Does Money Matter?

The Effect of Income on Predicted Political Ideology on a State by State Basis

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Abstract

This thesis explores the relationship between voter income and political ideology preference at the regional and state level. Traditional theories of voter preference contend that richer Americans tend to favor more conservative policy agendas in an effort to minimize income redistribution. The existing empirical literature supports this claim at the national level by finding a significant positive relationship between a voter’s income and his/her support for conservative policy.

However, voters are not homogenous across different areas of the country. The influence of income on voter preference might vary between states with dissimilar demographic characteristics. In an effort to test this possibility, this study utilizes the National Election Survey and separates voter responses into data sets corresponding to each state. A model of voter preference is then estimated using ordered probit on each state allowing for a state-by-state comparison of the income coefficient.

It is discovered that the income effect varies considerably across states, and that this variation follows a rough regional pattern. Income coefficients for many Southern states are found to be negative, implying an inverse relationship between conservative ideology and income level in these areas. The effect of church/synagogue attendance on voter preference is also analyzed across states, and is found to exhibit a similar pattern as the income effect with more religious voters tending to hold more liberal beliefs in the South. Taken together, this suggests that low-income voters potentially holding more conservative ideologies are not doing so out of religious conviction.
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Thank you all.
“The angry workers, mighty in their numbers, are marching irresistibly against the arrogant. They are shaking their fists at the sons of privilege...They are bellowing out their terrifying demands. “We are here,” they scream, “to cut your taxes.”

- Thomas Frank, 2004

1.0 Introduction and Historical Background

Exploration into the relationship between class and political beliefs has been largely ignored by journalists, political scientists, and economists. Either because “the subject of social class is always a disconcerting ones for Americans, and most journalists find it simpler to blame…racism, sexism, or some unfathomable religious conviction than broach this troubling topic” or more simply because the tools needed to analyze the relationship have not always been available, most observers have chosen to overlook social class when covering American politics (What’s the Matter with Kansas, 102). This tendency also applies to academic observers formally studying U.S. political trends, as “academic discourse…[has not] paid much attention to how changes in the American economy have contributed to electoral polarization” (Polarized America, 72). This comes at a time when our political regime and socioeconomic makeup are rapidly changing.

Authors that have not ignored this topic offer mixed opinions on how social class and policy views are related. Theoretical models of income and voter preference state that the richer members of society prefer lower taxation rates (as supported by Foley (1967), Bolton and Roland (1997), and others). These theories argue that because voters above the mean income pay taxes of magnitude higher than redistribution amount, they prefer an extremely low taxation rate. In
the context of our current party system, this implies that richer voters should favor conservative policies regarding taxation or other economic matters.

Recent empirical work to date confirms these theories at the national level. Political scientists have found that a voter’s income can be a very good predictor of where he/she falls politically with higher incomes associated with more conservative beliefs. At the same time, author Thomas Frank published a 2004 book entitled *What’s the Matter with Kansas* contending that voters in some areas of the country have abandoned their economic well-being and are voting mainly on social issues. Although Frank does not subject his theory to empirical testing, he still presents a powerful and groundbreaking idea.

The collision of recent empirical findings and Frank’s (and other’s) normative beliefs about the relationship between class and American politics is not unheard of in the realm of political economics. Oftentimes plausible and logical arguments break down after being empirically tested from reliable data. When this collision is viewed alongside the relative scarcity of empirical research done in this area, opportunities for further investigation become very apparent. Specifically, the effect of income on policy preference at the regional and state level provides one area deserving more investigation.

The conclusions reached about the income/partisanship effect nationally may or may not hold at the state level. Demographics of individuals across the country differ tremendously on virtually every characteristic that defines the American voter. Issues that impact the average voter in Montana may not coincide with the issues that matter to the average voter in Connecticut. For this reason, this study seeks to better understand why voters hold the ideological beliefs that they do, and how the determinants of voter preference change across state and region.
2.0 Existing Literature

1.1 A Brief Summary and Review of Relevant Literature

Despite the fact that the literature surrounding the focus of this thesis is sparse, some notable publications have been written directly on this topic. Especially recently, authors have been looking at the connection between political ideology and measures of income in an effort to determine what, if any, relationships exist. One of the main studies covering this area is a book entitled, “Polarized America: The Dance of Ideology and Unequal Riches” by Nolan McCarty, Keith Poole, and Howard Rosenthal.

McCarty et al. lay out an interlinked set of arguments that provide a great deal of insight into the mechanisms behind the creation of our current political regime. They begin by looking at the recent surge of polarization among U.S. Congressional representatives. To do this, they utilize the NOMINATE method to determine the spatial positions of legislatures on the liberal-conservative scale using roll call votes. The results from this procedure provide strong evidence of increased polarization among our elected officials. They contend that the two main political parties in the U.S. are moving into two distinct and widening camps, leaving very few politicians left in the ideological middle. The authors then turn to the mechanisms behind this trend – specifically, the effect of rising economic inequality among constituents.

The heart of McCarty et al.’s argument lies with the effect of individual relative income on their predicted ideology. The authors presuppose that income plays a very large role in how an individual falls on the liberal-conservative scale. This stems from the traditional redistribution models that predict that an individual’s preferred tax rate is a function of his/her income as well as aggregate societal income. Therefore, the models suggest that richer individuals favor less redistribution (lower tax rates) and poorer individuals favor more
redistribution (higher tax rates). Seeing as conservative policies typically seek to reduce redistribution, it would come as no surprise if richer members of society tend to be more conservative. The question that needs to be answered is the magnitude of this income effect relative to other (more social) concerns when voters head to the poles.

McCarty et al. attempt to quantify the degree of this income effect by analyzing data from the American National Election Survey. The ANES is a large-scale voter survey, conducted every two years corresponding to congressional elections, initiated by the University of Michigan in 1952. The survey includes respondent answers to a wide range of questions, including: the characteristics of the individual (gender, race, income, age, etc), beliefs on an array of issues, political ideology, and attitudes toward specific racial groups. The authors use this data set to estimate a model of partisan identification. Their dependent variable is a measure of ideology (a scale of 1 to 7, 7 being the most conservative) with their independent variables being relative income and a host of non-income based factors.

The authors estimate the above model using ordered probit. In all four of the model specifications, relative income is found to be a statistically significant factor in the partisan identification for voters. A person with a higher relative income has, as predicted, more conservative political beliefs. Moreover, the income effect has increased substantially since 1952: constituent income has become more and more influential over the past 50 years when voters go to the polls. McCarty et al. then note that the timing of this trend strongly coincides with the increase in Congressional polarization noted above.

Other studies have also attempted to quantify the effect of income on voter preference. Larry Bartels has conducted two separate studies measuring the income effect, and arrives at results very similar to those reached by McCarty et al. In his publication listed in the Quarterly
Journal of Political Science, Bartels includes individual positions on 6 economic and social issues in his model of voter ideology, including: abortion, gender roles, government aid to blacks, government spending on services, government jobs and income maintenance, and defense spending. Once again, Bartels utilizes ANES data – although he can only incorporate responses dating back to 1984 due to data availability.

After using ordered probit to estimate his model of political ideology, Bartels argues that, “culture [does not] outweigh economics as a matter of public concern among...white working class voters” (Bartels, 212). He finds that the coefficients for the economic-related issues listed above far surpass the coefficients related to cultural and social issues. For example, the government spending coefficient (one proxy for voter economic concerns) more than doubles the coefficient for abortion (1.47 vs. .56). The impact of government-provided jobs on voter ideology is also significant, as is government aid to blacks. The combined effect of abortion and gender roles (a good summary of cultural/social effects) amounts to coefficient of only .85 – far below most of the economic indicators.

Bartels also disputes another one of Frank’s arguments by finding that working-class white voters do not attach more weight to cultural issues than better-educated whites. In fact, the presence of a college degree appears to increase the importance of social/cultural issues. The coefficients on abortion and women’s role more than double for degree-holding whites, and this result is significant across all significance levels.

This importance of economic issues relative to social/cultural concerns among voters is therefore consistent with the findings of McCarty et al. Although they use different independent variables to predict voter ideology, both studies maintain that American voters value economic
issues above all else. Voters are not voicing their opinion solely around hot-button social issues, nor are they disregarding their economic well being when heading to the polls as Frank contends.

A recent paper by Gelman, Shor, Bafumi and Park is the first piece of literature to look at voter preference and election data at the state level. Using a combination of ANES and 2000 Annenberg Election Survey data, they estimate a varying-intercept, varying-slope logistic regression model of the income effect. However, instead of using a measure of party identification or ideology, the dependent variable consists of a dummy indicating how an individual voted (1 if Republican, 0 if Democrat) in the election.

They first find that in recent years, richer states (those with higher average income) tend to support Democrats and poorer states tend to support the Republicans. The magnitudes of these trends have been increasing since 1976 with the highest correlations corresponding to the 2000 election. This might appear to support the theory that high-income ‘elites’ are supporting the left-wing over the traditional argument that the rich vote conservative. To investigate this, the authors turn to relationship between income and voting at the individual level.

When the logit model is adjusted to incorporate personal income, Gelman et al. again find a significant positive relationship between individual income and selection of the Republican candidate at the national level. This relationship remains significant after controlling for ethnicity, sex, education, and age. The magnitude of the income effect is found to be between .2 and .4 reflecting the fact that an individual is 20% more likely to vote Republican if her relative income increases by approximately 20%. As with previous studies, African-Americans on average tend to vote Democrat while highly-educated voters tend to vote Republican.

Turning to the state level, Gelman et al. find positive income coefficients for all states implying that richer voters in all areas of the U.S. are more likely to vote Republican. However,
coefficient magnitudes vary across states and are associated with average state income. The income effect in poorer states (such as Mississippi) is found to be much higher than in richer states (such as Connecticut). In fact, the income coefficient for Connecticut is not even significant, and for other rich states (such as Massachusetts and New Jersey) is extremely small. For states such as Mississippi and Arkansas, the coefficients range between .4 and .5 – which rest somewhat above the national range of .2 - .4. The authors obtain very similar results after estimating the model using both 2000 Annenberg and ANES data.

The authors therefore conclude that income matters most in poor, rural “red states” and that these patterns have emerged over the past 15 years. They view this as evidence against the common media portrayal of Southern, low-income individuals voting Republican as the income effect is largest among these constituents. However, they still support the idea that richer states on the whole tend to support the Democrats, and poorer states the Republicans.

2.2 Limitations of Existing Literature

After reviewing the findings of the above works, it appears that a positive income effect on Republican voting does exist at the national level. The magnitudes of this effect certainly vary from study to study, but the overall conclusions of McCarty et al, Bartels, and Gelman seem to indicate a statistically significant income effect. This is reinforced by the fact that all three studies used slightly different data sources, timeframes, and statistical models/techniques and still arrived at similar conclusions. The existence of a positive income effect therefore appears to be robust at the national level when the residences of respondents are left out of the model.

The finding that this income effect varies at the state level, and particularly that this variation is correlated with average state income, has only been documented by this one model
specification and data set. While the varying-intercept, varying-coefficient method used by Gelman appears to be a suitable technique given the data, it is by no means the only appropriate method. If all individuals in each state are voting consistent with the income theory, Gelman’s finding should be easily replicable using other appropriate estimation techniques.

It becomes even more difficult to make any concrete judgments on state level income effects when the above findings are viewed in the context of *What’s the Matter with Kansas*. Frank maintains that voters in some areas – most notably “red America” – are voting inconsistent with their income level. This clearly collides with Gelman’s finding of a positive income effect across the U.S. More research is certainly needed if Frank’s argument is to be disproved.

Opportunities for investigation into state-level effects aside from income are also present. Gelman et al. concentrates primarily on the ideology/income relationship and ignores regional patterns of other variables affecting voter preference. Just because the income effect is positive for all states does not necessarily imply that other variables exhibit a similar pattern. Given the scarcity of literature documenting state-level voter preference, much more insight into this field could be discovered using different methodology. The following section attempts to achieve this aim.

3.0 Data and Methods

3.1 Description of Data and Variables

This study utilizes data from the American National Election Study (ANES). The ANES is a project created and run by the University of Michigan. Starting in 1952 and continuing every election year, the study interviews over 1000 voters across the country. Questions range from objective measures of the respondent (age, race, income) to their feelings on a whole array
of issues and concerns. This study makes use of ANES data from its inception 1952 through the 2004 election (2006 data is not yet available).

I utilize a number of the variables included in the ANES consistently from 1952 - 2004 in my analysis. These include: respondent age, race, gender, education level, frequency of church attendance, relative income level, state of residence, and degree of political identification. Race and gender correspond to a dummy variables coded to 1 if the respondent is Black or female, respectively. The education level is also broken down into 2 dummy variables: one indicating if the respondent has received some college education and one indicating if the respondent has earned an undergraduate college degree. Church attendance is also transformed into a dummy variable indicating if a respondent attends church or synagogue more than once or twice a month. Party identification is measured on a 7 point scale with higher values corresponding to more conservative political beliefs. The controlling variables I include in my model of voter preference explained below are very similar to the ones used in models found in existing literature.

Measuring income is somewhat difficult due to the fact that the ANES survey only asks respondents where their family income falls on a relative scale (0-16th, 17th – 33rd, 34th – 67th, 68th – 95th, and 96th – 100th percentiles). Estimates of the mean and standard deviation of annual income distributions are obtained from the U.S. Census Bureau. Under the assumption that the income distribution follows a log-normal distribution, a distribution of incomes can be found for each year of the survey. We are then able to utilize our knowledge of what percentile bucket each respondent belongs to, and back into his/her approximate income using the inverse log function. Since annual means and standard deviations are only known through 2002, I assumed that income means follow a linear relationship over time and straight-line predict the mean and
standard deviation for 2004. Once again, this method is standard in the existing literature and is specifically used in McCarty et al.

A relatively small number of respondents each year either do not know or refuse to provide answers to some of the interview questions. This is especially true for variables such as party identification, church attendance, income and education levels as some respondents may not wish to provide such information to interviewers. This study simply omits any individual from the data set that has one or more missing data points in any of the variables used in analysis. Unfortunately, this reduces our overall sample size from approximately 45,000 to 37,000 respondents. It is felt that given the immense size and longitude of the data set, this reduction is tolerable and will not impact our overall conclusions. Although measures could be taken to estimate missing responses from similar individuals, such methods are not an exact science and could introduce flaws into the data set. Sample means before and after the elimination of respondents with missing data are given below:

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Age</th>
<th>Party ID</th>
<th>Black</th>
<th>Female</th>
<th>Church</th>
<th>Income</th>
<th>Some College</th>
<th>College Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before Deletion</td>
<td>45,636</td>
<td>45.45</td>
<td>3.52</td>
<td>.11</td>
<td>.56</td>
<td>.66</td>
<td>1.02</td>
<td>.36</td>
<td>.18</td>
</tr>
<tr>
<td>After Deletion</td>
<td>37,011</td>
<td>45.56</td>
<td>3.61</td>
<td>.11</td>
<td>.55</td>
<td>.65</td>
<td>1.02</td>
<td>.37</td>
<td>.17</td>
</tr>
</tbody>
</table>

As indicated by the table, sample means for all variables are unaffected by deletion of respondents with missing data. Hopefully, this indicates that this has not systematically removed certain individual types from our analysis or affected the randomness of the ANES sample.
3.2 The Partisan-Income Effect at the National Level

Even though this study primarily focuses on state and regional differences, I first investigate the income-partisanship effect at the national level where data from all states is pooled. I do this for a number of reasons. First, the existing studies are only able to utilize data up through the 2002 ANES study. Although the addition of the 2004 study is highly unlikely to dramatically change the current thought of a positive income effect, it is worth investigating how this new data refines existing results. If the trends noted by McCarty et al. are indeed changing with time as they argue, then the addition of 2004 should reinforce their argument. Secondly, I wish to ensure that the elimination of missing data noted above does not impact the effects of income (or the other independent variables) on voter ideology. If the significance of my coefficients differs from McCarty and Bartels, then eliminating the 5,500 or so respondents would impact my findings later on.

The model of voter preference estimated is given in equation 1 below. As stated above, I include a variety of relevant variables (as defined in 3.1) in my model that might help predict voter ideology. This inclusion of independent variables in addition to relative income aims to better isolate the true value of $\beta_5$, the coefficient on relative income. I also include election year dummies from 1952 to 2004 in order to control for election-specific trends.

(1)  
\[ \text{PartyID}_i = \beta_0 + \beta_1(\text{age}_i) + \beta_2(\text{black}_i) + \beta_3(\text{female}_i) + \beta_4(\text{church}_i) + \beta_5(\text{income}_i) + \beta_6(\text{some college}_i) + \beta_7(\text{college degree}_i) + \beta_8(\text{south}_i) + \beta_9(\text{election year dummies}), j \in (1952 – 2004) \]

I utilize the ordered probit method of analysis to estimate equation 1. Because we only observe a 1 to 7 (and not a continuous) scale of ideology, estimation by ordinary least squares is highly inappropriate. The fact that the dependent variable takes on limited, discrete values forces
the use of a multinomial limited dependent variable method. As our 1 to 7 measure of ideology is ordered, either ordered probit or ordered logit are acceptable estimation techniques for this model. With the added assumption that the errors are normally distributed, ordered probit becomes the preferred method. Ordered probit is also the method standard in the existing literature, and is specifically used in McCarty et al. Table 3.1 displays the coefficients, standard errors and t-statistics after ordered probit estimation of equation (1).

Table 3.1
Ordered Probit Estimates of Income and Other Factors: Data Pooled Across States

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient (std. error)</th>
<th>t-stat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>.741 (.161)</td>
<td>4.61</td>
</tr>
<tr>
<td>Age</td>
<td>-.0002 (.0003)</td>
<td>-.65</td>
</tr>
<tr>
<td>Black</td>
<td>-.722 (.018)</td>
<td>-38.7</td>
</tr>
<tr>
<td>Female</td>
<td>-.013 (.011)</td>
<td>-1.16</td>
</tr>
<tr>
<td>Church Attendance</td>
<td>-.059 (.019)</td>
<td>-3.14</td>
</tr>
<tr>
<td>Some College</td>
<td>.182 (.105)</td>
<td>12.35</td>
</tr>
<tr>
<td>College Degree</td>
<td>.031 (.018)</td>
<td>1.72</td>
</tr>
<tr>
<td>South</td>
<td>-.153 (.012)</td>
<td>-12.21</td>
</tr>
</tbody>
</table>

Income and the presence of some college education therefore positively and significantly increase the likelihood that an individual is more conservative at a 5% α-level. Moreover, frequent church attendance, African-American ethnicity, and living in the South decrease the likelihood that an individual is conservative.

These above coefficients and t-stats closely resemble the results found in the existing literature. As with previous studies, the income effect is positive and significant - although McCarty et al. arrived at a much smaller coefficient (with a smaller error) than my result above.
The coefficients on African-American and church attendance are nearly identical with similar standard errors. The only major discrepancies deal with the female and college degree variables. While the female coefficient in McCarty is positive and significant, the female coefficient above is not significant. In addition, the coefficient for college degree is much higher (and more significant) in McCarty. It appears that the addition of the 2004 study and elimination of respondents with missing data do not impact the overall conclusions reached by estimation. Income is still a significant predictor of party ID, and the other independent variables have similar effects.

The interpretation of this finding is very straightforward: the higher an individual’s relative income, the more likely (on average) the individual is likely to have conservative ideological beliefs. This result is very consistent with the traditional (and well documented) belief that richer constituents tend to side with the Republican Party. Voters with higher incomes, notably above mean income, typically oppose methods of income redistribution. Most forms of taxation disproportionally take income away from richer. Monies derived from taxation are used to create government programs or aid that the rich are not eligible, or do not wish, to utilize. Because conservative policies and policymakers tend to oppose redistribution, it is no surprise that high-income individuals side with the Republican Party.

What is striking about the above findings is the extent to which the average citizen values their economic policy. Although richer voters should theoretically vote Republican to maximize their financial well being, economic issues are not the only ones voters consider when they elect policymakers. High income voters may not side with conservative politicians if they attach greater weight to non-economic issues that may not aligned with the Republican Party. However, the above results indicate that this is not the case. Income is a very strong predictor of
an individual’s expected political beliefs, and the addition of 2004 ANES data has not altered this fact.

3.3 Partisan-Income Effect at the State Level

Analysis of the partisan-income effect at the state level can now be done using very similar methodology and data as used in section 3.2. It would be expected, given the magnitude of the income effect nationally, that the same trend would hold at the state level. If the argument that voters are attempting to maximize their economic well being is valid, then it might come as surprising if this logic breaks down across states and regions.

I apply the model used above to individual states in an effort to compare income effects across states. Although the objective of this is similar to Gelman et al., the methodology employed is very different. Instead of using multilevel varying-intercept, varying-coefficient logit estimation, I apply equation (1) above to each state and utilize the ordered probit technique. My dependent variable continues to be the 1 to 7 scale of party identification with the same list of controlling independent variables. Relative income is once again recalculated assuming a log-normal income distribution, and missing data is treated using the exact same method.

Equation (1) is estimated separately for each state using only individuals that reside within the respective state at the time of the ANES interview. This produces 50 data sets with respondent levels that vary considerably as the ANES over and under represents many states. Although some areas do have low n-values, this would be reflected in higher standard errors for such states. States that have excessively low respondent levels are left out of the analysis altogether (NV, WY, NE, MT, ND, and NH).
This method is far superior to estimating one model with state fixed effects as the use of fixed effects in ordered probit is widely believed to produce bias and inconsistent coefficients. After estimating for each state, comparison of the income coefficient across the country will be very straightforward. Removal of states with very low n-levels ensures that reliable coefficients will be produced and able to be compared. The estimated model is therefore identical to (1) with the added component that the regression is run for each state:

\[
\text{PartyID}_{ik} = \beta_0 + \beta_1 \text{(age}_{ik}\right) + \beta_2 \text{(black}_{ik}\right) + \beta_3 \text{(female}_{ik}\right) + \beta_4 \text{(church}_{ik}\right) + \beta_5 \text{(income}_{ik}\right) + \beta_6 \text{(some college}_{ik}\right) + \beta_7 \text{(college degree}_{ik}\right) + \beta_8 \text{(south}_{ik}\right) + \beta_j \text{(election year dummies}_{ik}\right) + \varepsilon_{ik}, j \in (1952 – 2004)
\]

where \(k\) represents a given state in the U.S. Table 3.2 presents the results from estimating equation (2) and lists states in order of decreasing per-capita income.
Strikingly, the coefficient on relative income varies considerably across states. The highest positive relationship between relative income and conservative ideology occurs in Illinois with a coefficient of 3.09, and the highest inverse relationship occurs in North Carolina.
with a coefficient of -4.10. Although Illinois has the largest coefficient for the income effect, California has the coefficient with the highest significance (t-stat of 4.51).

A direct interpretation of these coefficients is not easy as the use of a multinomial limited dependent variable method (as opposed to a simpler technique such as OLS) convolutes the meaning of $\beta_5$. In order to make an accurate interpretation of each coefficient, we would need to perform a series of probability calculations using the 6 ordered probit threshold values separating each ideology score (which are generated by STATA). Luckily, this process is somewhat unnecessary for our purposes as we can still generate many interesting insights from just the coefficients and t-statistics themselves. Figure 3.1 presents a histogram of the t-statistics and coefficients from Table 3.2 to help better visualize the income effect variation across states.

Figure 3.1
Histograms of T-Statistics and Coefficients

![Relative Income T-Statistics](image)

![Relative Income Coefficients](image)

Clearly, there appears to be distribution of relative income t-stats and coefficients centered on a value somewhere between 0 and 2. Coefficients larger than 0 are to be expected: as argued in the existing literature, there exists a significant positive relationship between voter income and degree of conservative beliefs when data is pooled nationally. What is startling are
the coefficient values that fall below the value of 0, and most notably those with t-statistics lower than -2 as these are approaching statistical significance. T-stat (and coefficient) magnitudes below 0 imply that a higher relative income is associated with a lower predicted value of our political ideology measure, and therefore more liberal ideological beliefs. To better understand the logic behind this result, I turn to the geographical distribution of these t-statistics.

It is difficult to detect any regional patterns of the income coefficient upon first glance of Table 3.2. However, it does not take long to realize that many of the large East and West coast states have positive coefficients, while many of the Southern states have negative coefficients. To better visualize any regional trends that might exist, Figure 3.2 maps the t-statistics that are statistically significant at the 10% level on a U.S. geographical map.

Figure 3.2
Geographical Illustration of Significant T-Statistics on Relative Income

States colored in green have a significant negative coefficient, and those in grey a significant positive coefficient, on relative income. States in white do not have significant t-statistics, or had to be left out of estimation altogether due to low sample sizes. From this very
basic (and sparse) picture, some geographical patterns are apparent. The four green states are located in the South, and the six grey states are either located on the East Coast or in states with large urban or metropolitan areas. The fact that the t-stat magnitudes might follow a rough pattern is very important: if voters in different parts of the country are using different methods of forming ideological stances, then it should follow that voters in nearby states with similar demographics have closely aligned methods of basing beliefs.

Due to lower sample size, estimation on a majority of the states does not produce significant estimates $\beta$s. However, for the purposes of tracking patterns across the U.S., it could help to include all states with enough data to undergo estimation in our mapping. This would help determine if any regional patterns for the income effect actually exist. Figure 3.3 colors all states that underwent estimation using the same coloring scheme as before.

Figure 3.3
Geographical Illustration of T-Statistics on Relative Income

After the addition of these states (states in white had insufficient sample sizes), the regional patterns are still apparent. The South is made up almost entirely of green states
(Mississippi has a t-stat of .05), and the Northeast almost entirely of grey states. States containing large urban areas (such as Illinois, California, and New York) also tend to be gray. Washington and Minnesota have negative coefficients on relative income and are not consistent with the pattern.

Figure 3.3 provides convincing evidence that the income effect affects parts of the country differently than others. Although Figure 3.3 relies on many states that do not have income coefficients that significantly differ from zero, it can still be useful in detecting regional trends. The states without significant coefficients on income almost universally have lower sample sizes. It is therefore highly likely that the low sample sizes are causing insignificant results in many of the states. If larger data sets were available for such areas, Figure 3.3 suggests that we could predict the sign of $\beta_5$ with accuracy. The regional patterns suggest that states in the deep South and southern East coast would have negative income coefficients, and states on the coasts and Northern Midwest positive income coefficients.

3.4 Church Attendance Effect at the State Level

If the effect of relative income significantly varies across states and regions, this variation might also apply to other predictors of voter ideology. First, other explanatory variables might have a higher predictive power in states where relative income is not a powerful determinant of how an individual votes. Secondly, it is worth examining if the same patterns detected in section 3.2 are also apparent for other explanatory variables.

I incorporate many other explanatory variables aside from income into the model given in equation (2). Seeing as relative income captures how an individual might value economic issues, a proxy for social issue stances would be a good starting place for detecting other state and
regional trends. Equation (2) includes a dummy variable measuring church attendance of each individual, and is intended to partially detect social issue importance for voters.

Frequent church attendance has historically been a good signal that an individual is more religious and places higher significance on social issues. More religious individuals typically have strong views on issues such as abortion, same-sex marriage, and school prayer than less religious individuals. In fact, passionate views on these issues often stem from religious doctrine in the first place. If church attendance predicts political ideology more in certain states, than it could be a good indication that social issues are more important for voters in those states.

Coefficients and t-stats corresponding to the church attendance variable are listed in Table 3.3. As before, states are listed in order of decreasing state per-capita incomes. A positive coefficient on church attendance indicates that the more often an individual attends church, the more conservative he/she is on the 1-to-7 ideological spectrum.
### Table 3.3
Ordered Probit Estimates of Church Attendance across States

<table>
<thead>
<tr>
<th>State</th>
<th>Coefficient (std. error)</th>
<th>t-stat</th>
<th>State</th>
<th>Coefficient (std. error)</th>
<th>t-stat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connecticut</td>
<td>0.19 (.14)</td>
<td>1.33</td>
<td>Kansas</td>
<td>0.01 (.19)</td>
<td>0.02</td>
</tr>
<tr>
<td>Washington DC</td>
<td>-0.50 (.48)</td>
<td>-1.04</td>
<td>Indiana</td>
<td>-0.16 (.12)</td>
<td>-1.39</td>
</tr>
<tr>
<td>New Jersey</td>
<td>-0.15 (.11)</td>
<td>-1.33</td>
<td>North Carolina</td>
<td>-0.51 (.12)</td>
<td>-4.16</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>-0.12 (.11)</td>
<td>-1.04</td>
<td>Arizona</td>
<td>-0.10 (.21)</td>
<td>-0.45</td>
</tr>
<tr>
<td>Maryland</td>
<td>0.07 (.14)</td>
<td>0.52</td>
<td>Missouri</td>
<td>-0.09 (.13)</td>
<td>-0.64</td>
</tr>
<tr>
<td>Colorado</td>
<td>0.00 (.15)</td>
<td>-0.01</td>
<td>Iowa</td>
<td>0.11 (.12)</td>
<td>0.87</td>
</tr>
<tr>
<td>Virginia</td>
<td>-0.13 (.11)</td>
<td>-1.21</td>
<td>Texas</td>
<td>-0.20 (.09)</td>
<td>-2.19</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>0.24 (.25)</td>
<td>0.94</td>
<td>Maine</td>
<td>-0.16 (.27)</td>
<td>-0.62</td>
</tr>
<tr>
<td>New York</td>
<td>0.02 (0.7)</td>
<td>0.21</td>
<td>Tennessee</td>
<td>-0.07 (.13)</td>
<td>-0.51</td>
</tr>
<tr>
<td>Minnesota</td>
<td>-0.27 (.12)</td>
<td>-2.27</td>
<td>South Carolina</td>
<td>-0.46 (.25)</td>
<td>-1.84</td>
</tr>
<tr>
<td>Illinois</td>
<td>0.22 (.10)</td>
<td>2.2</td>
<td>Alabama</td>
<td>-0.47 (.15)</td>
<td>-3.23</td>
</tr>
<tr>
<td>Washington</td>
<td>-0.24 (.13)</td>
<td>-1.84</td>
<td>Utah</td>
<td>-0.24 (.21)</td>
<td>-1.16</td>
</tr>
<tr>
<td>California</td>
<td>0.03 (.07)</td>
<td>0.41</td>
<td>Kentucky</td>
<td>-0.28 (.15)</td>
<td>-1.86</td>
</tr>
<tr>
<td>Michigan</td>
<td>0.13 (.08)</td>
<td>1.66</td>
<td>Idaho</td>
<td>0.44 (.44)</td>
<td>1.01</td>
</tr>
<tr>
<td><strong>All States</strong></td>
<td><strong>-0.059 (.02)</strong></td>
<td><strong>-3.14</strong></td>
<td>Oklahoma</td>
<td>-0.02 (.27)</td>
<td>-0.09</td>
</tr>
<tr>
<td>Florida</td>
<td>-0.25 (.11)</td>
<td>-2.29</td>
<td>South Dakota</td>
<td>-0.11 (.22)</td>
<td>-0.5</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>0.13 (.23)</td>
<td>0.53</td>
<td>New Mexico</td>
<td>-0.11 (.44)</td>
<td>-0.24</td>
</tr>
<tr>
<td>Georgia</td>
<td>-0.10 (.11)</td>
<td>-0.91</td>
<td>Louisiana</td>
<td>-0.30 (.21)</td>
<td>-1.46</td>
</tr>
<tr>
<td>Ohio</td>
<td>0.10 (.08)</td>
<td>1.19</td>
<td>Arkansas</td>
<td>-0.57 (.14)</td>
<td>-4.04</td>
</tr>
<tr>
<td>Oregon</td>
<td>0.08 (.15)</td>
<td>0.5</td>
<td>West Virginia</td>
<td>0.34 (.19)</td>
<td>1.72</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>-0.03 (.09)</td>
<td>-0.32</td>
<td>Mississippi</td>
<td>-0.31 (.26)</td>
<td>-1.21</td>
</tr>
</tbody>
</table>

As before, there is a large degree of variation for t-statistics and coefficients across states.

Illinois has the highest t-stat with a value of 2.20, and North Carolina the lowest with a value of -4.16. The 14 states with positive coefficients reinforce Thomas Frank’s (and the commonly made) argument that more religious voters tend to hold more conservative beliefs. Positive coefficients on church attendance are therefore to be expected.
At the same time, estimation of $\beta_4$ on 26 of the states produces negative coefficients on the church attendance variable. North Carolina has the lowest t-stat with a magnitude of -4.16. Although only 3 states had significant negative coefficients, a large number of them had coefficients in the -1.0 to -2.5 range. Although this is consistent with both McCarty et al. and the result when state data is pooled, it is still surprising. More religious voters in these states are more likely to be liberal rather than conservative.

To isolate regional patterns of the church attendance effect, Figure 3.4 plots the 3 states with significant coefficients on church attendance on a U.S. map. Only Arkansas, North Carolina, and Alabama had significant (negative) coefficients and are colored in green.

Figure 3.4
Geographical Illustration of Significant T-Statistics on Church Attendance

The states colored in green above closely resemble the states colored in green in Figure 3.2. Here, Arkansas, Alabama, and North Carolina all have significant negative coefficients on church attendance. As shown above, Arkansas, Alabama, North Carolina and Kentucky all have
significant negative coefficients on relative income. This implies that voters in AR, AL, and NC are more likely to hold conservative political beliefs if they have lower relative income or do not attend church regularly. This finding is not consistent with the theory that middle and low income voters in the south are voting for Republican candidates out of religious conviction or passion for social issues. In fact, voters are more likely to vote for the more liberal candidate if they attend church regularly regardless of their income level.

As was done with the relative income variable, illustrating all states (regardless of significance) in Figure 3.4 would be helpful in detecting regional patterns. Figure 3.5 colors states with a negative coefficient on church attendance green, and those with a positive coefficient grey. Just as before, states in white were unable to undergo estimation due to low sample sizes.

Figure 3.5
Geographical Illustration of All T-Statistics on Church Attendance

Figure 3.5 allows us to better analyze the church attendance effect across states. States in the South, southern Midwest, and southern East Coast predominately have inverse relationships
between church attendance and degree of conservative affiliation. States in the northern Midwest, Northeast, and California mainly have direct relationships. Although green states extend much more Northward in the figure above, Figures 3.3 and 3.5 still share some common characteristics. Illinois and West Virginia have two of the highest direct church attendance effects, and also have two of the higher income effects. Many of the states in the deep south that have strong, negative income coefficients also have negative coefficients church attendance. States such as Pennsylvania, Maine and New Jersey have both direct income and inverse church effects

4.0 Explanation, Interpretation, and Significance of Results

The results described in section 3 both reinforce existing ideas and produce new insights on theories of voter preference. The possibility that some individuals are not voting to maximize their economic well being could have serious implications on future policymaking. If legislatures are being elected knowing that their constituents care very little about economic issues, this could impact how they vote on various policies. This section seeks to better explain the results above and consider the impacts of these findings.

4.1 Income Effect and Possible Mechanisms

The results presented above imply that some states contain voters with political views not consistent with the traditional theory that richer voters favor lower taxation rates, and therefore more conservative policy. Taken a step further, constituents in some areas might be voting for economic policy that does not maximize their economic well-being. This could mean that one or more of the following things: that rich individuals are more likely to hold liberal beliefs, that
middle and lower class individuals are more likely to hold conservative beliefs, or both. Voters residing in the South (most notably Arkansas, Kentucky, North Carolina and Alabama) are the most likely to fit this description.

While the main purpose of this paper is to reveal the existence of a varying income effect across states, it is worth noting why individuals in some states might vote contrary to their economic interests. Many mechanisms to explain this phenomenon are possible as it is not easy to perfectly model complex voter behavior from survey data such as the ANES. Voters in certain areas might care more about the individual characteristics (his/her tenure, personality, family background, etc) of a legislator than his/her policy stances, and form ideological beliefs accordingly. Voters also might form political beliefs to be consistent with others in the community without regard to personal policy stances. Finally, voters might simply be inept and not properly correlate their ideal policies with their ideology. This includes the possibility that richer voters prefer liberal policies even though liberal policy typically favors higher tax rates.

A more likely reason is that voters place more emphasis on non-economic issues when forming beliefs. Voters might note care about economic policy and taxation rates, and instead vote based off of where candidates stand on social issues. This is the mechanism argued by Frank and disproved, at least on the national level, by Bartels et al. and McCarty et al. I attempt to test this theory on a regional basis by looking at church-attendance coefficients across states and find that this is not the likely culprit for negative income effects. More explanation of this finding appears in section 4.3.

4.2 Income Effect and Regional Trends
The fact that the income effect follows a general regional trend is highly significant. If states that had negative income effects were randomly distributed, the legitimacy of such findings would be highly suspect. States in the same region tend to have similar economic, racial, and religious characteristics. If two states in close proximity and with nearly identical demographics had substantially different income effects, it would be hard to validate a varying income effect.

The regional patterns shown in Figures 3.2 and 3.3 add legitimacy to the existence of negative income effects in two important ways. First, states with negative income effects are typically located in the vicinity of other states with negative income effects. This is certainly true in Figure 3.2 where only statistically significant states are colored, and is generally true in Figure 3.3. Washington and Minnesota have negative income effects and reside in areas around states with positive effects, but neither of these states had coefficients that differ significantly from zero.

Secondly, the predominance of “green” states in the South is not entirely surprising. If an area of the country contains voters that place less emphasis economic issues, it would make intuitive sense to be the South. States in this region have some of the lowest per-capita GDP levels and are not home to industries most affected by economic policy such as finance and banking. Moreover, citizens of the South are known to be very sensitive to certain social issues (abortion, same-sex marriage, school prayer) that could undermine their attention to economic issues. This theory is also supported by Frank, who places fault on the “deep red states” for abandoning their economic interests.

Basing the regional trends argument around Figure 3.3 and Table 3.2 does have some setbacks. The majority of the state income-effect coefficients were not significantly different
from zero, and using them to make a regional trends case could produce a misleading argument. However, the lack of significance for many of the state income coefficients is most likely due to low sample sizes. Although a given state independently might not have a significant negative income coefficient (statistically speaking), multiple states in the same area with negative income coefficients is significant (not statistically speaking). As stated before, one could guess that that given larger sample sizes, more of the Southern states negative coefficients would turn significant.

4.3 Church Attendance Effect

If individuals in some areas are not voting consistent with their income level, the question then turns to the existence of some other factor responsible for this trend. As stated previously, voters in some areas might place strong emphasis on social issues with little (if any) regard for economic policy. Such individuals would vote for the candidate with the most closely aligned social agenda, even if this candidate favors economic policy disadvantageous to the voter. If voters matching this description tend to be either high or low income, then it could explain the negative income effect illustrated in Section 3.

The strong negative income effect found in states such as North Carolina, Arkansas, and Kentucky implies that low income voters in these states are more likely to lean to the right politically. If the mechanism explained above is at work, this also implies that voters hold social and economic beliefs that cannot be mutually satisfied, and allow social to trump economic issues when voting. This could mean that low-income voters hold strong conservative social beliefs, or that high-income voters hold strong liberal social beliefs. Thomas Frank cites the
former as the more likely mechanism, and I will therefore proceed assuming that low income voters are allowing conservative social concerns to overpower economic issues.

Analysis of the church attendance variable across states partially tests this mechanism. If an individual passionately cares about certain social issues, it is likely that he/she is more religious than a voter that places less weight on social issues\(^1\). If church-attending voters in a given state are more conservative than less religious voters, it could be a partial signal that attention to social issues is causing a negative income effect. We might therefore expect positive church attendance coefficients in states with negative income coefficients.

Both Table 3.3 and Figure 3.5 show that this is not the case. Three of the four states with significant negative income effects have significant negative church-attendance coefficients. The remainder of the Southern states with insignificant negative income coefficients also has negative church attendance coefficients. More religious voters in Southern states are more likely to lean to the left, and less likely to lean to the right ideologically. While none of the states have significant positive church-attendance coefficients, many on the Northeast, West coast, and Northern Midwest had insignificant positive coefficients.

The lack of positive church attendance effects in states with negative income effects could mean one of two things. First, it could be that low income voters are forming conservative policy stances for reasons other than attention to social issues. If the church attendance variable accurately reflects voters who are passionate about social issues and has a negative coefficient, then the income effect is negative due to other mechanisms. Secondly, frequent attendance to religious events may not be a good signal of voters who attach high significance to social issues. Individuals might still be voting against their economic interests due to strong social beliefs, but

\(^{1}\) Although I have no evidence for this claim, it is fairly widely accepted (and documented) that individuals that care passionately about issues such as abortion and prayer in school also tend to be more religious. In fact, the justification for caring about such issues in the first place typically stems from religious doctrines.
we cannot detect this behavior (for whatever reason) through the church-attendance variable. If this is the case, equation (2) would have to be modified to include other signals of social issue importance in order to validate a social-trumps-economic issue argument.

4.4 Church Attendance Effect and Regional Trends

Like the income effect, the church attendance effect also follows a general regional trend. The existence of such a trend again adds legitimacy to the state-by-state findings. Figure 3.5 demonstrates how the signs and magnitudes of the church attendance coefficients are not randomly distributed across the country. If they were, the accuracy of the coefficients would be highly suspect due to the same reasoning as explained in section 4.2

Negative church attendance coefficients are found across the deep South, southern Midwest, and Southwest. Positive coefficients are detected on the West coast, northern Midwest, and in some parts of the East coast. This finding is certainly counterintuitive: the fact that more religious voters, in the traditionally more conservative parts of the country, tend to hold more liberal ideologies is surprising. Religious individuals in the traditionally less conservative (and less religious) Northeast and West Coast are more likely to be conservative voters.

This finding is even more striking when you consider that the estimated model includes a dummy for race (if the voter is black or non-black). If the model did not include this dummy, negative coefficients are much more logical: African-Americans are populous in the South, tend to attend church frequently, and are traditionally liberal. Failure to control for race would almost surely produce negative attendance coefficients in the South. Even when a dummy controlling for race is included, the Southern church attendance coefficients remain negative.
Support for the existence of a negative church attendance effect in some regions comes from existing literature. McCarty et al. found the coefficient to be negative when they estimated the model using data pooled across all states. The effect is barely significant across all 4 of McCarty et al.’s model specifications. However, the authors do note that this negative significant trend is mainly due to predominance of data dating before 2000. If only data from the 2000 ANES is used, the church attendance effect is positive on the national level.

Attending a religious service at least three times per week therefore has varying effects on voter ideology in different regions of the country. This trend also seems to parallel the regional trend discovered for the income effect. When Figures 3.2 and 3.5 are viewed side by side, the resemblance between the two becomes apparent:

Figure 3.6
Regional Comparison of the Income and Church Attendance Effects

Areas of the U.S. with a negative income effect (left map) are very likely to have a negative church attendance effect (right map). While this relationship does not hold perfectly, a general relationship cannot be overlooked. Voters who might be voting contrary to their income levels in the green areas are also displaying an inverse relationship between strong religious beliefs and conservative ideology.
5.0 Conclusion and Discussion

The above results suggest that individuals in some states may not be voting purely out of their economic interests. After undergoing ordered profit estimation using data from 1952-2004, coefficients on income are negative for a number of states indicating that lower incomes are associated with more conservative ideologies. Just as important, states with negative income effects are typically grouped together creating regional trends of the income coefficient. When this finding is viewed alongside the impact of church attendance across states, I also find that states with negative income effects typically also have negative church attendance effects.

The possibility that some groups of individuals are not maximizing their economic well being at the polls is somewhat radical given the existing literature. To say that voters are forgoing income to pursue a social agenda violates a large proportion of existing economic theory and empirical research that suggests that income is the primary determinant of political ideology. Most notably, my findings are inconsistent with Gelman et al. who find a positive income effect across all states.

Many factors could account for these contrasting findings as Gelman et al. utilize very different methodology than used in this study. While I use the ordered probit model used by McCarty et al., Gelman estimates a multilevel varying intercept, varying slope logistic model. This technique gives 50 state-level coefficients on income after estimation of the single model, whereas I estimate equation (2) on all 50 states. Additionally, Gelman measures voter preference in the dependent variable by either Democrat or Republican support in a given election. I capture voter preference by using the 1 to 7 score of political ideology. Other factors that could account for the differences include methods of treating missing data, measuring voter income, and including explanatory variables (race, religion, etc) in the model.
Taken together, these methodological differences could easily account for the inconsistencies between the two studies. While the idea that some individuals may be voting contrary to economic interests is empirically groundbreaking, a basis for this possibility has been created by Thomas Frank and other journalists. The regional income effect trends pictured in section 3 also add credibility to this finding for reasons outlined above.

If this inverse income effect accurately captures voter preference in some states and regions, there could be significant implications on future policymaking. As Frank argues, the taxation policies advocated by Republican politicians are not beneficial to low-income constituents voting on a conservative social agenda. Voters ignoring economic policy might end up with taxation levels harmful to their financial situation. This could lead to serious repercussions on both low-income workers and the socioeconomic makeup of the U.S. Similarly, social policy could also be affected if legislatures can draw votes by advocating an aggressive social agenda from constituents not concerned with economic issues.

It is still too early to make concrete claims about the income effect at the state level given the amount of research currently available. Very few empirical studies have included state or regional effects into their analysis, and only recently has sufficient data become available to obtain reliable coefficients on income and other factors. More work is certainly needed to better understand how various factors – including income, religion, and other variables – impact voter preference. That being said, this study opens the door to the possibility that not all citizens are voting to improve their financial position and might instead be more attenuated to other policy areas.
References


