

We find that predicted white support rises from 24.9 percent in a county with a median income a standard deviation above the mean ($31,312) to 31.5 percent in a county with a median income a standard deviation below the mean ($24,764). Thus, in less well-to-do counties where there is likely to be a smaller income gap between whites and blacks, close to a third of whites are predicted to support the referendum.[3] In the case of percent over-25 with a college degree, we find that predicted white support changes from 23.4 percent in a county in which 7.2 percent of residents over 25 have at least a bachelor's degree (a standard deviation below the mean) to 33.0 percent in which 19.8 percent of residents over 25 have at least a bachelor's degree (a standard deviation above the mean). Thus, more highly educated environments, ceteris paribus, also appear associated with greater support.

Considering the influence of changes in segregation, we find that in a county with a segregation index value of 45.6 (a standard deviation above the mean) – in which it would be necessary to move 45.6 percent of the county's non-white residents in order to have no segregation – support among whites for the Amendment is 25.5 percent. If the segregation index drops to a value of 19.3, a standard deviation below the mean, then predicted support increases to 30.8 percent. Thus, as predicted by the racial contact hypothesis, an increased opportunity for contact with minorities is associated with, on average, more favorable attitudes among whites.

5.2. Re-estimating the Models with Feasible Generalized Least Squares

The techniques for solving the ecological inference problem, and for using point-estimates from ecological inference regressions in second-stage analysis, are relatively new and

remain an active field of enquiry. In this section, we re-estimate our models using an approach suggested by Lewis and Linzer (2005).

To this point, many researchers that have used second-stage regressions using EI estimates of voting-by-race as the dependent variable have used weighted least squares, where the weight for each observation is the inverse of the standard error of the estimates of voter support from the EI stage. As discussed by Lewis and Linzer (2005), a potential problem in using WLS where white (or black) voter support is the dependent variable is that it implicitly assumes that the entire source of error in the second stage regression is the heteroscedastic sampling error associated with the calculation of the dependent variable during the first stage of the analysis, thus not allowing for a random possibly homoscedastic component that would exist even if the dependent variable were observed instead of estimated. As the variance arising from the specification of the second-stage regression rises relative to the variance from the first-stage EI estimates, "the WLS estimator becomes increasingly – and quite badly – inefficient and generates highly misleading standard error estimates" (Lewis and Linzer 2005, 350). They suggest a feasible generalized least squares (FGLS) estimator that, in circumstances where the variance of the regression residual from the second stage regression is sufficiently large relative to the error variance from the first stage EI procedure generating the estimates of voter support, provides more efficient estimates.

Applying Lewis and Linzer's suggested approach, we find that for our model of white voter support, the estimated value of the second error component is sufficiently large to suggest that their FGLS estimator be used instead of WLS. The details of this approach can be found in Lewis and Linzer (2005).

We present the results of this FGLS estimation procedure in the second column of Table 3. The results are similar to our results from our WLS estimation procedure, showing only a slight increase in the size of our standard error estimates (some changes are not evident due to rounding). The FGLS estimates provide further support for the hypothesis that increased contact with minorities is likely to support more favorable attitudes among whites. They also show a significant effect of education and white median income on support for the referendum. These differences between the WLS and FGLS results based on Lewis and Linzer (2005) are similar to those shown by Powell (2006), who also presents results that compare the two methods.

6. CONCLUSION

The vote on Alabama's proposed Constitutional Amendment provides a natural laboratory in which to examine the role of race and social context in determining support for redistribution in a southern U.S. state. This research allows us to contribute to the growing literature on diversity and the provision of public goods, as well as to the larger literature on the relationship between contextual factors and racial attitudes.

The paper has two main findings. First, we find evidence that segregation negatively influences support for redistribution, controlling for the percentage of blacks within a given county. White support increases as segregation decreases and the likelihood of contact between blacks and whites increases, providing support for previous research that has found a relationship between likelihood of contact with minorities and positive attitudes among whites.

Second, we do *not* find a significant effect on white voting from the proportion of the local population that is black. In other words, we do not find evidence in support of Key's (1949)

racial threat hypothesis. We have found instead that the degree to which whites and blacks live separately has a more pronounced effect than the simple presence of blacks.

Our findings suggest that segregation may in fact act as a "double bad" for many blacks. An extensive literature suggests that segregation has ill effects for blacks in terms of educational, social, and economic outcomes (Cutler and Glaeser 1997; Vigdor 2006; Ananat 2007). Especially since the 1970s (Collins and Margo 2000), blacks in segregated neighborhoods have less contact with, and will not attend school with, more educated peers, and there are significant adverse consequences of segregation for black accumulation of human capital and good scores in standardized tests (Card and Rothstein 2007). Our findings suggest even further harm for blacks from segregation, in that it may negatively influence white support for tax reform and spending that are particularly likely to benefit blacks.

It is important to note that these conclusions may be limited in their generalizability, since we have analyzed a single vote in one state. As stressed by Key (1949) and Hero (1998), "diversity" can manifest itself in different ways and with different effects, even when confining one's attention to the U.S. South. Considering our findings in the context of previous research suggests that the effects of diversity on preferences towards public finance issues are not simple, and there remain high marginal benefits to future research in the field.

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[1] See the *New York Times* editorial "Supporting Alabama's Tax Reform" (July 5, 2003, p. A10); Jason Zengerlie, "Montgomery Dispatch: Not a Prayer" *The New Republic* (September 22, 2003, pp. 13-14); NOW with Bill Moyers, "A Question of Fairness" Public Affairs Television (2003); "What Would Jesus Do?" *The Economist* (August 9, 2003, p. 26).

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[2] See "The way we tax: a 50-state report" *Governing Magazine* (February 2003), p. 38.

[3] The correlation between the gap in median income between whites and blacks and median white income is .7 ($p<0.01$).

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Table 1. The Problem of Estimating Voter Turnout by Race: Autauga County

	Percent that voted	Percent that did not vote	
Percent white	Maximum: 64.5% Minimum: 43.9%	Maximum: 56.1% Minimum: 35.5%	82.9%
Percent black	Maximum: 100% Minimum: 0%	Maximum: 100% Minimum: 0%	17.1%
	53.5%	46.5%	100%

Table 2. The Problem of Estimating Voter Support by Race: Autauga County

	Percent voting "Yes"	Percent voting "No"	
Voters that are white	Maximum: 44.7% Minimum: 26.5%	Maximum: 73.5% Minimum: 55.3%	84.6% (estimate)
Voters that are black	Maximum: 100% Minimum: 0%	Maximum: 100% Minimum: 0%	15.4% (estimate)
	37.8%	62.2%	100%

Table 3. Estimates of White Voter Support for the Ballot Proposition

Estimation Method	WLS	FGLS
Constant	0.7321***	0.7465***
	(0.2190)	(0.2220)
Percent Black	0.0018	0.0017
	(0.0015)	(0.0015)
Percent-Black Squared	-0.00001	-0.00001
	(0.00002)	(0.00002)
Segregation	-0.0020**	-0.0021**
	(0.0010)	(0.0010)
Percent in Poverty	-0.0057	-0.0059
	(0.0042)	(0.0043)
White Median Income	-0.00001***	-0.00001***
	(0.000005)	(0.000005)
Black Median Income	0.000006	0.000006
	(0.000005)	(0.000006)
Percent over-25 with College	0.0076***	0.0075**
	(0.0029)	(0.0029)
Percent Urban	0.0010	0.0011
	(0.0007)	(0.0007)
Percent Voting Bush 2000	-0.0009	-0.0009
	(0.0018)	(0.0018)
F	7.36***	3.16***
Adjusted R^2	0.46	0.23

***$p<0.01$; **$p<0.05$; *$p<0.10$; N = 65. Standard errors are in parentheses. WLS estimates are unstandardized regression coefficients with the inverse of the standard errors of the vote assigned as analytical weights in STATA. FGLS estimates are unstandardized regression coefficients with analytical weights as specified by Lewis and Linzer (2005).

Figure 1. Alabama Referendum Results for Support of the Ballot Proposition on Tax Reform
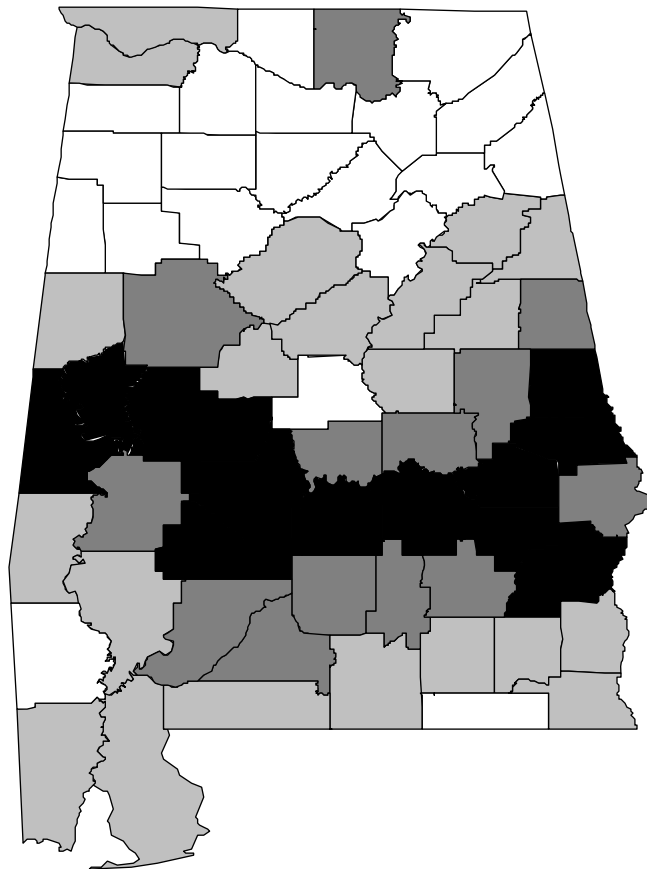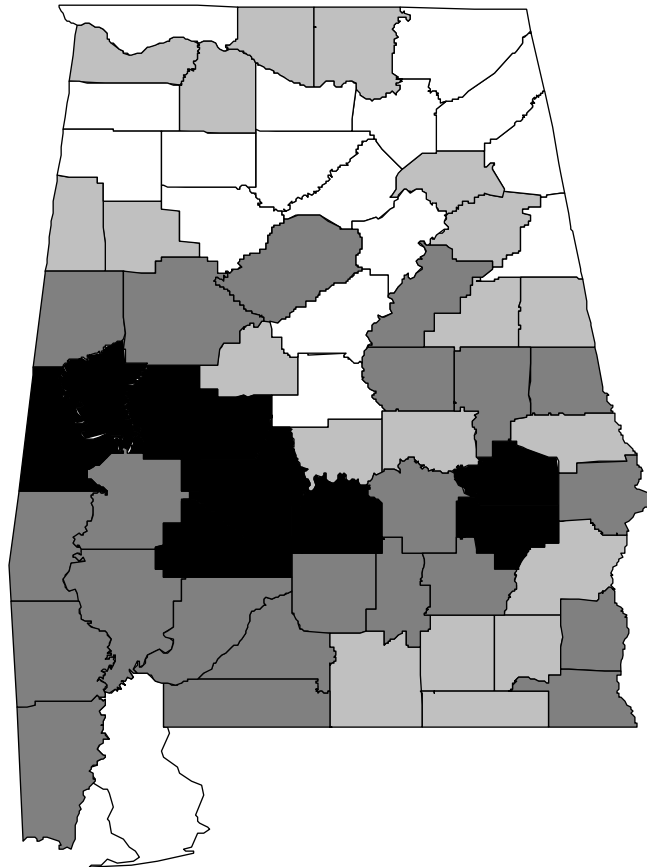

	12 – 25 percent "yes"
	25 – 35 percent
	35 – 44 percent
	44 – 65 percent

Source: Alabama Secretary of State.

Figure 2. Alabama Percent Black by County

	0 – 11 percent
	11 – 22 percent
	22 – 54 percent
	54 – 85 percent

Source: U.S. Census 2000.

Figure 2: Alabama Percent Black by County
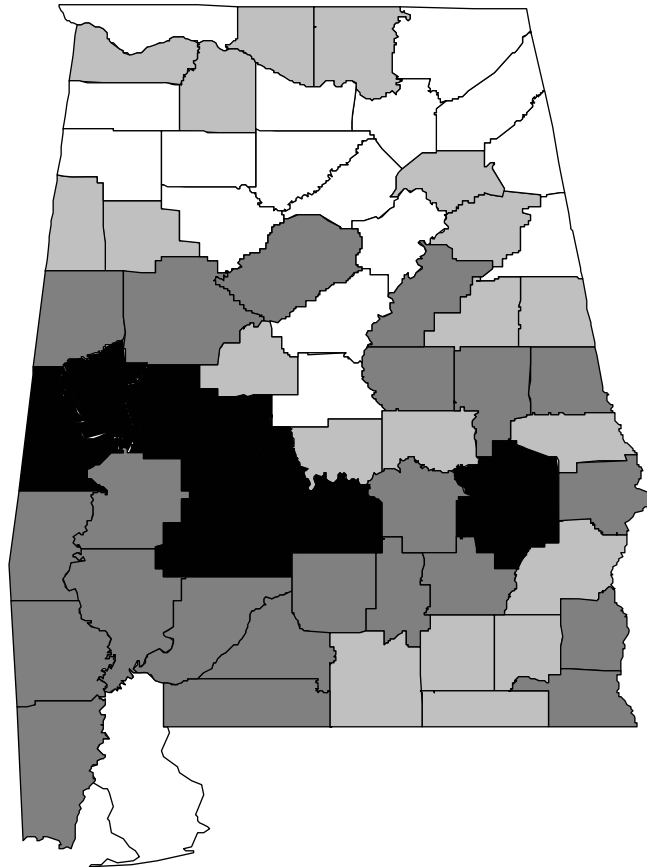
	0 – 11 percent
	11 – 22 percent
	22 – 54 percent
	54 – 85 percent

Source: US Census 2000.

Table 1. Estimates of White and Black Support for the Ballot Proposition

	White Support	Black Support
King's Ecological Inference	.213 (.006)	.748 (.023)
Goodman's Regression	.207 (.013)	.750 (.03)
Bernstein & Seroka (2004) poll	.31	.55

Table 2. Estimates of White Voter Support for the Ballot Proposition

Estimation Method	WLS	FGLS
Constant	.2187**	.1974
	(.0919)	(.1440)
Percent Black	.0028*	.0005
	(.0015)	(.0016)
Percent-Black Squared	-0.00004	-0.000005
	(.00003)	(.00003)
Segregation	.0011	-0.0019*
	(.0008)	(.0010)
Percent in Poverty	-0.0022	-0.00002
	(.0026)	(.0043)
Percent over-25 with College	.0021	.0016
	(.0023)	(.0026)
Percent Urban	-0.0002	.0014*
	(.0006)	(.0007)
Percent Voting Bush 2000	-0.0011	.00003
	(.0010)	(.0018)
F	3.86***	1.89*
Adjusted R^2	.23	.09

***$p<.01$; **$p<.05$; *$p<.10$; N = 65. Standard errors are in parentheses. WLS estimates are unstandardized regression coefficients with the inverse of the standard errors of the vote assigned as analytical weights in STATA. FGLS estimates are unstandardized regression coefficients with analytical weights as specified by Lewis and Linzer (2005).

Table 3. Estimates of the Percentage of White Support for the Proposed Constitutional Amendment as a Function of the Percentage of the County that is Black.

Estimation Method	WLS	FGLS
0% Black	17.8%	20.0%
10% Black	20.3%	20.4%
20% Black	21.9%	20.7%
30% Black	22.7%	21.0%
40% Black	22.7%	21.1%
50% Black	21.9%	21.2%
60% Black	20.3%	21.1%
70% Black	17.9%	21.0%
80% Black	14.6%	20.7%

Estimates are taken using the regression results reported in Table 2. In each case estimates are taken at the mean values of all other explanatory variables.