RECONSIDERING THE LINKAGE BETWEEN PUBLIC ASSISTANCE AND PUBLIC OPINION IN THE AMERICAN WELFARE STATE

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ABSTRACT

Previous research by Schneider and Jacoby (2003) has demonstrated the existence of a correlation between welfare participation and political attitudes within the American mass public. However, the underlying structure of this empirical relationship has never been tested directly. Therefore, important questions remain: Does welfare participation really shape the attitudes of program beneficiaries? Or, do the policy attitudes of welfare recipients affect their reliance on public assistance programs? In this research note, we use some unique survey data from the 1992 CPS National Election Study to examine these questions. The empirical results show that program beneficiaries are significantly more supportive of the kinds of policies that provide them with tangible benefits. However, policy attitudes have no effect on welfare participation. Confirming Schneider and Jacoby’s earlier findings, we conclude that people who rely on governmental assistance take rational, self-interested positions on the public policy issues which operate to their own direct benefits.
In an article published in this journal, Schneider and Jacoby (2003) examine whether American welfare recipients possess beliefs and attitudes that differ from mainstream public opinion. Although their findings cast doubt on the existence of a widespread “culture of dependence,” they do show that program beneficiaries exhibit self-interested support for governmental policies that provide assistance to needy segments of the population. However, their analysis—like most others on this topic—assumes that welfare participation affects opinions and not vice versa. This is problematic because there are theoretical reasons to believe that influences flow in the opposite direction, as well. Therefore, some important questions remain to be answered: Is it really the case that welfare participation, itself, shapes the outlooks of program beneficiaries? Or, do political attitudes affect reliance on public assistance in the first place?

In this research note, we examine the underlying structure of the relationship between welfare participation and attitudes toward government activity. Our analysis uses the 1992 CPS National Election Study, the same dataset employed by Schneider and Jacoby (2003). But, we test a statistical model that allows for reciprocal influences between welfare and public opinion. The empirical results reinforce the earlier conclusion that welfare participation has an impact on mass attitudes. Conversely, political attitudes have no effect on whether citizens use public aid. Mirroring Schneider and Jacoby (2003), we find that people who rely on governmental assistance take rational, self-interested positions on the public policy issues which operate to their own direct benefits.

**BACKGROUND**

Several empirical studies have shown that public assistance and public opinion are, in fact, related to each other. For example, individual receipt of means-tested welfare benefits is
associated with support for expansion of those benefits (Cook and Barrett 1992), lower levels of political participation (Verba, Schlozman, and Brady 1995), favorable attitudes toward government spending (Jacoby 2000), and a stronger sense about the efficacy of personal political action (Soss 1999, 2000). Thus, the existence of a correlation between welfare participation and politically-relevant beliefs and attitudes is not really a matter of dispute. However, there is no clear scholarly consensus about the underlying sources of this connection.

One commonly-cited explanation for the impact of public assistance on political attitudes is the supposed existence of a broad culture of dependence (Lewis 1961, 1966; Friedman 1962; Murray 1984). Stated very briefly, this perspective holds that welfare dependence fosters undesirable psychological attributes among program recipients (Becker 1981). Among other things, people who receive public benefits supposedly develop a paternalistic view toward government; they view the public sector as the source of redress for all manner of personal as well as societal problems (Mead 1997). By implication, recipients should favor more activist governmental policies.

Schneider and Jacoby (2003) demonstrate that there is little systematic empirical support for the culture of dependence hypothesis. Their analysis shows that the impact of welfare participation on citizens’ social and political orientations is quite weak and narrowly confined to a few specific policy attitudes. They argue that this is inconsistent with the pervasive effects that should result from a true culture of dependence.

Instead, Schneider and Jacoby (2003) point to self-interest as an alternative explanation for the relationship between welfare and public opinion. People who receive governmental benefits should support the programs that provide them, while non-recipients should oppose the use of public resources for programs with no personal payoffs. The “clear, substantial costs and
benefits” associated with welfare create precisely the kind of situation where such effects are most likely to emerge (Sears and Funk 1990), even though they are relatively rare in public opinion more generally.

Schneider and Jacoby’s conclusions must be qualified somewhat because their analysis is based upon a recursive structure in which the effects run from welfare participation to attitudes and not vice versa. But, this model specification does not allow for the possibility that political orientations, themselves, could affect individual participation in welfare programs. And, there are theoretical reasons to suggest that this might be the case.

For example, the latter direction of influence is implied by the view that the poor are qualitatively different from the rest of society: Their attitudes about interpersonal relationships, individual obligations, and governmental responsibilities are based upon their distinctive disadvantaged status, relative to the more affluent strata of the population (Murray 1984). According to this perspective, poor people believe that society owes them something—food, shelter, income, medical care, and so on (Mead 1986). This translates into political attitudes that are supportive of governmental programs. Consequently, people enter the welfare system because they believe that they are entitled to receive public support (Gans 1995).

From a different perspective, the general literature on political participation shows that citizen-initiated activity is heavily conditioned by beliefs about governmental responsiveness (Verba and Nie 1971; Verba, Schlozman, and Brady 1995). People who believe that public officials will listen to them are more likely than others to contact those officials in the first place. This same phenomenon may extend to voluntary enrollment in public assistance programs. Those with positive feelings about the welfare system probably anticipate better treatment from
Thus, the underlying structure of the relationship between public assistance and political attitudes remains unclear. None of the previous studies have really addressed this question. Some researchers make no attempt at systematic empirical analysis (Murray 1984; Mead 1986, 1997). Other analysts use a priori assumptions to justify the specification of their statistical models (Cook and Barrett 1992; Soss 1999; 2000; Schneider and Jacoby 2003). To our knowledge, no one has tested the potential for reciprocal relationships between these two phenomena. That is precisely our objective in the remainder of this research note.

**DATA AND METHODS**

Our interest lies primarily in the simultaneous relationships between public assistance and political attitudes. However, welfare participation and psychological orientations toward governmental activity are also affected by a number of other factors. The latter must be taken into account in any statistical analysis. Fortunately, information sufficient for doing so is contained in the CPS 1992 American National Election Study.

The general structure of our model is shown in Figure 1. First, consider the two endogenous variables, the main focus of our analysis. Welfare participation is a dichotomous variable, coded one for anyone receiving benefits from means-tested governmental programs and zero for all non-recipients. Policy attitudes are measured via a two-item scale created from responses to questions about government guaranteed jobs and the tradeoff between government services and spending. The scale is coded so that higher values correspond to greater opposition to governmental activity in these areas.
Moving on to the exogenous variables, we begin with individual demographic characteristics. These include: Income (in thousands of dollars), number of children in the home, length of time the respondent has lived at his/her current residence (in years), and dummy variables for occupational status (coded one for respondents who are unemployed), race (one for African Americans), gender (one for females), marital status (one for unmarried respondents), and home ownership (one for non-owners). We also include an extra dichotomous variable, coded one for anyone who is simultaneously single, female, and unemployed with children in the home, and coded zero otherwise.

The reason for selecting this particular set of demographic variables is to capture the major eligibility criteria for U.S. welfare programs. As such, these variables constitute unambiguously exogenous determinants of reliance on governmental benefits. Note that the model does not include a direct path from the demographic variables to policy attitudes. This specification is based upon the long line of research by Sears and his colleagues, which demonstrates clearly that self interest stemming from personal life circumstances generally has no effect on political attitudes (e.g., Sears and Funk 1990).

The second set of variables is comprised of individual feelings about two core values: Egalitarianism and moral traditionalism. These variables are measured using multiple-item scales in which larger scores correspond to greater support for equal opportunity and for accepted, conventional life styles, respectively. Value orientations like these are widely believed to be some of the fundamental building blocks of human behavior (e.g., Rokeach 1973), influencing virtually all aspects of everyday life (e.g., Schwartz 1996). As such, these two variables are hypothesized to exert direct effects on both welfare participation and policy attitudes.
The third set of variables is composed of affective reactions toward several groups and institutions in American society. Specifically, we employ feeling thermometer responses toward poor people, Blacks, people on welfare, and the federal government. The reasoning here is based upon the “likability heuristic” proposed by Brady and Sniderman (1985). Feelings about the providers and recipients of welfare services function as easy cues for individuals to determine their own attitudes about those services (Schneider and Ingram 1993). At the same time, these feelings may also affect a person’s overt behavior— that is, their willingness to receive welfare benefits, themselves. For these reasons, affective reactions toward groups and institutions are specified to have an impact on both endogenous variables in the model.

Symbolic political predispositions comprise a fourth set of exogenous variables. We employ party identification, ideological self-placement, and symbolic racism. The former two variables are measured using the standard seven-point scales, with larger values corresponding to more Republican and conservative positions, respectively. Symbolic racism is operationalized as a four-item summated rating scale coded so that higher values represent stronger manifestations of “modern racism” (Sears 1988; Kinder and Sanders 1996). A long line of research has demonstrated repeatedly that these symbolic predispositions are among the strongest determinants of issue attitudes among the American mass public (Sears 1993).

The various structural linkages depicted in Figure 1 are all justified on theoretical grounds. However, the resultant model is nonrecursive because of the reciprocal paths of influence between welfare participation and attitudes. Fortunately, this does not pose any insurmountable barriers: Each of the endogenous variables is affected directly by some, but not all, of the exogenous variables. And, fortuitously, this implies that there is sufficient information to obtain unique estimates of the model’s coefficients.
If both of the endogenous variables were continuous, then we could employ relatively standard estimation procedures, such as two-stage least squares. However, there is an additional complication in this model because one of the endogenous variables—welfare participation—is a dichotomy. Hence, methods based upon linear relationships are not appropriate. Instead, we use a probit model for the welfare participation equation, and estimate the coefficients using the two-stage conditional maximum likelihood (2SCML) approach developed by Rivers and Vuong (1988) and advocated by Alvarez (1997). The structural equation for political attitudes is estimated using two-stage probit least squares (2SPLS), a simple generalization of standard two-stage least squares methodology.

**EMPIRICAL RESULTS**

The quality of the estimates in any nonrecursive model is dependent upon the degree to which the data conform to the assumptions used for identification (i.e., the ability to obtain unique estimates of the model parameters). In this context, the instrumental variables used to identify each structural equation must be correlated with the endogenous explanatory variable and uncorrelated with the disturbance term for that equation. Fortunately, the data used here conform very nicely to these requirements. First, the exogenous variables are definitely correlated with the endogenous explanatory variables. In the first-stage probit estimates, six of the eighteen exogenous variables have a significant impact on welfare participation (0.05 level) and the pseudo-$R^2$ value for the equation is 0.363. In the first-stage regression, twelve of the eighteen exogenous variables have a significant impact on political attitudes (0.05 level) and the equation produces an $R^2$ of 0.299.

Second, the assumptions about the instrumental variables do appear to be adequate for model identification purposes. The Sargan test produces a chi-square statistic that can be used to
assess the validity of instruments in a structural equation (Gujarati 2003, p. 713). The null hypothesis in this test is that all the instrumental variables that are omitted from an equation are uncorrelated with the disturbance term in that equation. Rejection of this null hypothesis implies that at least one instrumental variable is correlated with the disturbance. Here, the observed probability values for the Sargan test statistics are 0.195 and 0.072 for the structural equations predicting welfare participation and policy attitudes, respectively. Thus, in both cases, the null hypothesis would not be rejected at any reasonable level of statistical significance. So, the exclusion restrictions built into the model provide a valid mechanism for identifying and estimating the coefficients.

Table 1 shows the 2SPLS results for the determinants of political attitudes. The equation fits the data quite well with an $R^2$ of 0.290 and the estimates are all very reasonable in substantive terms. For present purposes, the most important result is the coefficient for welfare participation. The 2SPLS estimate is negative and statistically significant. Therefore, program beneficiaries are more favorable than nonrecipients toward an activist federal government.

Moving on to the other independent variables in Table 1, the coefficient for egalitarianism is negative and statistically significant, while the coefficient for moral traditionalism is positive and significant. Given the coding of these variables, this shows that people who favor equal opportunity are also more supportive of governmental services, while those who adhere to moral traditionalism are opposed to federal activity. The negative coefficients for the various feeling thermometers indicate that people with positive reactions toward welfare recipients, African Americans, poor people, and the federal government are all more favorable toward governmental activity. Note, however, that only the coefficients for the latter two variables are statistically different from zero. Finally, the positive and statistically
significant coefficients for party identification, ideology, and symbolic racism confirm that Republicans, conservatives, and people with relatively racist orientations all show greater opposition toward government-guaranteed jobs, spending, and social services.

Table 2 shows the 2SCML estimates for the equation predicting welfare participation. Note that the last coefficient in the table (labeled “First-stage residuals”) is a by-product of the estimation procedure and is not amenable to substantive interpretation on its own. Apart from this feature, the results are interpreted as in other probit analysis.

Once again, the equation fits the data quite well with a pseudo $R^2$ value of 0.363. The most important result within the context of this study is the positive coefficient on the attitude variable. This suggests that people who are more opposed to governmental activity are also more likely to receive public assistance— an unexpected and completely nonsensical result. But, the coefficient does not achieve statistical significance. So, it is almost certainly due to sampling error and cannot be interpreted as a “real” effect.

The strongest determinants of public aid receipt in Table 2 are low income, unemployment, larger numbers of children in the home, and minority racial status. Female gender, home ownership, and single marital status also have statistically significant effects. However, they are very small in magnitude. The remaining three demographic variables— length of time at residence, marital status, and the combination variable— all show very little, if any, impact.

Interestingly, the two values have no effect. The coefficients for egalitarianism and moral traditionalism show the expected signs, but they are tiny in magnitude and they do not approach statistical significance. This result is, perhaps, somewhat surprising. But, it is fully consistent with the growing body of evidence which suggests that the impact of core values on human
behavior is more limited than was hypothesized in earlier social psychological theories (e.g., Maio and Olson 1998; Jacoby 2006).

Group evaluations have a discernible, but limited, impact on welfare participation. The coefficients for feelings about welfare recipients and the federal government are both positive and statistically significant. Apparently, feelings about program beneficiaries and about the source of welfare services help determine whether people will obtain benefits themselves. On the other hand, feelings about poor people and African Americans have no effect; the coefficients for these variables are tiny and nonsignificant.

Probit coefficients are difficult to interpret in their original form, and this problem is exacerbated by the nonrecursive nature of the model. Therefore, it is useful to convey the central results from Table 2 in terms of predicted probabilities. Figure 2 does so in graphical form. The figure shows the predicted probability of welfare participation across the range of values on the political attitude variable, along with the 95% confidence band around this prediction. The remaining independent variables are held constant at their mean values.

The major feature of this display is the nearly horizontal orientation of the predicted probability curve. The slight, positive slope near the right side of the curve shows that the predicted probability of receiving welfare participation is highest among those who exhibit the most negative attitudes toward governmental services—again, this is a result that is contrary to reasonable substantive expectations. But, the latter should not be taken very seriously since the effect is not statistically significant. In graphical terms, a perfectly flat curve would fit very easily within the confidence band shown in Figure 2. This confirms that the likelihood of receiving public assistance just does not covary with political attitudes.
DISCUSSION AND CONCLUSIONS

The results produced by our empirical analysis are unambiguous: Policy attitudes have no impact whatsoever on welfare participation. By testing explicitly for the latter relationship, we overcome a potentially serious weakness in Schneider and Jacoby’s (2003) earlier study. Nevertheless, the estimates from the current, nonrecursive, model confirm their basic conclusions very nicely.

It is not that the receipt of public assistance is completely devoid of individual-level affective influences. However, the relevant attitudes are highly focused and specific to the immediate actors within the welfare system. This is fully consistent with other research which shows that negative feelings about government and about program beneficiaries function as one of the primary impediments to individual welfare enrollments (Verba, Scholzman, and Brady 1995; Zucchino 1997; Hays 2003; Soss 2000; DeParle 2004; Shipler 2004). In contrast, attitudes about more general stimuli— the poor, African Americans, and (most important, for present purposes) public policies that provide ameliorative services— have no effect on program participation.

Our results show that welfare recipients clearly recognize the connection between their personal situations and the services that government provides them. Understandably enough, people come to support the kinds of programs that provide them with direct and personal returns. In other words, this is a manifestation of self interest. While such a finding is intuitively reasonable, it is somewhat surprising in light of prior research. A long line of studies strongly indicates that self-interest effects are largely nonexistent in American public opinion. And some of the earlier analyses that reach this conclusion examined precisely the same issues that we
do—government spending and government-guaranteed jobs (Sears, Lau, Tyler, and Allen 1980; Sears and Lau 1983; Sears and Citrin 1985).

But, why do we find self-interest effects when many others did not? The reason is straightforward: We have an unusually direct and accurate measure of self interest. Reliance on public aid creates an immediate and obvious stake in government activity (Soss 1999; 2000). This is precisely the kind of situation where self-interest effects are most likely to emerge (Sears and Funk 1990).

It is also important to emphasize what we did not find in the empirical analysis. Again, policy attitudes have no effect on welfare participation. Our results show that, once we take socioeconomic background and feelings about welfare actors into account, orientations toward governmental responsibilities are unrelated to the likelihood of receiving public assistance. People who believe the government has an obligation to provide social services are no more or less likely to participate in welfare programs than are those who maintain the opposite view of the public sector’s role.

This, in turn, provides strong evidence against the more general argument that “the poor are different” from the rest of society in terms of their outlook toward governmental activity. There is simply nothing to suggest that disadvantaged people believe public services are due to them as a basic right of citizenship. Thus, a major premise of conservative attacks on the American welfare state seems to lack an empirical foundation.

Nevertheless, the preceding line of thinking is exactly what led to the sweeping reforms of the American welfare system that were carried out under the Personal Responsibility and Work Opportunity Act of 1996. It is almost impossible to overstate the extreme, vitriolic nature of the debates on this topic. For example, Sidel (1996) reports that during the 1995
Congressional debates over social program spending, certain U.S. Representatives called welfare recipients “wolves” and “alligators” who were unable to take care of themselves. The empirical results from this study offer a direct contradiction to such negative and demeaning characterizations of the people who rely on public aid. Thus, one of the broadest and most important public policy changes in recent years seems to be based, at least in part, upon a flawed premise regarding the target population.

Why, then, do so many people—scholars, political elites, and ordinary citizens alike—continue to focus on negative stereotypes of welfare recipients? We believe that there are three reasons for such widespread misperceptions. First, there is simple political expediency. As several scholars have pointed out, conservatives find the supposedly detrimental impact of welfare on individuals to be a potent symbol (Harrington 1962; Piven and Cloward 1993; Gans 1995). It provides a ready justification for reducing the size of government, particularly the scope of social programs, without appearing to be cruel and uncaring about individual needs.

Second, the very idea of welfare is contradictory to the predominant ideology underlying American political culture (Hartz 1955, Rimlinger 1971; McClosky and Zaller 1984). Throughout society, liberals as well as conservatives are highly ambivalent about public assistance programs because they are inimical to the fundamental principles of individualism, self-motivation, and the work ethic (Feldman and Zaller 1992). Such contradictions are more easily resolved by focusing on the characteristics of the individual recipients rather than by questioning the viability of the overall social and political system. Thus, derogatory characterizations of welfare recipients provide a palatable rationalization for some persistent societal problems (Schneider and Ingram 1993).
The third factor contributing to the widespread belief that only “certain kinds of people” participate in welfare programs is issue framing. The mass media tend to cover poverty and related issues in episodic rather than thematic terms (Iyengar 1991; Gilens 1999). That is, they focus on specific cases and events rather than broad, ongoing processes and structures. This has a direct impact on popular understandings of social problems. Iyengar states that “the predominant news frame for poverty has the effect of shifting responsibility from society to the poor” (1991, p. 67), while Gilens argues that “racial distortions in the media’s coverage of poverty are largely responsible for public misperceptions of the poor” (1999, p. 6). With an ongoing stream of such messages, it is not at all surprising that negative stereotypes about welfare recipients persist.

Thus, we can identify a number of reasons why mistaken beliefs about the poor continue to function as one of the most prominent counterattacks against the modern American welfare state. It is important to emphasize that this ongoing phenomenon does not stem entirely from mass ignorance. Instead, there are clear political, cultural, and institutional factors that perpetuate its existence. The latter can all operate without systematic empirical support. Taken together, they generate a widespread misconception that stigmatizes the poor and needy strata within American society.

Overall, the relationship between citizens and the American welfare system is based upon realistic considerations. Our analysis confirms that people seek public assistance because of direct economic need, along with specific beliefs about the kinds of people they will encounter. Program participation is not based upon more general psychological predispositions (Auletta 1982; Zucchino 1997). Once they enter the system, however, welfare recipients are distinctly supportive of the programs that provide them with benefits (Cook and Barrett 1992; Schneider
and Jacoby 2003). Of course, lacking individual-level longitudinal data, we cannot establish definitively a causal connection. Nevertheless, people appear to be acting consistently in ways that maximize their personal utilities. From a strictly economic perspective, individual participation in the American welfare system seems to be a highly rational enterprise.
NOTES

1. The 1992 National Election Study interview schedule included a battery of ten questions, with each item worded as follows: “Do you (or any family member living with you) currently receive payments from ___?” The ten programs mentioned in the questions were: Social Security, Food Stamps, Medicare, Medicaid, Unemployment Insurance, Aid to Families with Dependent Children, Veterans’ Benefits, Government Retirement Pensions, Disability Insurance, and Workmen’s Compensation. Anyone who said they received Food Stamps, Medicaid, or Aid to Families with Dependent Children was coded one on the welfare participation variable. Everyone else was assigned a zero.

2. The two variables that comprise the scale are both measured using familiar NES question formats. On the government spending variable, respondents were asked to place themselves along a seven-point scale ranging from “Government should provide many fewer services and reduce spending a lot” to “Government should provide many more services and increase spending a lot.” Responses to the guaranteed jobs question were coded on a similar seven-point scale, ranging from “Government should see that every person has a job and a good standard of living” to “Government should let each person get ahead on their own.” Responses are recoded so that smaller numerical values indicate preferences for increased spending/services and stronger support for guaranteed jobs, respectively. The correlation between the responses to these two variables is 0.34, producing a reliability coefficient for the scale (Cronbach’s alpha) of 0.51.

3. The six statements used to create the egalitarianism scale are: “Our society should do whatever is necessary to make sure that everyone has an equal opportunity to succeed.” “We have gone too far in pushing equal rights in this country.” “This country would be better off...
if we worried less about how equal people are.” “It is not really that big a problem if some people have more of a chance in life than others.” “If people were treated more equally in this country we would have many fewer problems.” “One of the big problems in this country is that we don’t give everyone an equal chance.” Responses to these statements are recorded on a five-point scale ranging from “agree strongly” to “disagree strongly.” The first, fifth, and sixth items are reflected to provide consistency in the direction of responses. For each respondent, the mean of the separate response scores is used to create the egalitarianism scale. This measure has a reliability of 0.71 (Cronbach’s alpha). The five statements used to create the moral traditionalism scale are: “The world is always changing and we should adjust our view of moral behavior to those changes.” “We should be more tolerant of people who choose to live according to their own moral standards even if they are very different from our own.” “This country would have many fewer problems if there were more emphasis on traditional family ties.” “The newer lifestyles are contributing to the breakdown of our society.” “It is always wrong for a married person to have sexual relations with someone other than their marriage partner.” Responses to these statements are, again, recorded on a five-point scale. Here, the last three items reversed for consistency in direction. The scale scores are obtained by taking the mean of each individual’s separate responses. This measure of moral traditionalism has an alpha of 0.67.

4. Feeling thermometers are used in the NES to measure general affective reactions toward various political figures and groups. Respondents are asked to place each stimulus on a zero-to-one hundred scale, with larger values indicating “warmer” (more positive) feelings and smaller values for “cooler” (more negative) feelings. A value of 50 is reserved for stimuli toward which the respondents feels neutral.
5. The specific statements used to create the symbolic racism scale are: “Irish, Italian, Jewish, and many other minorities overcame prejudice and worked their way up. Blacks should do the same without any special favors.” “Over the past few years, blacks have gotten less than they deserve.” “It’s really a matter of some people not trying hard enough; if blacks would only try harder they would be just as well off as whites.” “Generations of slavery and discrimination have created conditions that make it difficult for blacks to work their way out of the lower class.” Responses to these statements are recorded on a five-point scale from “agree strongly” to “disagree strongly.” The second and fourth items are reflected to insure consistency in the direction of responses. For each respondent, the mean of the separate responses is used to create the single measure of symbolic racism. This scale has a reliability of 0.75 (Cronbach’s alpha).

6. Two-stage conditional maximum likelihood estimation produces consistent, efficient estimates of the coefficients in the probit equation. It also generates relatively accurate measures of the standard errors for these coefficients (Alvarez and Glasgow 2000). The procedure can be implemented very easily. In the first stage, the endogenous independent variable (political attitudes, in this case) is regressed on all exogenous variables in the model. The residuals from this first-stage regression are then included as a separate predictor in the second-stage probit equation, along with the other independent variables.

7. In two-stage probit least squares, the first stage involves a probit equation with the endogenous categorical predictor (welfare participation, in this case) expressed as a function of all exogenous variables in the model. The linear predicted values from this equation then replace the actual categorical independent variable in the second stage. The coefficient
estimates from the 2SPLS procedure are consistent and efficient, while unbiased estimates of
the standard errors can be obtained using a very simple procedure outlined by Achen (1986).

8. Complete results for the first-stage equations are available on the authors’ web sites.
REFERENCES


Table 1: The determinants of political attitudes.

<table>
<thead>
<tr>
<th>Welfare Participation</th>
<th>2SPLS Coefficient Estimates</th>
<th>Standard Errors</th>
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<tbody>
<tr>
<td>Receiving public assistance</td>
<td>-0.189*</td>
<td>0.026</td>
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Core Values

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<th>2SPLS Coefficient Estimates</th>
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<tr>
<td>Egalitarianism</td>
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<td>Moral traditionalism</td>
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Feeling Thermometers

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<th>2SPLS Coefficient Estimates</th>
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<tr>
<td>Poor people</td>
<td>-0.005*</td>
<td>0.002</td>
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<tr>
<td>African Americans</td>
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<tr>
<td>People on welfare</td>
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<td>0.002</td>
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<tr>
<td>Federal government</td>
<td>-0.006*</td>
<td>0.002</td>
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Symbolic Predispositions

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<th>2SPLS Coefficient Estimates</th>
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<td>Party identification</td>
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<td>Symbolic racism</td>
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Intercept 3.518 0.375

R² 0.290

Number of observations 1414

* Coefficient is statistically different from zero, 0.05 level, one-sided test.

Data Source: 1992 CPS American National Election Study.
Table 2: The determinants of welfare participation.

<table>
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<td>Female</td>
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<td>Unemployed</td>
<td>0.778*</td>
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<td>Not married</td>
<td>-0.240*</td>
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<td>Number of children in home</td>
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<td>0.003</td>
</tr>
<tr>
<td>First stage residuals</td>
<td>-0.104</td>
<td>0.049</td>
</tr>
<tr>
<td>Intercept</td>
<td>-2.494</td>
<td>1.213</td>
</tr>
<tr>
<td>Pseudo R²</td>
<td>0.363</td>
<td></td>
</tr>
<tr>
<td>Number of observations</td>
<td>1414</td>
<td></td>
</tr>
</tbody>
</table>

* Coefficients with asterisks are significantly different from zero, 0.05 level, one-sided test. The likelihood-ratio chi-square for the equation is 298.57, with an observed probability value less than 0.0000.

Data Source: 1992 CPS National Election Study.
**Figure 1**: Nonrecursive model of the relationship between welfare participation and policy attitudes.
**Figure 2:** Predicted probability of individual welfare participation across the range of attitudes toward government activity.

**Note:** The solid line in the figure shows the predicted probabilities obtained from the 2SCML probit estimation of the equation with welfare participation as the dependent variable, demographic characteristics and attitude toward government activity as independent variables. The dotted lines show the 95% confidence band for the predicted probabilities.