

**A Method of Linking Surveys Using Affective “Signatures” with an Application to
Racial/Ethnic Groups in the U.S.**

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Abstract

Social scientists who study subgroups within a given population are frequently limited in the scope and breadth of their research questions due the quality of available survey data (i.e. inadequate sample size or lack of comprehensive questions). We address this problem by developing a procedure for linking respondents from different surveys based on their political evaluations of stimuli. We use an individual's responses to a set of feeling thermometer questions, in light of previous researching noting their accuracy in measuring an individual's *subjective utility*. This technique is applied to the 2004 National Annenberg Election survey and the 2004 American National Election Studies survey. Linking survey respondents based on their thermometer scores recovers the distributions on group demographics and group preferences across an array of issues. It also increases the sample size of these subgroups, thereby allowing for greater inferential power and systematic understanding of the subgroup(s) in question.

Introduction

The main problem that we address in this paper is of concern to social scientists in general but particularly for those whose area of research focuses on subgroups within a given population (e.g., combinations of gender, race, and ethnicity). Researchers who are interested in understanding subgroup behavior typically face a series of tradeoffs in their research design, most notably those pertaining to sample size and the types of questions available in public opinion surveys. In the research focusing on the impact of racial cues on public opinion, for example, Mendelberg (2008) finds a total of seventeen studies on this subject matter; of these studies, the average sample size is 281¹. Because of this issue, Mendelberg's (2001) research on the impact of implicit /explicit racial campaign messages on public opinion, which is perhaps the most notable work in this area, has recently become the subject of debate (see Huber and Lapinski 2006) due in large part to its small sample size.

To further illustrate this point, consider the 2004 National Annenberg Election Survey, which is a companion survey to the 2000 survey conducted by the Annenberg team of scholars at the University of Pennsylvania (Romer et al., 2006). This survey is highly desirable for most social scientists, as it contains more than 150 questions pertaining to an individual's political attitudes, behaviors and perceptions. Moreover, it interviews an extremely large number of individuals, more than 80,000; thus the number of subgroup populations captured is also sizeable – approximately 5,000 Hispanics and 7,000 Blacks. But a major drawback to this survey is that key questions pertaining to issue attitudes are simply phrased as yes/no responses. More fine-grained measures such as 7-point issue scale questions are not available in the Annenberg survey. On the other hand, the preeminent survey on American political

¹ These studies were either conducted as lab experiments or used public opinion surveys.

attitudes and behavior, the American National Election Survey (ANES), contains numerous 7-point issue scales, as well as a number of detailed issue questions and feeling thermometer questions. The main problem with this dataset is its small sample size (N = 1,212) and thus a limited sample of subgroup populations. In 2004, the NES interviewed 81 Hispanics, 180 Blacks, and 876 Whites.

This paper resolves these two concerns by developing a method that combines the desirable qualities of separate surveys by linking survey respondents based on their reported internal (subjective) utility for political stimuli. In our application, we combine the large sample size of the Annenberg survey and the detailed issue questions provided by the NES survey. By doing so, we are able to overcome the “small sample size” and “detailed question” tradeoff encountered by researchers studying subgroup populations.

More specifically, our method links survey respondents from the NES and the Annenberg surveys based on their responses to a set of ten feeling thermometer questions asked about politicians that are common to the two surveys. We use feeling thermometer questions since, as we will discuss in more detail below, they are likely to be the most accurate indicator of an individual’s *subjective utility* because they are measures of *affect*. Our method is quite simple -- we pair each Annenberg respondent to the NES respondent who most closely resembles his/her set of thermometer scores. This means that individuals are being linked to one another based on a vector of stimuli affect. When these individuals are paired based on these vectors of affect, we find that different groups (e.g. race/ethnicity, gender) possess distinctive affective signatures or patterns. Thus we can recover group characteristics quite accurately based solely on their affective signatures. We primarily focus on subgroup populations based on race and ethnicity, though this technique can certainly be applied to other subgroup populations.

We make several contributions to the existing literature. First, this method allows researchers interested in studying subgroup populations to attain a more in-depth and systematic understanding of their political attitudes and preferences. We also hope to reintroduce the usefulness of feeling thermometers to researchers who are not only interested in understanding voter attitudes and perceptions, but also for those who wish to study new methodological techniques.

In the next section, we discuss the literature on the various strands of research focusing on feeling thermometer questions. We then present our data and methods, followed by a discussion of our main findings. Next we provide an application of our technique as a means of assessing the policy preferences of Blacks, Hispanics, and Whites in the U.S. In the final section, we summarize our results and discuss further avenues for research.

Using Feeling Thermometers to Capture Affective Signatures

Feeling thermometer questions were originally developed for group evaluations by Aage Clausen and were first used in the American National Election Survey (ANES) in 1964. The group feeling thermometer questions were for Protestants, Catholics, Jews, Blacks, Whites, Southerners, big business, labor unions, liberals, and conservatives. Herbert Weisberg and Jerrold Rusk added feeling thermometer questions for individuals (either prominent politicians or candidates) in the 1968 ANES. A “feeling” thermometer asks respondents to respond to a set of stimuli (individuals or groups) based on their subjective views of warmth towards each of them. The thermometer ranges from 0 to 100 degrees with 100 indicating warm and very favorable feeling, 50 indicating neutrality towards the group/politician, and 0 indicating that the respondent feels cold and very unfavorable towards the group/politician.

Since its inception in the 1964 ANES, feeling thermometers have remained a constant not only in this preeminent survey on American political behavior and attitudes, but also in

other fields (e.g. psychology). Feeling thermometers emerged as a standard tool in survey-based political research for several reasons. As Weisberg and Rusk (1970) note, feeling thermometers allow respondents to evaluate candidates on “those dimensions which come naturally to them, [those] which are [their] normal guidelines for thinking about candidates.” Since feeling thermometers do not impose any types of frames on respondents, they can tap into those evaluative dimensions that they consider most important to them. Feeling thermometers have also been shown to accurately capture an individual’s affective sentiments (Weisberg and Rusk 1970). As such, we expect the responses from a set of feeling thermometers to be an excellent proxy for an individual’s internal subjective utility.

We assume that an individual’s reported “feeling” for a politician or group is generated by the individual’s subjective utility function over the relevant issue/policy space in question, along with all non-policy attributes, related to the individuals' psychological makeup. That is:

$$\text{Thermometer Score} = f[U_i(X, Z)]$$

where f is a simple mapping function that takes the subjective utility and translates it into the 0 – 100 scale, U_i is the utility function for individual i , X are the relevant issue/policy dimensions, and Z are dimensions such as "likeability", "leadership", and for racial/ethnic minorities, possibly a dimension pertaining to "ethnic group identity." The combination of X and Z is in part determined by the standard demographic characteristics that we are concerned with as social scientists. With respect to the X dimensions, we assume that, consistent with a standard spatial model of choice (Downs, 1957; Enelow and Hinich, 1984), the individual has an ideal point (or most preferred point) on each dimension. The Z dimensions are best thought of as *valence* dimensions (Enelow and Hinich, 1984); that is, either the politician/group has the attribute or not – likeable, not likeable; honest, corrupt; etc. Here we assume that individuals

prefer the positive side of the valence dimension and politicians/groups that have the attributes that produce a higher subjective utility.

When we pair respondents based upon sets of thermometers we are actually linking people with similar internal utility functions. If this logic holds, pairing respondents based on their feeling thermometer scores should be more accurate than pairing respondents based on demographics if what we are interested in is distributions of sub-populations over political issues.

Feeling thermometer questions sparked a great deal of research in the 1970s and early 1980s -- Weisberg and Rusk (1970), Wang, et al. (1975), Rabinowitz (1976), Cahoon, et al. (1978), Poole and Rosenthal (1984), Poole (1984, 1990) – with the main focus on modeling the latent dimensions underlying the thermometers as well as testing theories of spatial voting. Other scholars, such as Knight (1984), Giles and Evans (1986) and Wilcox, et al. (1989), explored the reasons behind the variations in feeling thermometer responses, and cautioned in the interpretation of these responses. This is because individuals can vary in their interpretation of the 0-100 scale; while some may choose to use the entire scale, others may restrict themselves to only a certain part of the scale (Wilcox, et al. 1989). As such, Knight (1984) recommends adjusting thermometer ratings for groups by subtracting the average score for an individual's set of responses from the score for the group of interest. Giles and Evans (1986) also suggest accounting for both the mean and standard deviation of the thermometer scores.

Since this burst of activity, thermometers have been relatively understudied in the past twenty years. In part, we hope to reintroduce the usefulness of feeling thermometers to researchers who are not only interested in understanding voter attitudes and perceptions, but also for those who wish to study new methodological techniques.

While our method is somewhat similar in spirit to the increasingly popular method known as matching, our procedure differs from this technique in several major ways. Essentially, what matching seeks to do is to compare individuals in a treatment group with similar individuals in a comparison or control group. The logic is that, after matching individuals from both groups based on specific background characteristics, then any difference that arises between these two groups can be attributed to the treatment being applied. For example, political scientists studying political behavior have long been interested in understanding whether voter mobilization efforts, such as being contacted by a campaign or receiving mailers, increase turnout (Arceneaux et al., 2006, Imai, 2005, Gerber and Green, 2000, 2005). One way of assessing the impact of voter contact on turnout is to match a treated group of individuals (those who were asked to vote) with a control group of individuals (those who were not asked to vote) based on background variables such as their age, levels of education, income, etc. Matching on these demographic characteristics should control for other factors that may influence their rates of turnout and thus, any differences in turnout could be attributed to mobilization efforts. In this regard, this procedure mirrors a controlled trial design experiment used by medical researchers.

While our method also “matches” individuals based on shared characteristics, which in our case are their responses to a set of feeling thermometer questions, our goal is not to identify a specific causal mechanism between a treated and untreated group. Instead, we “link” individuals based on their affective signatures as a way to make inferences on their political attitudes and opinions. Thus this procedure is particularly useful for researchers who are interested in assessing the attitudes and viewpoints of subgroups within the U.S. who are oftentimes under-sampled in many of the major public opinion surveys.

Another factor that distinguishes our technique from matching is that most, if not all, of the research using matching methods have done so by matching on observed data such as an individual's background characteristics (e.g. Greiner, 2006, Nickerson, 2005). Greiner (2006) examines a variety of civil rights legislation (e.g. employment discrimination, death penalty, and redistricting) by matching on the group's covariates. Likewise, Imai (2004) matches individuals based on their background characteristics in his reanalysis of Gerber and Green's well-known 2000 experiment on voter mobilization. On the same topic, Arceneaux et al. (2006) use matching methods in a voter mobilization experiment, and match on covariates pertaining to an individual's age, gender, household size, whether or not he/she is a newly registered voter and past voting rates. Most recently, Ho et al. (2007) developed a software application in R (*MatchIt*) that preprocesses data by matching on the control and treatment groups' background characteristics. While this technique is desirable as it can reduce bias and inefficiency, matching on a group's background characteristics is not the only observed data available to researchers. Thus, we expect that pairing survey respondents on observed variables beyond background characteristics is a realistic assumption.

Data and Methods

We use two datasets—the 2004 National Annenberg Election Survey and the 2004 NES. The 2004 NES interviewed 1,212 individuals. Respondents were asked to give thermometer ratings to fourteen political stimuli; George W. Bush, John Kerry, Ralph Nader, Richard Cheney, John Edwards, Laura Bush, Hillary Clinton, Bill Clinton, Colin Powell, John McCain, John Ashcroft, the Democratic Party, the Republican Party and Ronald Reagan.

The 2004 National Annenberg Election survey was designed as a rolling cross-sectional panel that was in the field from October 27, 2003 to November 16, 2004. The survey was conducted by Daniel Romer, Kate Kenski, Kenneth Winneg, Christopher Adasiewicz and

Kathleen Hall Jamieson of the Annenberg Public Policy Center of the University of Pennsylvania (Romer et al., 2006). There were 81,422 individuals who were randomly selected and then interviewed during this time period. Given the nature of the survey design, an average of 150-300 interviews were conducted on a daily basis.

Altogether, twenty thermometer questions were asked in the NAES. Respondents were asked to evaluate the following political figures: George W. Bush, John Kerry, Richard Cheney, John Edwards, Ralph Nader, Wesley Clark, Howard Dean, Richard Gephardt, Joe Lieberman, John Ashcroft, Laura Bush, Bill Clinton, Hillary Clinton, Rudy Giuliani, Albert Gore, Teresa Heinz Kerry, Rush Limbaugh, John McCain, Condoleezza Rice, and Arnold Schwarzenegger. Unfortunately, respondents were not asked to evaluate all of these individuals for each wave of the cross-sectional survey. And while some overlap exists in the thermometer questions used in the NES, they are not identical. Thus we only link respondents based on the ten feeling thermometer questions that were common to both data sets (Bush, Kerry, Cheney, Edwards, Nader, Laura Bush, Bill Clinton, Hillary Clinton, Ashcroft, and McCain). In the Annenberg, respondents were asked anywhere between 4-7 stimuli, while in the NES, they were asked all ten feeling thermometer questions.

Our formula for pairing respondents is quite straightforward. For each respondent in the larger yet less comprehensive sample (Annenberg), we search for the respondent in the smaller and more comprehensive sample (NES) with the closest set of thermometer scores for a given set of political stimuli. We identify the respondent whose *link score* minimizes the following expression:

$$Link\ Score = \frac{\sum_{k=1}^K |r_i - r_j|}{K}$$

where K denotes the number of political stimuli in common, r_i is the i th respondent in one of the surveys and r_j is the j th respondent in the other survey. If a respondent pairs perfectly to all of the stimuli, then his/her match score would be 0.

For example, suppose the Annenberg respondent answers five thermometer questions—he gives Bush a score of 100, Kerry 0, Cheney a score of 60, Edwards a score 40 and Bill Clinton a score 0. Our method then finds an NES respondent with the closest scores for all the stimuli. Thus, suppose an NES respondent gives Bush a score of 100, Kerry a score of 0, Cheney a score of 50, Edwards a score of 50, and Bill Clinton a score 0. Of these five answers, the Annenberg and NES respondent only differ on his/her scores for Cheney and Edwards. For this respondent, his/her link score would be:

$$\text{Link Score} = \frac{(|100-100|) + (|0-0|) + (|60-50|) + (|40-50|) + (|0-0|)}{5} = 4$$

If this is the lowest possible link score, then this is the NES respondent who is closest to this particular Annenberg respondent. Moreover, of the 61,980 Annenberg respondents with four or more thermometer scores, the algorithm recovered 10, 246 (16.5%) NES respondents with identical sets of thermometer scores. Figure 1 presents the distribution of our link score.

[Figure 1 goes here]

As Figure 1 demonstrates, the link score ranges from a minimum of 0, indicating a perfect score, to a maximum of 25. The average link score is 3.38, with a standard deviation of 2.74. Considering that an individual responded to an average number of approximately 4.6 stimuli (with a standard deviation of .70), this means the average link score is off on average by less than 1 unit on the 0-100 scale.²

² Given that the Annenberg is much larger than the NES, certain NES respondents pair up with the Annenberg respondents more so than others. The frequency of these pairings range from 2-645.

Findings

In the analyses we present below, we are mainly interested in determining how closely the distributions of the linked Annenberg respondents (who, because of our procedure, now have responses to all of the questions from the NES survey) compare with the distributions from respondents in the NES data as well as those in the Annenberg data. Such comparisons allow us to evaluate the accuracy and effectiveness of our linking procedure. We can think of the respondents from our linked data as having “hypothetically answered” all of the questions from the 2004 NES survey.

But before turning to these distributions, it is worthwhile to know whom the respondents from the Hispanic, Black and White samples in the linked data paired up with in the NES data. That is, we are interested in determining whether Blacks from the NES were primarily linked with Blacks in the Annenberg, and whether the majority of Hispanics from the linked data map onto Hispanic respondents in the NES data. The breakdown of Hispanics, Blacks and Whites in the linked data is as follows: 45,892 Whites, 8,630 Blacks and 3,457 Hispanics. For Hispanics in the linked data, 244 NES Hispanics paired up with them, and the number of NES Black respondents who were paired with Hispanics was 330. This means that the majority of Hispanic respondents from the linked dataset were actually Whites from the NES (2,810). The same is true for the Black sample in our linked dataset; 6,373 were paired with White respondents from the NES, 1,413 with Blacks and 781 with Hispanics. Finally, for the White sample in our linked data, the majority (39,805) mapped onto the affective signatures of White NES respondents, 2,667 Black NES respondents, and 2,536 NES Hispanic respondents. Given that the distribution in the NES is heavily skewed towards Whites, it is understandable why the majority of Blacks and Hispanics from the linked data mapped onto

the subjective utilities of Whites. These distributions suggest that demographic characteristics do not necessarily predict an individual's subjective internal utility function.

We now turn to Table 1, which offers several comparisons of demographic distributions (based on race, gender, age and education) for our linked sample, the original Annenberg survey, and the original NES survey. The gender distribution in the linked data is 44.8% male and 55.2% female, which is similar to the NES breakdown – 46.7% male and 53.3% female. The breakdown for a respondent's education level is also quite close across the three sets of data, though it is not as precise as the gender breakdowns. In terms of race/ethnicity, the percentage of Blacks appears to be overrepresented in our linked sample (13.9%) relative to both the Annenberg (8%) and NES sample (9.9%). This suggests that several Blacks in the NES sample had affective “signatures” that linked many non-Blacks (mostly Whites) in the Annenberg sample. However, it is impressive that the percentage of Blacks in the linked data is nearly identical to the actual percentage of Blacks in the U.S. population, 13.4%.³ The percentage of Whites in the linked sample is somewhat lower than it is for the other two datasets, 74% compared to 83.3% and 78%. The Hispanic sample is much closer, with 5.6% in the linked data, 7.5% in the Annenberg and 6.7% in the NES. In this case, these percentages underestimate the actual Hispanic population in the U.S., as they now comprise 15% of the total population.⁴ And finally for Asians the percentage in each dataset is very similar though it underestimates their actual share of the total U.S. population, which is 5%. The final demographic variable that we consider is age. Here, the linked, Annenberg and NES data are just about identical, with an average age of 48 in both the Annenberg and the linked data and 47.3 in the NES. Overall, this initial check makes us reasonably confident that

³ Estimates from the U.S. Census 2008, http://www.census.gov/PressRelease/www/releases/archives/facts_for_features_special_editions/010969.html

⁴ Estimate from: <http://www.census.gov/population/www/socdemo/hispanic/hispanic.html>

our technique is doing an adequate job of recovering the distributions of demographic characteristics.

[Table 1 goes here]

Several additional checks are presented in Table 2, in which we compare distributions on vote choice by racial/ethnic group.⁵ Overall, the vote choice distributions for all three datasets are quite comparable. In the linked data, 54.1% of Hispanics supported Kerry, relative to 60.5% of Hispanics in the NES sample and 57.8% of Hispanics in the Annenberg voting for Kerry. The linked estimate matches the closest to predictions from the Nation Election Pool (NEP), which estimates Hispanic support for Kerry at 53.3%. A somewhat greater discrepancy emerges with respect to the Hispanic distributions on their support for Bush, with the linked data estimating 43.5%, the NES estimating 34.9% and the Annenberg reporting 26.6% of Hispanics voting for Bush. The NEP estimated 44% of the Hispanic vote going to Bush, which is the largest share that any Republican presidential candidate has ever received from the Hispanic electorate. The distribution for Whites in the linked data slightly underestimates their support for Kerry, relative to the other two datasets. And note that the percentage of Whites supporting Bush is nearly identical for all three datasets. But in terms of actual support for Bush, for which the NEP estimated at 58.1%, the linked estimates are once again the closest. Turning to the vote choice distributions for Blacks, the percentage of support for Kerry (85.5%) is located in between the estimates from the Annenberg and the NES, 91.5% and 84.5%, respectively. Blacks' support for Bush was also comparable in the linked and the NES data, 10.4% and 12.1% respectively. A lower percentage of Blacks in the Annenberg

⁵ The number of observations in the Annenberg data is significantly smaller than the linked data since the question of vote choice was not asked of all the survey respondents. This question was only asked in the interview period right before the 2004 general election.

survey, however, reported voting for Bush (7.3%). Again, these estimates are quite close to those from the NEP – 88.3% of Blacks voted for Kerry, and 11% supported Bush.

[Table 2 goes here]

Another way to determine how well the thermometer scores capture an individual's internal utility function is to look at the distributions of the ethnic/racial group thermometers in the NES for Whites, Blacks and Hispanics. These thermometer questions simply ask respondents how they feel towards “Whites”, “Blacks”, and “Hispanics”. If these feeling thermometers are really tapping into an individual's preferences, we would expect that for each ethnic group, on average, they would feel best about their own group. We present these distributions in Table 3 for both the linked data and for the original NES data. First, we see that consistent with our expectations, each group evaluates their own group the highest. For example, when evaluating their own group, Blacks' average thermometer score is 88.5 in the linked data and 87 in the NES data. Blacks then feel warmest towards Whites, followed by Hispanics. Likewise, Hispanics rate themselves the highest with a mean score of 82.9. But unlike Blacks, after their own group, Hispanics feel warmest towards Blacks and then Whites. For Whites, they too rate themselves the highest, followed by Blacks and then Hispanics. Notice, though, that across these three racial/ethnic groups, it is Blacks who evaluate their own group with the highest score (88.5), followed by Hispanics (82.9) and then Whites (73.8). Blacks may feel “warmest” towards their own group due to their shared historical experiences of discrimination in the U.S., which as Dawson (1995) argues, has created a very powerful and cohesive black group identity. On the other hand, given that the term Hispanic is a panethnic label that encompasses individuals from various Spanish-speaking countries of origin, their level of group cohesiveness and identity may not be as strong as it is for Blacks. Table 3 also

reveals how close the distributions from the linked data are to the distributions from the NES data. Again, this gives us increasing confidence in the effectiveness of our procedure.

[Table 3 goes here]

We now move on to Table 4, which looks at the responses from the nine 7-point issue scale questions. In particular, we compare the mean responses of our respondents from the linked data with the mean responses of our respondents from the NES, by their race/ethnicity, gender, and vote choice (Bush or Kerry). Recall that the Annenberg data did not contain any of these 7-point issue scale questions; as such, the row entries in Table 4 represent Annenberg survey respondents who have now “answered” the NES 7-point issue scale questions as a result of our linking procedure.

[Table 4 goes here]

These issue scale questions ask individuals to place themselves on a 1-7 point scale on a number of different issues, ranging from the U.S. intervention in Iraq to government aid in assisting Blacks and Hispanics.⁶ Only the end points of the 7-point scales are labeled and respondents are told these (usually) polar opposite positions. For example, the “government services” question is phrased in the following manner: “Some people think the government should provide fewer services even in areas such as health and education in order to reduce spending. Suppose these people are at one end of a scale, at point 1. Other people feel it is important for the government to provide many more services even if it means an increase in spending. Suppose these people are at the other end, at point 7. And, of course, some other people have opinions somewhere in between, at points 2, 3, 4, 5 or 6.”⁷

⁶ Respondents are also asked to place candidates on these 7-point issue scale questions, making it possible to calculate the distance between an individual’s position on an issue from their placement of the candidate’s position on that issue.

⁷ The appendix contains the complete wording for all the 7-point issue scale questions that we examine.

As these distributions indicate, the mean responses appear to be quite similar across these different subgroup populations. Responses by Hispanics, Blacks, and Whites in the linked data are nearly identical to those in the NES for the scaling questions pertaining to government services, defense spending, jobs, aid to blacks, the environment, and aid to Hispanics. Likewise, the distributions of the mean responses to the other demographic subgroup that we examine, gender, are comparable in both sets of data. For example, in the scaling question that asks about women's role in society, the mean response in the linked dataset for women is 1.90, and the average response of women from the NES is 1.88. The mean response by men in the linked data is 1.94 and in the NES, men's mean response is 1.96. In fact, the largest discrepancy in the NES and the linked distributions, based on gender, is only .48. Finally, we examine Kerry supporters versus those who supported Bush in 2004. Once again we find that the average responses to these 7-point issue scale questions from the two datasets are almost identical to one another, with the largest difference between them being .18. More importantly, this technique also increases, by a rather significant amount, the sample size of the racial/ethnic groups in the sample.

Next, we compare the distributions to an issue question common to both the NES and the Annenberg survey. This is a particularly rigorous way to test the validity of our procedure because if the distribution on the linked respondents, who are in fact the Annenberg respondents answering the NES question, reproduces a similar distribution to that of the Annenberg respondents, then we have every reason to believe that linking individuals based on subjective utility can recover groups' distributions on policy preferences and attitudes. Thus, in Table 5, we present the distributions to this common issue question, which is one pertaining to opinions on George W. Bush's handling the economy (approve or disapprove). We also include the distributions from the NES survey, in order to check whether the linked distributions reflect the

Annenberg distribution more so than the NES. As in our presentation of previous distributions, we look at groups' opinions, by race/ethnicity and gender.

[Table 5 goes here]

What is striking about these distributions is how well the linked data recovers the gender and racial/ethnic group distributions of the Annenberg survey. For instance, the distributions by race/ethnicity in the linked dataset are 36.5% for Hispanics, 50.4% for Whites and 10.7% for Blacks, and in the Annenberg data, this breakdown is 43.9%, 48.6% and 13.7%, respectively. Moreover, the distributions by gender are comparable in the linked and in the Annenberg data – 44.8% of men in the linked data approved the President's performance on the economy while 48.5% of men in the Annenberg data held this opinion. The comparison on the distributions for women is even more precise– 41.5% in the linked data and 42% in the Annenberg.

Another way to check the validity of our linking procedure is to compare the issue distributions from our linked data with a completely independent data source. By doing so, we can compare how well our linking procedure recovers the issue preferences and attitudes of subgroups reported in other public opinion surveys. We examine two sets of data from the Pew Research Center for the People and the Press, one taken in 2004 and the other conducted in 2006.⁸ The 2004 Pew survey is ideal since it was administered in the same year as the Annenberg survey, although the sample size of Blacks and Hispanics is rather small (N <200). As a result, we also look at data from the 2006 Pew Immigration Survey, as it interviewed a much larger number of Blacks and Hispanics. The issue question common to all three surveys pertains to presidential approval ratings. Table 6 presents these distributions, by a respondent's race/ethnicity.

⁸ Both of these datasets are available at: <http://people-press.org/dataarchive/#2006>

[Table 6 goes here]

Notice that the distributions on presidential approval in the linked data are very similar to the distributions on presidential approval from 2006 Pew survey data.⁹ And relative to the 2004 Pew data, the distributions are also quite comparable to one another. For instance, in the linked data, we see that 89.2% of Blacks disapproved of Bush, while 83.1% of Blacks in the 2004 Pew and 88.5% of Blacks in the 2006 Pew responded in the same fashion. For Hispanics, 62.5% from the linked data disapproved of Bush, 55.9% from the 2004 Pew, and 63.8% from the 2006 Pew. Finally, 51.8% of Whites approved of Bush in the linked data, 56.8% in the 2004 Pew data, and 55.6% in the 2006 Pew data. This level of precision helps to validate our procedure and provides us with considerable reassurance that, by linking individuals based on their affective signatures, their political attitudes can be accurately recovered.

In Table 7, we continue to compare the distributions on questions from our linked dataset with the distributions on questions from yet another independent data source-- the 2000 National Annenberg Election Survey Data (2000 NAES). Here, we look at questions pertaining to attitudes towards the level of government spending on public schools and their position on the death penalty. We also compare one question that is unrelated to a respondent's political attitudes, whether or not the respondent has health insurance, to determine whether thermometer scores can recover attributes aside from affect.

[Table 7 goes here]

The 2000 NAES distribution on public school spending for Whites is similar to the distribution from the linked data. The same is true for the distributions for Blacks and Hispanics, though slightly more variance exists for these two subgroups. In terms of their

⁹ This is probably due to the fact that the 2006 Pew Survey interviewed a larger number of Latinos than in the 2004 survey, since the 2006 survey focused on immigration.

position on the death penalty, the distributions for Whites are nearly identical (78.8% in the linked data and 78.4% in the 2000 NAES), yet for Blacks, a larger percentage favors the death penalty in the NAES than in the linked data (53.2% versus 41%). On the other hand, a greater percentage of Hispanics in the linked data, 71.4%, support the death penalty when compared to the percentage of Hispanics with this same position in the 2000 NAES (62%). Finally, the distributions pertaining to a respondent's health insurance status are remarkable in that they are almost identical to one another; this is especially true in the distributions for whites, with 88% in the linked data and 88.9% in the 2000 NAES possessing health insurance. Moreover, 80.1% of Blacks in the linked data report having health insurance, and a similar percentage of Blacks from the 2000 NAES (83.4%) are also in possession of health insurance. And for Hispanics, we see that 75.9% from the linked data have health insurance, compared to 69.2% from the 2000 NAES data. The comparability of these distributions for this question is particularly impressive considering that we expected thermometer scores to only measure levels of affect. However, the fact that they recover group characteristics beyond demographics and political attitudes suggests that these thermometer scores are tapping into more than just measures of affect, but perhaps the overall personality "types" of these subgroups.

An Application of the Linking Procedure

Given all of these reality checks, we now use the information in the linked data to examine the factors influencing the presidential vote decision for Hispanics, Latinos, and Blacks in 2004. In particular, using probit analysis, we estimate a vote choice model for each group, where the dependent variable is the probability of voting for Bush, and the independent variables consist of political and demographic controls, as well as the 7-point issue scale

questions.¹⁰ Here, we analyze the vote choice of the actual Annenberg respondents, while the control variables are from the linked dataset.

Before we discuss the probit estimates, Table 8 presents the distributions of the linked and NES samples over four of the 7-point issue scale questions – health insurance, government spending, U.S. intervention and government aid to blacks. Using these issue scale questions to draw any types of reliable inferences on minority policy preferences have been nearly impossible to do so until now, given the extremely small number of Hispanics and Blacks interviewed in the NES.

[Table 8 goes here]

Not only are these distributions consistent with previous research on minority political behavior (e.g. Dawson 1994), but they also serve to further validate our linking procedure. First, notice that Blacks, more than any other group, believe that the government needs to play a larger role in providing health insurance to the American population. And consistent with this perspective, a much larger percentage of Blacks favor an increase in government spending on social services as well as aid to Blacks than do Hispanics or Whites.

In addition, across these three racial/ethnic groups, the overall distributions from the linked sample (recall that these are Annenberg respondents “answering” NES questions) reproduce the NES distributions exceptionally well. Take for instance the distribution of White opinions on health insurance. In the linked data and the NES they are comparable at almost every point on the scale, with the largest difference being 2.6%. The distribution of Black and Hispanic opinions on this issue in the linked and the NES data are also quite similar,

¹⁰ For the independent variables, ideology is coded as a 7-point scale, with 1 indicating liberal, and 7 conservative. Partisanship is also coded as a 7-point scale, with 1 being Democrat and 7 being Republican. Education is a categorical variable, going from low to high education. Gender is a dummy variable, with 1 indicating female respondents and 0 being male respondents. The dependent variable is coded as 1 for those voting for Bush, and 0 for those who supported Kerry.

though at the tail ends of the scale we see some differences. For instance, 46.1% of Blacks place themselves at “1” in the linked data, but only 31.5% of Blacks from the NES do so. Moreover, 16.3% of Hispanics in the linked sample place themselves at “3” on the health insurance scale, though a larger percentage of Hispanics, 22.7%, place themselves on this same value in the NES. But at every other point on this scale, the distributions on Black and Hispanic opinions towards the provision of health insurance in both the linked and the NES data are comparable. For the other three 7-point issue scale distributions, we see a similar pattern as well. Thus with relatively few exceptions, the linked distributions reproduce the NES distributions quite closely on a question that the Annenberg respondents “hypothetically” answered as a result of our technique.

Turning to the probit estimates, which are presented in Table 9, we see that, along with the standard predictors of vote choice such as partisanship and ideology, the 7-point issue scale questions also influence the vote choice for all three groups. For Hispanics, four of the five coefficient estimates on the issue scale questions are statistically significant and signed in the expected directions. For example, the coefficient on government aid to Hispanics and government health insurance are both positively signed and statistical significant. Thus Hispanics who favor less government involvement, in the form of aid to Hispanics and provision of health insurance, are more likely to vote for Bush than for Kerry. Moreover, as denoted by the positive and significant coefficient on U.S. military intervention (.27), Hispanics who support the use of military force in Iraq increase their probability of voting for Bush.

[Table 9 goes here]

These issue scale questions also help us to understand Black voting behavior in the 2004 presidential election. In fact, all five of the issue scale coefficients reached statistical

significance in the vote choice model for Blacks. As we would expect, those who are against special efforts by the government to assist Blacks increase their probability of voting for Bush, while Blacks favoring U.S. military intervention are more likely to support Bush over Kerry. And finally, for Whites, we see that three of the five issue scale questions help to predict their vote choice. Their positions on government aid to Blacks, government assistance to Hispanics, and the use of military force in Iraq influence their likelihood of supporting Bush in the 2004 election. Overall, this straightforward application of the linked data demonstrates just one of the many new inferences that can be made about these subgroup populations in the U.S.

Because of the small samples of Blacks and Hispanics in the 2004 NES we are fairly confident that the distribution of our much larger linked samples over the 7-point scales more accurately represent the distribution of Blacks and Hispanics in the general population. We recognize that that this depends upon our claim that our linking procedure can ignore race/ethnicity by matching on subjective utility. As such, we are oftentimes assigning Whites' attitudes on policy issues in the NES to Blacks or Hispanics in the Annenberg survey. However, our claim is not that radical nor is it a big leap of faith. Note that it boils down to saying that many Whites share the opinions of Blacks and Hispanics (note the distributions of the NES respondents from the three groups greatly overlap in Table 8) and our subjective utility method simply matches some Whites with some Blacks and some Hispanics who share the same opinions.

Conclusion

In this paper, we have outlined a method for linking respondents from different surveys based on their subjective *utility* for salient political figures. In particular we use feeling thermometer questions, as they are an accurate measure of an individual's *subjective utility* since they are measures of *affect*. In applying our technique to the 2004 Annenberg survey and

the 2004 NES survey, we find that pairing survey respondents based on their thermometer scores not only recovers the distributions on group demographics such as race/ethnicity, gender, and education extremely well but also reproduces group distributions across an array of political attitudes and opinions. We also performed a number of validity checks to ensure that the linking procedure produced reliable estimates—most notably, we compared the group distributions in the linked data with group distributions from two independent data sources. The linking technique withstood all of these external validity checks, providing us with ample reassurance that both the theoretical and methodological aspects of the linking procedure are valid.

We then presented a simple application of our technique by estimating Hispanic, Black, and White vote choice based on their positions on the 7-point issue scale questions. Recall that these scaling questions were not part of the original Annenberg survey, and thus by applying the linking procedure, we revealed the importance of these issue preferences on racial/ethnic group voting behavior. Our procedure also enables researchers to apply more sophisticated statistical methods (see Poole 1998, Aldrich and McKelvey 1977) on these racial/ethnic groups. In particular, the availability of these issue scale questions and the large sample size of these subgroups are particularly useful in testing spatial theories of voting, as these groups' underlying preferences (and degree of dimensionality) have yet to be explored. This line of research is especially relevant in light of the increasingly growing immigrant population in the U.S., as their political socialization processes and orientation to politics markedly differs from those of native-born Americans.¹¹

¹¹ Currently, Hispanics comprise 15% of the U.S. population, and it is projected that 40% of this population is foreign-born. Asians comprise 5% of the U.S. population.

While the application of our linking procedure focused on subgroup populations based on race/ethnicity, state and local politics scholars can also benefit from this technique as they too face sampling issues when using public opinion surveys (see Brace, et al. 2004 as an example). Finally, this technique enriches and expands the work on matching methods and survey research more broadly, as we demonstrate that linking individuals based on their affective signatures can accurately predict their political attitudes.

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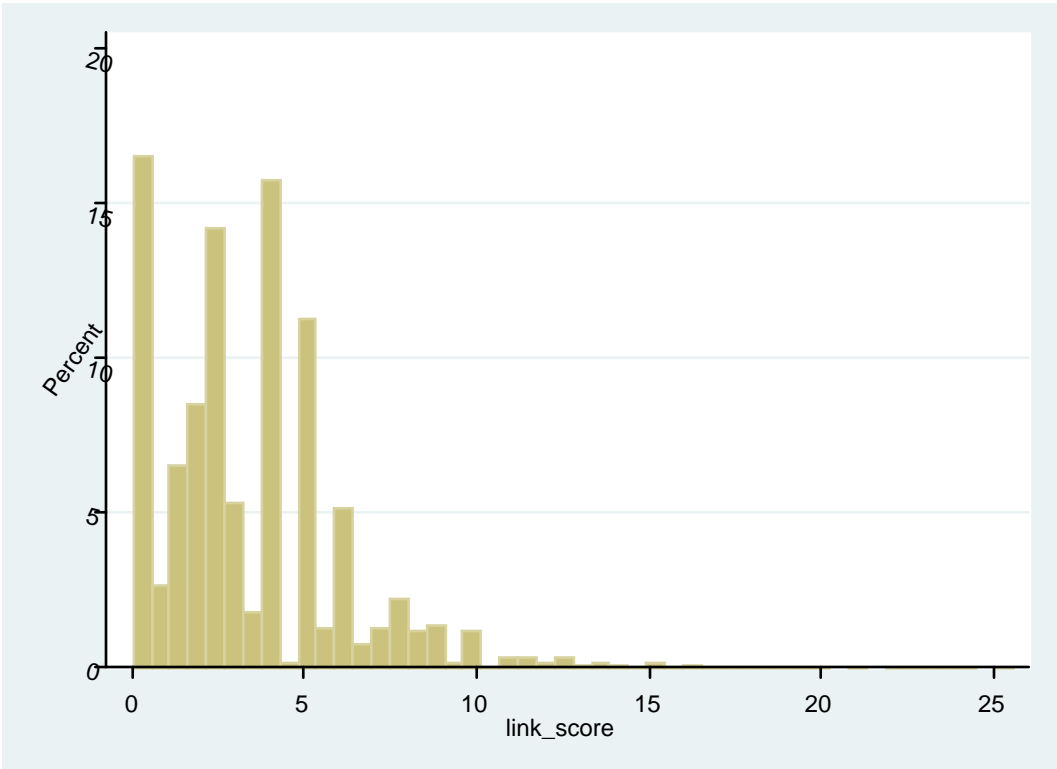


Figure 1: Link Score Distribution

Table 1: Distribution of Demographic Indicators in the Linked, Annenberg and NES Data

	Linked	Annenberg	NES
Gender (%)			
Male	44.8	44.7	46.7
Female	55.2	55.3	53.3
Education (%)			
8th or less	2.5	2.0	3.1
9-11th grade	4.8	5.3	6.0
HS degree	30.5	25.6	29.3
Some college	23.5	17.7	21.8
2yr college	9.3	7.9	9.9
BA	17.8	20.0	18.4
Advanced	11.5	14.4	11.5
Race/Ethnicity (%)			
Black	13.9	8.0	9.9
Asian	2.0	1.5	1.6
White	74.0	83.3	78.0
Hispanic	5.6	7.5	6.7
Age (mean)	48.0	48.0	47.3
N	62,000	81,422	1,212

Cell entries, with exceptions where noted, are column percentages.

Table 2: Vote Choice Distributions, by ethnic/racial group

Cell entries in rows 3-5 are row percentages, and do not equal to 100% since some respondents reported voting for Nader or chose to vote for “other”.

Race/Ethnicity	Vote Choice (Linked)*		Vote Choice (NES)		Vote Choice (Annenberg)	
	Kerry	Bush	Kerry	Bush	Kerry	Bush
Hispanic	54.1	43.5	60.5	34.9	57.8	26.6
Black	85.5	10.4	84.5	12.1	91.5	7.3
White	38.0	58.6	40.0	57.6	43.5	55.0
<i>N</i>	27,797	29,407	399	412	1036	1113

*The vote choice question is from the NES survey.

Table 3: Group Thermometer Evaluations, by Ethnic/Racial Group

	Group Thermometer Scores Towards...							
R's Race	<i>Hispanics</i>		<i>Blacks</i>		<i>Whites</i>		<i>N</i>	
	Linked	NES	Linked	NES	Linked	NES	Linked	NES
Hispanic	82.9 (14.0)	82.7 (15.5)	74.2 (20.1)	75.8 (18.7)	70.7 (19.6)	74.2 (18.3)	2814	66
Black	67.1 (17.5)	68.8 (18.2)	88.5 (14.7)	87.0 (15.5)	71.7 (23.0)	72.3 (20.0)	6971	154
White	66.6 (19.1)	66.6 (19.3)	68.9 (18.8)	69.2 (18.4)	74.3 (19.2)	73.8 (19.2)	39736	763

For entries reported in columns 2-7: cell entries in parenthesis denote the standard deviation, while cell entries not in parenthesis are the mean thermometer scores for each respondent's racial/ethnic group.

Table 4: Comparison of Mean Responses to 7-point Issue Scales, Linked vs. NES Data

	Gov't Spending 7pt scale		Defense Spending 7pt scale		Gov't Jobs 7pt scale		Gov't Aid to Blacks 7pt scale		Env't vs. Jobs 7pt Scale		Women's Role 7pt scale		Govt vs. Private Health Insur 7pt Scale	
Race	Linked	NES	Linked	NES	Linked	NES	Linked	NES	Linked	NES	Linked	NES	Linked	NES
Hispanic	4.52	4.57	4.58	4.49	4.13	4.28	4.29	4.28	3.73	3.82	1.54	1.53	3.58	3.42
Black	5.41	5.25	4.42	4.30	3.15	3.31	3.13	3.31	3.66	3.71	1.65	2.01	2.82	3.31
White	4.38	4.36	4.76	4.65	4.45	4.82	4.88	4.82	3.54	3.58	2.00	1.93	3.79	3.78
Gender														
Men	4.26	4.32	4.84	4.74	4.49	4.61	4.70	4.61	3.50	3.52	1.94	1.96	3.79	3.79
Women	4.75	4.69	4.53	4.41	4.00	4.48	4.47	4.48	3.59	3.66	1.90	1.88	3.46	3.54
Vote Choice														
Bush	3.89	3.71	5.30	5.19	5.06	5.17	5.34	5.30	4.03	4.04	2.22	2.17	4.35	4.41
Kerry	5.15	5.07	4.03	3.89	3.38	3.49	3.77	3.88	2.98	3.02	1.60	1.72	2.88	3.06
<i>N</i>	53232	1060	53877	1061	56384	1103	54459	1073	51536	1019	59117	1157	56160	1112

	Gov't aid to Hispanics 7pt scale		U.S. Intervention 7-pt scale	
Race	Linked	NES	Linked	NES
Hispanic	3.61	3.68	3.86	3.65
Black	3.76	3.84	2.99	3.19
White	4.91	4.92	3.98	3.93
Gender				
Men	4.75	4.71	4.15	3.98
Women	4.60	4.62	3.47	3.55
Vote Choice				
Bush	5.20	5.15	4.72	4.67
Kerry	3.97	4.17	2.79	2.81
<i>N</i>	48290	937	53013	1041

Cell entries, with the exception of the final row, denote the mean response to a 7-point issue scale question. Responses to these questions ranged from 1-7.

Table 5: Distribution of Linked, Annenberg and NES Data on a common issue question

	<i>Approve of the way the President is handling the economy (% Approving)</i>		
Race	Linked	NES	Annenberg
Hispanic	36.5	35.8	43.9
Black	10.7	12.8	13.7
White	50.4	47.3	48.6
Gender			
Men	44.3	43.1	48.5
Women	41.5	38.1	42.0
Aggregate	42.8	40.4	44.9
<i>N</i>	61948	1121	84,122

Table 6: Presidential Approval Ratings, by Race/Ethnicity

	Blacks			Hispanics			Whites		
<i>Presidential Approval Rating</i>	Pew '06	Pew '04	Linked Data	Pew '06	Pew '04	Linked Data	Pew '06	Pew '04	Linked Data
Approve	11.5	16.9	10.8	36.2	44.1	37.5	55.6	56.8	51.8
Disapprove	88.5	83.1	89.2	63.8	55.9	62.5	44.4	43.2	48.2
<i>N</i>	686	260	8,562	698	179	3361	4,514	2218	44577

Source: Pew Research Center for the People and the Press, Biennial Media Consumption Survey (June 2004) and Pew Research Center for the People and the Press & Pew Hispanic Center, 2006 Immigration Survey.

Cell entries in rows 4-5 are column percentages.

Table 7: Comparison of Identical Questions, Linked Data and NAES 2000 Data

	Blacks		Hispanics		Whites	
	Linked	NAES '00	Linked	NAES '00	Linked	NAES '00
<i>Public School Spending</i>						
More	94.4	88.2	90.0	82.4	69.1	64.9
Same	4.2	10.5	10.0	14.7	24.6	25.7
Less	1.5	0.8	--	2.2	6.2	5.7
None	0.0	0.6	--	0.7	0.1	3.7
N	8516	3432	3457	3221	45,647	32,640
<i>Death Penalty</i>						
Favor	41.0	53.2	71.4	62.0	78.8	78.4
Oppose	59.0	46.8	28.6	38.0	21.2	21.6
N	8133	1588	3098	1447	44,491	15,287
<i>R Has Health Insurance</i>						
Yes	80.1	83.4	75.5	69.2	88.0	88.9
No	19.9	16.7	24.6	30.8	12.0	11.1
N	8630	3718	3438	3527	45,892	35,729

Source: 2000 National Annenberg Election Survey (NAES). Cell entries are percentages, with the exception of those denoting the number of observations.

Table 8: Distribution of 7-Point Issue Scale Questions, by Race/Ethnicity

<i>7-point issue scale</i>	Blacks		Hispanics		Whites	
	Linked	NES	Linked	NES	Linked	NES
<i>Health Insurance</i>						
1 (<i>Gov't</i>)	46.1	31.5	21.8	19.7	18.0	16.6
2	7.1	9.4	5.6	9.1	12.1	13.0
3	8.1	9.4	16.3	22.7	11.1	13.7
4	17.2	22.0	26.3	22.7	21.1	19.3
5	8.7	11.3	17.2	15.2	15.9	16.0
6	4.6	6.9	5.3	4.6	12.7	12.8
7 (<i>Individual/Private</i>)	8.2	9.4	7.6	6.1	9.1	8.7
N	7761	159	2556	66	42,152	820
<i>Gov't Spending</i>						
1 (<i>Decrease</i>)	2.9	3.4	9.4	6.0	5.2	4.9
2	1.0	1.3	1.8	4.5	8.4	8.1
3	4.2	4.0	7.2	10.5	12.8	13.4
4	23.1	25.5	32.5	26.9	26.9	26.8
5	17.6	20.1	20.0	22.4	22.1	24.2
6	15.3	15.4	16.0	17.9	12.8	12.0
7 (<i>Increase</i>)	35.9	30.2	13.1	11.9	11.7	10.6
N	6457	149	2921	67	40,092	776
<i>U.S. Intervention</i>						
1 (<i>Diplomacy</i>)	32.3	29.0	21.2	19.7	13.7	12.8
2	7.5	9.2	7.5	13.6	8.8	9.6
3	15.4	13.7	5.8	6.1	13.7	14.3
4	32.2	29.0	27.5	27.3	23.8	25.6
5	4.7	7.6	16.9	18.2	20.5	19.3
6	2.4	3.8	9.6	6.1	8.8	9.1
7 (<i>Military Force</i>)	5.5	7.6	11.5	9.1	10.8	9.2
N	6327	131	2987	66	40186	781
<i>Aid to Blacks</i>						
1 (<i>Gov' Aid</i>)	30.9	28.2	12.7	7.5	5.4	4.7
2	9.0	9.8	5.2	9.0	3.7	4.5
3	7.8	10.4	12.7	11.9	7.0	8.4
4	33.8	27.6	22.3	28.4	26.5	25.5
5	11.9	12.3	17.9	16.4	16.1	17.8
6	0.4	1.2	15.5	16.4	21.2	21.2
7 (<i>No Aid</i>)	6.3	10.4	13.7	10.5	20.2	17.9
N	7957	163	2627	67	40,597	782

Note: Cell entries are column percentages, with the exception of those denoting the number of observations.

Table 9: Probit Estimates: Probability of Voting for Bush in 2004, by Race/Ethnicity

Variable	<i>Latinos</i>	<i>Whites</i>	<i>Blacks</i>
Constant	-3.06* (.92)	-3.01* (.13)	-1.53 (.35)
<i>Political & Demographics</i>			
Conservative	.06 (.09)	.17* (.01)	-.12** (.05)
Strong Republican	.70* (.06)	.48* (.01)	.48* (.05)
Female	-.46** (.22)	.23* (.03)	-.22** (.11)
Highly Educated	-.22* (.06)	-.05* (.01)	-.10* (.04)
<i>7-pt Issue Scales</i>			
No Government Aid to Blacks	-.19*** (.10)	.07* (.01)	.15* (.03)
No Government Aid to Hispanics	.15* (.06)	-.04* (.01)	-.07* (.03)
No Government Health Insurance	.20* (.06)	.00 (.01)	-.10* (.03)
U.S. Military Intervention	.27* (.06)	.27* (.01)	.12* (.03)
Increase Government Spending	.12 (.09)	-.02 (.01)	.09** (.04)
Log-Likelihood	-158.65	-4124.95	-448.52
N	893	14,165	1334

Entries not in parenthesis are coefficient estimates; entries in () denote the corresponding standard error of the corresponding the coefficient.

* Estimate significant at $p < .01$ level, **Estimate significant at $p < .05$ level, ***Estimate significant at $p < .05$ level

Appendix

7-point issue scale questions

Intervention-diplomacy in Iraq: “Some people believe the United States should solve international problems by using diplomacy and other forms of international pressure and use military force only if absolutely necessary. Suppose we put such people at "1" on this scale. Others believe diplomacy and pressure often fail and the US must be ready to use military force. Suppose we put them at number 7. And of course others fall in positions in-between, at points 2, 3, 4, 5, and 6.”

Government spending: “Some people think the government should provide fewer services even in areas such as health and education in order to reduce spending. Suppose these people are at one end of a scale, at point 1. Other people feel it is important for the government to provide many more services even if it means an increase in spending. Suppose these people are at the other end, at point 7. And, of course, some other people have opinions somewhere in between, at points 2, 3, 4, 5 or 6.”

Defense Spending: “Some people believe that we should spend much less money for defense. Suppose these people are at one end of a scale, at point 1. Others feel that defense spending should be greatly increased. Suppose these people are at the other end, at point 7. And, of course, some other people have opinions somewhere in between, at points 2, 3, 4, 5 or 6.”

Government vs. private health insurance: “There is much concern about the rapid rise in medical and hospital costs. Some people feel there should be a government insurance plan which would cover all medical and hospital expenses for everyone. Suppose these people are at one end of a scale, at point 1. Others feel that all medical expenses should be paid by individuals through private insurance plans like Blue Cross or other company paid plans. Suppose these people are at the other end, at point 7. And, of course, some other people have opinions somewhere in between, at points 2, 3, 4, 5, or 6.”

Jobs: “Some people feel the government in Washington should see to it that every person has a job and a good standard of living. Suppose these people are at one end of a scale, at point 1. Others think the government should just let each person get ahead on their own. Suppose these people are at the other end, at point 7. And, of course, some other people have opinions somewhere in between, at points 2, 3, 4, 5, or 6.”

Aid to Blacks: “Some people feel that the government in Washington should make every effort to improve the social and economic position of blacks. (Suppose these people are at one end of a scale, at point 1.) Others feel that the government should not make any special effort to help blacks because they should help themselves. (Suppose these people are at the other end, at point 7.) And, of course, some other people have opinions somewhere in between, at points 2, 3, 4, 5, or 6.”

Aid to Hispanics: “Some people feel that the government in Washington should make every effort to improve the social and economic position of Hispanics. (Suppose these people are at

one end of a scale, at point 1.) Others feel that the government should not make any special effort to help Hispanics because they should help themselves. (Suppose these people are at the other end, at point 7.) And, of course, some other people have opinions somewhere in between, at points 2, 3, 4, 5, or 6.”

Environment vs. Jobs: “Some people think it is important to protect the environment even if it costs some jobs or otherwise reduces our standard of living. (Suppose these people are at one end of the scale, at point number 1) Other people think that protecting the environment is not as important as maintaining jobs and our standard of living. (Suppose these people are at the other end of the scale, at point number 7.) And of course, some other people have opinions somewhere in between, at points 2, 3, 4, 5, or 6.”

Women’s role in society: Recently there has been a lot of talk about women's rights. Some people feel that women should have an equal role with men in running business, industry, and government. (Suppose these people are at one end of a scale, at point 1.) Others feel that a woman's place is in the home. (Suppose these people are at the other end, at point 7.) And, of course, some other people have opinions somewhere in between, at points 2, 3, 4, 5 or 6.