Group Loyalty and the Taste for Redistribution

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Interpersonal preferences—preferences that depend on the characteristics of others—are typically hard to infer from observable individual behavior. As an alternative approach, this paper uses survey data to investigate interpersonal preferences. I show that self-reported attitudes toward welfare spending are determined not only by financial self-interest but also by interpersonal preferences. These interpersonal preferences are characterized by a negative exposure effect—individuals decrease their support for welfare as the welfare recipiency rate in their community rises—and racial group loyalty—individuals increase their support for welfare spending as the share of local recipients from their own racial group rises. These findings help to explain why levels of welfare benefits are relatively low in racially heterogeneous states.

I. Introduction

This paper examines determinants of individual support for welfare spending in the United States. By using self-reported attitudes from the General Social Survey (GSS), I show that individuals' preferences for income redistribution are not only determined by financial self-interest but also affected by the characteristics of others around them. These interpersonal preferences are characterized by two main properties. The first property is a *negative exposure effect:* individuals decrease their sup-

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port for welfare as the welfare recipiency rate in their community rises. The second property is *racial group loyalty:* individuals increase their support for welfare spending as the share of local recipients from their own racial group rises. This paper does not interpret racial group loyalty as being driven by biological differences between racial groups. Rather it views race as a measure of a social group that the respondent identifies with. Groups along other dimensions, such as religion, may also give rise to group loyalty, but this is harder to measure empirically because of data constraints. Both the exposure effect and racial group loyalty hold for recipiency rates at the state, metropolitan statistical area (MSA), and tract levels, indicating that interpersonal effects operate at several geographic levels. In addition, my results confirm earlier findings that suggest that individuals most likely to receive welfare express more support (Husted 1989; Di Tella and MacCulloch 1997).

The GSS provides repeated cross sections over a 20-year period with information on respondents' demographic characteristics as well as their opinions on the right level of welfare spending. I match the GSS data with information from the decennial censuses, including the level and composition of welfare recipiency in the individual's area, which may be a state, metropolitan area, or census tract.

I examine the validity of the self-reported measure of welfare support by comparing it to voting behavior on a ballot proposition for welfare cuts in California. I find that the same demographic characteristics that increase the likelihood of voting against welfare cuts in California also raise the probability of reporting a preference for more welfare spending. This suggests that the use of self-reported preferences can complement approaches in which preferences are inferred from observed behavior.

To mitigate concerns that omitted variables drive the results, all specifications include individual demographic controls, MSA, and year fixed effects. Moreover, racial group loyalty is equally strong among richer individuals, who are very unlikely to be welfare recipients themselves. This rules out that this own-race bias simply reflects that individuals surrounded by many welfare recipients of the same race are more likely to receive welfare themselves and therefore support welfare spending more strongly. Finally, the results are robust to instrumenting for welfare recipiency rates in an individual's census tract using the interaction between individual characteristics and the pattern of race and income segregation in the MSA, which provides a further indication that the results are not simply driven by Tiebout bias.

Many articles have documented empirical relationships between the racial composition of states or cities and their levels of public spending, but evidence on the forces behind such relationships is limited (Orr 1976; Cutler, Elmendorf, and Zeckhauser 1993; Ribar and Wilhelm 1996;

Poterba 1997; Alesina, Baqir, and Easterly 1999). I find that over 30 percent of the variation in levels of welfare benefits across states can be explained by applying my estimates of interpersonal preferences to the differences in the demographic composition of states. Hence, interpersonal preferences seem to transform differences in racial composition into differences in redistribution within the United States. Easterly and Levine (1997) find that ethnically fragmented countries provide fewer public services (which often have a redistributive character), and there is a striking difference in levels of redistribution between relatively homogeneous European countries and the ethnically more diverse United States. The results in this paper suggest that interpersonal preferences may help explain this cross-country relationship between redistribution and ethnic heterogeneity.

II. Data

Nearly every year since 1972, the General Social Survey has polled people about a wide variety of questions concerning demographics, opinions, and behaviors. Each year's sample is an independent cross section of the noninstitutionalized population of English-speaking persons 18 years and older living in the United States (Davis and Smith 1994). I focus on a survey module asking respondents whether they think that government spending on various programs is too low, about right, or too high.[1] Support for welfare spending (WelfPref) is coded as 0 if respondents think spending on welfare is "too high," $\frac{1}{2}$ if the answer is "about right," and 1 if the answer is "too low." The geographic information identifies respondents' state and MSA or county group. Of the 32,380 respondents, 21,763 were asked about their support for welfare spending, and 20,716 respondents answered the question. This paper uses 18,764 respondents after dropping those with missing demographic information.

Table 1 summarizes welfare support by various individual characteristics; further summary statistics can be found in Appendix table A1. The table shows that 51 percent of the respondents think that welfare spending is too high but that there is a large racial divide. While 47 percent of blacks think that welfare spending is too low, only 16 percent of whites agree. Respondents who are more likely to receive welfare themselves (those with low income or low education, singles or single

[1] The exact wording is: "We are faced with many problems in this country, none of which can be solved easily or inexpensively. I'm going to name some of these problems, and for each one I'd like you to tell me whether you think we're spending too much money on it, too little money on it, or about the right amount." A list of items follows, including "Welfare: Are we spending too much, too little, or about the right amount on welfare?"

TABLE 1
CROSS TABULATIONS OF SUPPORT FOR WELFARE SPENDING AND DEMOGRAPHICS

CHARACTERISTIC	PERCENTAGE OF RESPONDENTS WITH CHARACTERISTIC *X* WHO BELIEVE WELFARE SPENDING IS:		
	Too High (WelfPref = 0) (N = 9,635)	About Right (WelfPref = $\frac{1}{2}$) (N = 5,419)	Too Low (WelfPref = 1) (N = 3,710)
All Respondents	51	29	20
Black	25	28	47
White	55	29	16
Other	45	33	23
Household income in bottom quintile	32	32	36
Household income in quintile 2	50	30	20
Household income in quintile 3	55	29	16
Household income in quintile 4	59	27	14
Household income in top quintile	61	26	12
Female	50	29	21
Married	56	27	17
Widowed	46	34	20
Divorced	48	29	23
Separated	37	28	35
Never married	42	32	26
High school dropout	45	29	26
High school diploma	55	28	18
Some college	56	27	16
College degree	54	30	16
Graduate or professional degree	47	34	19
1-person household	48	32	20
2-person household	53	29	18
3-person household	52	28	20
4-person household	53	28	19
5 or more–person household	49	27	25
Has had child/children	53	28	19
Child present at home	51	27	21
Single mother	36	29	34
New England	51	30	19
Mid Atlantic	54	29	18
East North Central	52	29	19
West North Central	50	31	19
South Atlantic	52	27	21
East South Central	45	30	25
West South Central	50	28	22
Mountain	52	31	18
Pacific	51	30	20

SOURCE.—General Social Survey, 1973–94.

NOTE.—Support for welfare spending is measured by the answer to the following question: "We are faced with many problems in this country, none of which can be solved easily or inexpensively. I'm going to name some of these problems, and for each one I'd like you to tell me whether you think we're spending too much money on it, too little money on it, or about the right amount." A list of items follows, including "Welfare: Are we spending too much, too little, or about the right amount on welfare?"

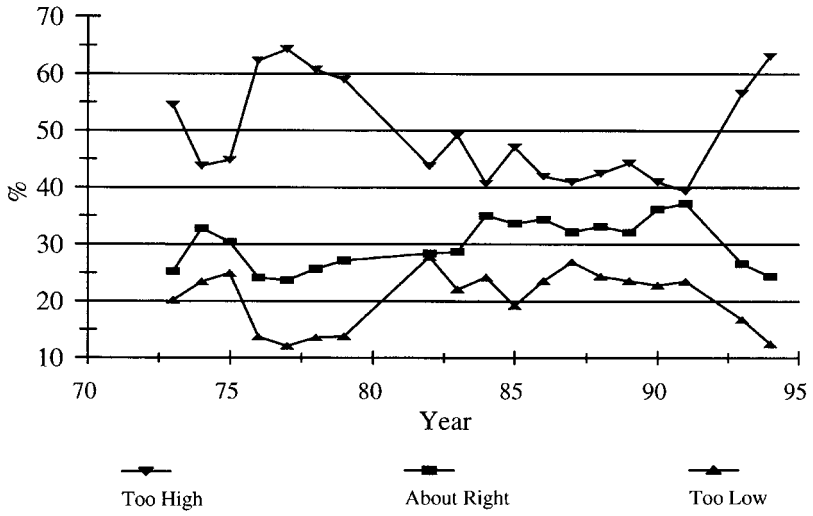

FIG. 1.—Opinion of welfare spending. The graph plots the percentage of answers to the following question in the GSS: "Are we spending too much, too little, or about the right amount on welfare?" The sample size is 18,764 respondents.

mothers, and those living in a large household) support welfare more (Moffitt 1983; Husted 1989). There is no clear geographic pattern in the level of satisfaction with current welfare spending, suggesting that differences in benefit levels across states roughly reflect voter preferences. Figure 1 shows the pattern of welfare support relative to current spending over time. While there are swings in support, there is no clear trend.

The main welfare program during my sample period was Aid to Families with Dependent Children (AFDC). Because there are no administrative data on the rate and racial composition of AFDC recipiency for the complete sample period and for geographical areas smaller than states, I construct proxies for welfare receipt using the Summary Tape Files (STF) of the decennial censuses. I use the product of the race-specific rates of poverty and single motherhood in a census tract as a proxy for the welfare recipiency rate for that race in that census tract. Proxies for welfare recipiency at the MSA or state level are constructed by taking a population-weighted average of the corresponding proxies in the associated tracts. To help alleviate concerns about the validity of this proxy, I perform two checks. First, I regress actual state-level AFDC recipiency rates in 1990 (from administrative data) on the STF proxies and find a reasonably close correspondence: the R^2 for the total recip-

iency rate is .43 and the R^2 for the racial composition of welfare recipients is .97. Second, I estimate welfare recipiency rates by race using the census Public Use Micro Sample (PUMS). Because the PUMS asks individuals about receipt of public assistance, age, marital status, and the presence of own children, AFDC recipiency can be estimated fairly accurately. The results in this paper concerning reactions to welfare recipiency at the MSA or state level do not change substantially when measures of welfare recipiency based on the PUMS are used instead of the STF measures. Details of both checks can be found in Luttmer (1999). Since the PUMS provides no information at the census tract level, I use the STF proxies for welfare recipiency in this paper. Because information only for 1970, 1980, and 1990 is available in the census, the values for the proxies between the census years are computed by linear interpolation. The proxies for years after 1990 are equal to the values in 1990. The main results are robust to removing those years from the sample that rely most heavily on the interpolation (see Luttmer [1999] for details).

III. Empirical Strategy

A. *Estimation of Interpersonal Effects*

The basic empirical specification for the preferred level of welfare spending, WelfPref_{ikt}, of individual i living in area k at time t is given by[2]

$$\begin{aligned}\text{WelfPref}_{ikt} = {} & \frac{(\text{black welfare})_{kt}}{\text{population}_{kt}}\text{black}_i\omega_{BB} \\ & + \frac{(\text{black welfare})_{kt}}{\text{population}_{kt}}\text{nonblack}_i\omega_{BN} \\ & + \frac{(\text{nonblack welfare})_{kt}}{\text{population}_{kt}}\text{black}_i\omega_{NB} \\ & + \frac{(\text{nonblack welfare})_{kt}}{\text{population}_{kt}}\text{nonblack}_i\omega_{NN} \\ & + \mathbf{X}_i\boldsymbol{\alpha} + \mathbf{Z}_{kt}\boldsymbol{\beta} + \delta_k + \delta_t + \epsilon_{ikt},\end{aligned}$$

[2] Although areas are indexed by a single subscript k, the reader should be aware that area characteristics in the same regression may be measured at different geographical levels. Some area characteristics (e.g., welfare benefit levels) are by definition measured only at the state level. Area fixed effects are always measured at the MSA level because this is the most detailed level possible. Welfare recipiency is measured at the tract, MSA, or state level, as indicated in the tables.

where the race-specific welfare recipiency rates are interacted with the race of the respondent to measure interpersonal effects. The dummy variables black_i and nonblack_i denote the race of the respondent, $(\text{black welfare})_{kt}$ and $(\text{nonblack welfare})_{kt}$ denote the number of black and nonblack welfare recipients in the area of the respondent, and population_{kt} denotes the total population in that area. Welfare recipiency may be measured at the level of the census tract, MSA, or state. Support for welfare spending may be affected by individual demographic characteristics, $\mathbf{X}_i$, either because these demographics proxy for the individual's expected own benefit from redistribution or because they are correlated with underlying parameters of the individual's utility function. Next, the regression includes $\mathbf{Z}_{kt}$, characteristics of area k at time t. These characteristics include the state welfare benefit levels because WelfPref measures respondents' preferred level of welfare spending relative to the current one. Finally, the regression includes δ_k, a set of MSA fixed effects, and δ_t, a set of year fixed effects. The error term is denoted by ϵ_{ikt}.

The parameters ω_{BB}, ω_{BN}, ω_{NB}, and ω_{NN} measure the effect of changes in welfare recipiency on welfare support by race. For example, if the black welfare recipiency rate increases by 10 percentage points, support for welfare among black respondents changes by $0.10\omega_{BB}$ and support for welfare among nonblack respondents changes by $0.10\omega_{BN}$. Similarly, the effects of changes in nonblack welfare recipiency on support for welfare among black and nonblack respondents are measured by ω_{NB} and ω_{NN}, respectively. These parameters allow us to investigate two questions. First, how does individual support for welfare spending change as the welfare recipiency rate in their area changes? A positive relationship between support for welfare spending and local recipiency rates, as indicated by a positive ω, could be generated by altruism toward local recipients; a negative relationship could arise from financial or psychological costs that respondents attribute to giving welfare to local recipients. Second, do respondents react differently to welfare recipients from their own racial group than to recipients from other racial groups? Own-race bias, or the degree to which respondents are predisposed toward welfare spending on their own racial group, can be measured by $\omega_{BB} - \omega_{NB}$ for black respondents and by $\omega_{NN} - \omega_{BN}$ for nonblack ones. To interpret ω_{BB}, ω_{BN}, ω_{NB}, and ω_{NN} not just as partial correlations but as the effects of welfare recipiency on respondents' preferred levels of welfare spending, variation in welfare recipiency must be uncorrelated with omitted determinants of respondents' welfare preferences. Lacking explicit exogenous shocks to welfare recipiency, I include a large set of controls to absorb potential endogenous variation as much as possible. Section IV discusses potential biases and performs several specification checks that support the interpretation of the ω's as interpersonal effects,

but as in any nonexperimental study, caution with this causal interpretation remains in order.

B. Predicted Tract-Level Welfare Recipiency

Estimates of own-race bias could be spurious if welfare recipiency is measured at the MSA level and the MSA is racially segregated. In this case, a nonblack individual may react more strongly to additional nonblack welfare recipients than to additional black recipients because segregation makes it more likely for the individual to come into contact with nonblack recipients than with black recipients. Estimates based on welfare recipiency in census tracts would be much less susceptible to this bias because the relatively small size of tracts implies that individuals would also come into contact with welfare recipients of other races. Though the GSS does not provide more detailed information about the location of respondents than their MSA, it is possible to use two-sample two-stage least squares (2SLS) to estimate how individuals respond to welfare recipiency in their neighborhood. Instead of using actual welfare recipiency in the respondent's tract, I use the expected tract-level welfare recipiency conditional on the respondent's characteristics and the pattern of race and income segregation in the MSA. Even if the tract of GSS respondents had been known, using expected rather than actual welfare recipiency would be preferable because it avoids Tiebout bias. The way in which individuals sort themselves into tracts with different welfare recipiency rates may be related to their preferences for welfare spending, which would bias the estimates.

The calculation of these expected welfare recipiency rates is described in detail in Appendix B, but the intuition is simple. The census contains the number of individuals who share a respondent's MSA, income bracket, and race. The fraction of these individuals who live in a given census tract equals the probability that the respondent lives in that tract. I calculate this probability for each tract and multiply tract-level welfare recipiency rates by these probabilities to obtain the expected welfare recipiency rates in that respondent's census tract. Summary statistics on welfare recipiency rates at the tract, MSA, and state levels can be found in Appendix table A2.

The expected welfare recipiency rates can be interpreted as the result of a first-stage regression, where the main instrument is the interaction of the race and income of the respondent with contemporaneous race and income segregation in the MSA of the respondent. Only the interaction term is an instrument because the direct effects of the respondent's income and race are absorbed by the demographic controls and because the direct effects of segregation are largely absorbed by

the MSA fixed effects. The direct effects of segregation are fully absorbed only if the MSA fixed effects are allowed to vary over time.

IV. Results

A. *Effects of Demographics and Tract-Level Welfare Recipiency on Support for Welfare*

Table 2 reports the baseline regression explaining individual support for welfare spending. Unless otherwise noted, the independent variables in all regressions consist of measures of welfare recipiency, characteristics of the respondent's area, demographic characteristics of the respondent, year fixed effects, and MSA fixed effects. In order to maximize the sample size, the nonmetropolitan part of each state is treated as though it were a single MSA, but the results are robust to omitting these areas (Luttmer 1999). All three columns in table 2 come from a single ordinary least squares regression. The first column shows coefficients on variables that are not interacted with a race dummy, and the second and third columns show coefficients on variables that are interacted with a black and nonblack dummy. The regression includes two measures of tract-level welfare recipiency: the expected ratio of black welfare recipients to the tract population and a similar ratio for nonblack welfare recipients. The other geographical characteristics include the expected racial composition in the respondent's tract, measured as the number of black persons as a fraction of the tract population; the log of the population in the town or city of the respondent; the maximum real AFDC benefits for a family of four in the respondent's state in real 1990 dollars; and the twenty-fifth percentile of the earnings distribution in the respondent's state. The demographic characteristics consist of the respondent's race, gender, income, education, age, marital status, and household composition. Because the regression includes MSA and year fixed effects, it is driven by differential variation over time across MSAs. The regression has 18,764 observations in 138 MSAs, and these observations occur in 1,447 MSA × year cells.

The most interesting result is how welfare support is affected by the number and race of welfare recipients in the respondent's area. These estimates are indicated in boldface in table 2 and establish two main characteristics of interpersonal effects. First, they show a clear pattern of racial group loyalty. In other words, an additional black welfare recipient in one's tract reduces support for welfare by nonblack respondents but has little effect on black respondents. Conversely, an additional nonblack welfare recipient reduces black support for welfare but has little effect on nonblack support. Second, they show a negative exposure effect. A simultaneous increase of black and nonblack welfare recipiency

TABLE 2

BASELINE REGRESSION (N=18,764)

Dependent Variable: Self-Reported Support for Welfare Spending

	Independent Variable (Not Interacted)	Independent Variable × Black Respondent Dummy	Independent Variable × Nonblack Respondent Dummy
Expected welfare recipiency in tract:			
Black recipients/population		**−.8** (.3)	**−6.7** (1.7)
Nonblack recipients/population		**−3.7** (1.4)	**2.0** (1.0)
Black	.13 (.06)		
Other race	.03 (.02)		
Female	.006 (.005)		
Five-point spline in income/poverty line (marginal effects):			
Bottom quintile		−.13 (.03)	−.18 (.02)
Quintile 2		−.04 (.03)	−.06 (.01)
Quintile 3		−.02 (.04)	−.02 (.01)
Quintile 4		−.08 (.03)	−.02 (.01)
Top quintile		−.004 (.007)	.000 (.002)
High school diploma	−.042 (.007)		
Some college	−.056 (.015)		
College degree	−.013 (.010)		
Graduate or professional degree	.066 (.014)		
Age	−.003 (.001)		
Age^2/100	.002 (.001)		
Widowed	.023 (.013)		
Divorced	.017 (.013)		
Separated	.035 (.019)		
Never married	.032 (.011)		
Has had child/children	−.023 (.009)		
Child present at home	−.028 (.011)		
Single mother	.016 (.016)		
2-person household	.027 (.012)		
3-person household	.046 (.014)		
4-person household	.050 (.015)		
5 or more–person household	.062 (.016)		
Expected fraction black in tract		.27 (.08)	.80 (.23)
Log population in town/city	.008 (.002)		
Missing town/city population	−.026 (.020)		
Maximum real AFDC benefit in state ($100s)	−.010 (.005)		
25th percentile of earnings in state ($100/wk.)	.028 (.027)		
Year fixed effects (18)	yes		
MSA fixed effects (138)	yes		
Adjusted R^2	.156		

NOTE.—The dependent variable is support for welfare spending as measured by the GSS. This variable is 1 for respondents who think welfare spending is too low, 1/2 for those who think it is about right, and 0 for those who think it is too high. All coefficients in this table come from a single ordinary least squares regression. Standard errors (in parentheses) are corrected for group error terms in MSA × year cells. All variables that are interacted with race have been demeaned by their overall mean. Welfare recipiency measures are based on census STF information and described in App. table A2.

TABLE 3
DECOMPOSITION OF EFFECT OF WELFARE RECIPIENCY RATES ON SUPPORT FOR WELFARE SPENDING

	Black Respondent	Nonblack Respondent
Effect of additional black recipient	ω_{BB} = exposure effect + own-race bias + black recipient effect + black respondent effect	ω_{BN} = exposure effect + black recipient effect
Effect of additional nonblack recipient	ω_{NB} = exposure effect + black respondent effect	ω_{NN} = exposure effect + own-race bias

by one percentage point reduces support for welfare among both black and nonblack respondents.

To clarify these effects, I decompose the coefficients on recipiency rates into four interpersonal effects: (i) an "exposure effect," which is the effect of an additional welfare recipient regardless of race; (ii) an "own-race bias," which is the incremental effect of an additional recipient who belongs to the same race; (iii) a "black recipient effect," which is the incremental effect of an additional black recipient; and (iv) a "black respondent effect," which is the incremental effect of a black respondent's reaction to the additional recipient. Schematically, this decomposition is given in table 3. The four effects are linear functions of ω_{BB}, ω_{BN}, ω_{NB}, and ω_{NN}.[3] This decomposition is reported in the first row of table 4. As the table shows, there is a significantly negative exposure effect and there is a strong and significantly positive own-race bias. The black respondent effect is insignificant. The black recipient effect is significant but may be measuring differences in the accuracy of the black and nonblack proxies for welfare recipiency. Neither the black respondent effect nor the black recipient effect is robust across specifications. Hence, in the remainder of the paper, I focus on the robust effects—the negative exposure effect and the own-race bias.

The principal purpose of the remaining regressors is to control for differences across individuals in their support for welfare spending due

[3] Specifically,

$$\text{exposure effect} = \frac{\omega_{BN} + \omega_{NB} + \omega_{NN} - \omega_{BB}}{2},$$

$$\text{own-race bias} = \frac{\omega_{BB} + \omega_{NN}}{2} - \frac{\omega_{BN} + \omega_{NB}}{2},$$

$$\text{black recipient effect} = \frac{\omega_{BB} + \omega_{BN}}{2} - \frac{\omega_{NB} + \omega_{NN}}{2},$$

$$\text{black respondent effect} = \frac{\omega_{BB} + \omega_{NB}}{2} - \frac{\omega_{BN} + \omega_{NN}}{2}.$$

to financial self-interest or underlying tastes. In fact, without these individual controls, the negative exposure effect would disappear. The respondent's race is among the strongest predictors for welfare support. At the sample mean, blacks are 13 percent more likely to respond that welfare spending is too low than whites with the same characteristics living in the same area.[4] The response from people who are neither black nor white is not significantly different from the white response, which is reassuring since they are grouped with whites in race-based interaction terms. Gender seems to have little effect on welfare support. For both blacks and nonblacks, income has a negative and convex effect on support for welfare. The effects of additional income are strongest at the lowest income quintile, where nonblacks are 18 percent more likely to respond that welfare spending is too high (compared to thinking it is too low) if their income rises by the amount of the poverty line ($15,029 for a couple with two children in 1994). At higher income levels, the marginal effect of income on welfare support generally remains negative but becomes less strong. Education shows a U-shaped pattern in which those with graduate or professional degrees display more support for welfare spending than high school dropouts. The income results support the notion that support for welfare spending can be partially explained by direct self-interest. People with higher incomes are less likely to receive welfare benefits themselves, and they would therefore be less likely to support welfare spending if they consider only the financial costs and benefits of redistribution to themselves. The marginal effect of income on the likelihood of welfare receipt is especially strong at the lowest income levels, which is consistent with the regression results. Education also lowers the likelihood of welfare receipt, which explains the decrease in support for welfare spending for initial increases in education. The higher levels of welfare support among the most highly educated respondents cannot be easily explained by self-interest. Other results consistent with self-interest are the decline of support for welfare with age (until the age of 75) and higher support among single women relative to married women. Contrary to the predictions of self-interest, welfare support is lowered by the presence of children and by ever having had children.

The expected fraction of black persons in area k is included as a control to ensure that the findings on welfare recipiency are driven by the race of welfare recipients, and not merely by the racial composition of the area. The positive effect of city or town population on welfare support may indicate that residents of larger cities are more likely to receive welfare after observables are controlled for. Higher state AFDC

[4] The race dummy can be interpreted like this because all variables that are interacted with race are expressed in deviations from the sample mean.

TABLE 4
EFFECT OF WELFARE RECIPIENCY AT DIFFERENT GEOGRAPHICAL LEVELS (N=18,764)
Dependent Variable: Self-Reported Support for Welfare Spending

	EFFECTS OF WELFARE RECIPIENCY				ALL EFFECTS JOINTLY ZERO	
	Exposure Effect	Own-Race Bias	Black Recipient Effect	Black Respondent Effect	(p-Value)	$\bar{R}^2$
1. Expected tract recipiency	−3.8	5.8	−2.9	−.1	.0000	.1561
	(1.2)	(1.3)	(1.3)	(.9)		
2. MSA recipiency	−8.0	5.6	3.8	−4.0	.0000	.1556
	(2.5)	(1.5)	(2.3)	(.9)		
3. State recipiency	−4.2	5.8	−.2	−4.8	.0000	.1550
	(3.1)	(2.1)	(3.1)	(1.1)		
4. Tract and MSA recipiency:						
Expected tract recipiency	−2.9	4.6	−3.8	1.6	.03	.1565
	(1.5)	(1.9)	(1.8)	(1.5)		
MSA recipiency	−5.7	2.6	4.3	−3.0	.26	
	(3.0)	(2.3)	(2.9)	(1.8)		
t-statistic on coefficient difference	[.7]	[.5]	[−2.0]	[1.5]	.16	
t-statistic on coefficient sum	[−3.3]	[4.0]	[.2]	[−1.1]		
5. Tract and state recipiency:						
Expected tract recipiency	−3.7	5.0	−2.5	1.1	.02	.1562
	(1.3)	(1.6)	(1.6)	(1.3)		
State recipiency	−.7	.9	−.9	−3.1	.30	
	(3.3)	(2.5)	(3.2)	(1.9)		
t-statistic on coefficient difference	[−.8]	[1.2]	[−.4]	[1.4]	.32	
t-statistic on coefficient sum	[−1.4]	[2.7]	[−1.2]	[−1.4]		

6. MSA and state recipiency:						
MSA recipiency	−10.4	6.7	8.0	−2.2	.008	.1558
	(3.0)	(2.1)	(2.9)	(2.0)		
State recipiency	4.0	−1.2	−6.6	−2.6	.09	
	(3.7)	(2.8)	(3.7)	(2.5)		
t-statistic on coefficient difference	[−2.5]	[1.8]	[2.5]	[.1]	.11	
t-statistic on coefficient sum	[−2.0]	[2.6]	[.5]	[−4.1]		

NOTE.—The dependent variable is support for welfare spending as measured by the GSS. This variable is 1 for respondents who think welfare spending is too low, 1/2 for those who think it is about right, and 0 for those who think it is too high. Only the decomposition of the coefficients on welfare recipiency rates is reported. All regressions contain the same controls as in table 2. They include individual demographics as well as 138 MSA and 18 year fixed effects. Standard errors (in parentheses) are corrected for group error terms in MSA × year cells. Welfare recipiency measures are based on census STF information and described in App. table A2.

benefits reduce welfare support, which one would expect since the question asks respondents about welfare spending relative to the current level. The coefficient on the twenty-fifth percentile of the earnings distribution in the state, which Moffitt, Ribar, and Wilhelm (1998) use as a proxy for potential labor market earnings for welfare recipients, is insignificant.

B. The Effect of Geographical Proximity to Welfare Recipients

The previous subsection presented evidence of interpersonal effects at the census tract level. This subsection explores how respondents' welfare support is affected by the race and prevalence of welfare recipients at different geographical levels. The first line of table 4 replicates the regression with expected tract-level recipiency measures that was reported in full in table 2. The second and third rows show the same regression, but with MSA- and state-level recipiency measures, respectively. At the MSA level, the exposure effect is significantly negative and more than twice as large as at the tract level. At the state level, the exposure effect is large and negative as well, but not significant. At both the MSA and state levels, the estimate for the own-race bias is significant and about as large as at the tract level. These regressions indicate that interpersonal preferences operate at each of the three geographical levels considered. Interpersonal preferences consistently show an own-race bias and a negative exposure effect, but they seem to depend on the geographical level for the black recipient and black respondent effect.

In regressions 4, 5, and 6, recipiency measures of two geographic levels are included in each regression to sort out better at which level interpersonal preferences operate most strongly. In the regression with both tract- and MSA-level measures, the negative exposure effect and the own-race bias operate at both levels, but the standard errors are relatively large because of multicollinearity. The comparison of tract- to state-level measures shows that the exposure effect and own-race bias operate more strongly at the tract level than at the state level, but these differences are not statistically significant. The final regression shows that these two interpersonal effects also operate more strongly at the MSA level than at the state level. It seems, therefore, that the exposure effect and own-race bias are determined mostly at the tract level and the MSA level but are hardly affected by state-level recipiency after tract- and MSA-level measures are included.

The table provides two insights. First, the negative exposure effect and racial group loyalty seem to be affected most by local welfare recipiency rates. Second, these two interpersonal effects are still significant at the tract and MSA levels after state-level recipiency rates are controlled

for. Given that welfare policy is determined at the state level, state-level recipiency rates determine the effective cost to taxpayers of a dollar of redistribution. Hence, the effect of state-level recipiency rates on support for welfare spending could partially reflect financial self-interest. However, when controls for state-level recipiency are included, any effect of local recipiency rates on support for welfare indicates the presence of interpersonal effects.[5]

C. Specification Checks

This subsection investigates the possibility that omitted variable biases drive the results. One might believe that a higher local welfare recipiency rate signals that the respondent has unobservable traits that increase the respondent's welfare support due to self-interest. In this case, one would expect to find a spurious positive relationship between local recipiency rates and welfare support. However, the negative exposure effect shows that higher local recipiency rates decrease welfare support. Table 5 provides three additional types of evidence against the omitted variable bias explanation.

First, if a variable were omitted that is correlated with both the respondent's likelihood of receiving welfare and local welfare recipiency, one would expect such an omitted variable to be much more important for respondents who are potential welfare recipients than for respondents who are unlikely welfare recipients. To test this, I allow a different effect of tract-level welfare recipiency on respondents with incomes below 200 percent of the poverty line and those with incomes above 200 percent of the poverty line. Because respondents with incomes above 200 percent of the poverty line are much less likely to be or become welfare recipients, one would expect the effect of recipiency to be much smaller if the results were driven by omitted variable bias.[6] As regression 1 shows, the exposure effect and the own-race bias are at least as strong for respondents with incomes above 200 percent of the poverty line as for poorer respondents.

Second, one might worry that the difference between black and nonblack unobservables varies across cities. In regression 2, I include MSA fixed effects separately by race. The significance and the magnitude of the exposure effect and own-race bias remain largely the same.

[5] If individuals' perceptions of the state-level welfare recipiency rate are influenced by the local recipiency rate, their support for welfare spending could depend on the local recipiency rate even in the absence of interpersonal effects. Luttmer (1999) tests this hypothesis and finds no support for it.

[6] Of course, people with incomes above 200 percent of the poverty line could have close relatives on welfare. As long as we would expect them to be less likely to have such relatives than individuals with incomes below 200 percent of the poverty line, this check for omitted variable bias remains valid.

TABLE 5

INVESTIGATION OF OMITTED VARIABLE BIASES (N=18,764)

Dependent Variable: Self-Reported Support for Welfare Spending

	Effects of Welfare Recipiency				All Effects Jointly Zero (p-Value)	$\bar{R}^2$
	Exposure Effect	Own-Race Bias	Black Recipient Effect	Black Respondent Effect		
	Splitting Effect at Two Times the Poverty Line					
1. Expected tract recipiency:						
Income less than two times the poverty line	−3.4	5.1	−2.8	.4	.0001	.1565
	(1.2)	(1.3)	(1.3)	(1.0)		
Income greater than two times the poverty line	−3.6	7.6	−3.1	−1.4	.0000	
	(1.8)	(1.7)	(1.9)	(1.4)		
t-statistic on coefficient differences	[.2]	[−1.7]	[.2]	[1.3]	.28	
	Including MSA × Race Fixed Effects					
2. Expected tract recipiency	−3.9	5.6	−3.1	.5	.0000	.1581
	(1.6)	(1.7)	(1.7)	1.3)		
	Instrumental Variable ($\text{Segr}_{kt} \times \text{Demographics}_i$)					
3. Expected tract recipiency	−2.9	5.4	−2.3	−.9	.0001	.1580
	(1.4)	(1.6)	(1.7)	(1.1)		

NOTE.—The dependent variable is support for welfare spending as measured by the GSS. This variable is 1 for respondents who think welfare spending is too low, 1/2 for those who think it is about right, and 0 for those who think it is too high. Only the decomposition of the coefficients on welfare recipiency rates is reported. All regressions contain the same controls as in table 2. They include individual demographics as well as 138 MSA and 18 year fixed effects. Standard errors (in parentheses) are corrected for group error terms in MSA × year cells. Welfare recipiency measures are based on census STF information and described in App. table A2. Regression 3 includes MSA fixed effects that are allowed to vary linearly between decades. The regression is identified because predicted tract-level welfare recipiency rates vary across individuals within an MSA at a given point in time. This variation depends on the pattern of race and income segregation in the MSA and the race and income of the respondent. As explained in detail in App. B, the regression can be interpreted as an instrumental variables regression in which the instrument is the interaction of the respondent's income and race with the pattern of income and race segregation in the MSA.

Third, MSA fixed effects might not be adequate if the unobservables of the population in an MSA change over time in a way that is correlated with welfare recipiency. Because the welfare recipiency measures are based on linear interpolations between decades, a set of MSA-specific linear splines with knots at the decades can fully absorb any correlation between MSA-specific time variation in unobservables and welfare recipiency measures. In regression 3, such a set of MSA-specific splines is included, and the results are essentially the same as before. This regression is fully driven by the interaction of the race and income of respondents with the pattern of race and income segregation in the MSA. It can therefore be interpreted as an instrumental variables regression, where the instrument is this interaction term (see App. B for details).

V. Self-Reported Preferences and Voting Behavior

If self-reported preferences on welfare spending accurately reflect underlying preferences, then these self-reported preferences should correspond closely to voting behavior. I examine the validity of the self-reported preference measure by testing whether it predicts voting outcomes on California's Proposition 165 from the 1992 primaries. This proposition, drafted by former governor Pete Wilson, proposed both cuts in welfare generosity and changes in the state budget process. The summary of the proposition in the September 1992 issue of the *California Journal* reads as follows: "An initiative constitutional amendment that grants the governor the power to declare a 'fiscal emergency' when the budget is not adopted or the deficit exceeds specified percentages. It also reduces aid to families with dependent children (AFDC) by 10 percent, then by an additional 15 percent after six months on aid."[7] Public information on Proposition 165 emphasized its importance for welfare. For example, when describing the outcomes of propositions, the *California Journal* listed that "Proposition 165 (welfare)" was rejected by 54 percent of the voters.

Election outcomes of Proposition 165 are available for the 30,000 election precincts in California. The Institute for Governmental Studies at the University of California at Berkeley merged precinct-level voting returns to census blocks and then aggregated the data into about 20,000

[7] In addition, the proposition specified that AFDC benefits could not increase because of the birth of a child that was conceived while the family was receiving aid and that, during the first 12 months of residency in California, recipients could not receive higher benefits than what they would have received in their former state. It also specified an elimination of all special benefits to pregnant women and a $50 reward for AFDC parents under age 19 attending high school if they had no more than two unexcused absences and no more than four total absences per month. Those who had more absences would face a $50 penalty.

TABLE 6
REGRESSIONS OF CALIFORNIA VOTE ON PROPOSITION 165 (WELFARE CUTS) (N=20,668 Block Groups)
Dependent Variable: Percentage Votes against Proposition 165 (Cuts in Welfare Spending)

Independent Variable	(1)	(2)	(3)	(4)
Predicted support for welfare (GSS)	1.112	1.082	.709	.783
	(.009)	(.008)	(.011)	(.013)
Percentage black in block group				.201
				(.005)
Constant term	.108	NA	NA	.232
	(.004)			(.005)
County fixed effects?	no	yes	no	no
Tract fixed effects?	no	no	yes	no
Adjusted R^2	.407	.657	.755	.448

NOTE.—Standard errors are in parentheses. Predicted support for welfare is constructed as follows: First self-reported support for welfare spending from the GSS is regressed on a set of 20 individual demographic characteristics as well as MSA and year fixed effects. This regression is the same as the baseline regression in table 2, except that the regressors are limited to demographic characteristics from the GSS that are also available in the 1990 Census STF. Next, I predict welfare support in each block group by multiplying the block group demographics (from the census) with the corresponding coefficients from the regression of GSS welfare support on individual demographics.

block groups. I match voting data to demographic information from the 1990 Census STF, coding demographic variables to correspond closely to the ones available in the GSS.[8]

To assess whether self-reported preferences for welfare spending correspond to voting behavior, I first use the GSS data to regress self-reported support for welfare spending (WelfPref) on a set of 20 individual demographic characteristics as well as MSA and year fixed effects. This regression is the same as the baseline regression in table 2, except that the regressors are limited to demographic characteristics from the GSS that are also available in the 1990 Census STF (see Luttmer [1999] for details). Next, I predict welfare support in each block group by multiplying the block group demographics (from the census) with the corresponding coefficients in the regression of GSS welfare support on individual demographics. This predictor is constructed without using any information from the voting outcomes. Column 1 of table 6 shows that actual voting outcomes can be explained extraordinarily well by predicted welfare support.[9] Columns 2, 3, and 4 show that the results

[8] The demographic information consists of three race dummies, gender, single motherhood, five marital status dummies, five educational attainment dummies, five household size dummies, age, age squared, a linear trend for income below 200 percent of the poverty line, and a dummy for income above 200 percent of the poverty line. The income specification was chosen because the STF contains a relatively fine breakdown of income as a percentage of the poverty line until 200 percent of the poverty line but no breakdown of incomes above 200 percent of the poverty line. When omitted categories are excluded, this yields a set of 20 demographic regressors.

[9] The predicted support for welfare is systematically lower than the fraction of votes against welfare cuts. This could be due to differences in framing of the GSS question and the ballot question or to selective voter turnout.

remain strong and highly significant when county fixed effects, tract fixed effects, or the fraction black in the block group is added as a control. These results suggest that self-reported preferences are a useful measure of underlying preferences.

VI. Discussion

The previous sections documented that self-reported welfare attitudes can be used to estimate the impact of interpersonal effects on support for redistribution. In particular, I have shown that interpersonal preferences exhibit both a negative exposure effect and racial group loyalty. These findings validate theoretical models that include interpersonal effects. More important, empirical evidence on interpersonal preferences is useful because it improves our understanding of the forces driving redistribution.

The generosity of redistribution varies widely across states and countries, and many have noted that relatively homogeneous areas tend to have more income redistribution and other forms of public spending (Orr 1976; Easterly and Levine 1997; Poterba 1997; Alesina et al. 1999). Consistent with this observation, the United States is relatively racially, ethnically, and religiously heterogeneous and redistributes less than most western European countries. Within the United States, relatively racially heterogeneous states provide lower welfare benefits (fig. 2).

While the correlation between demographic homogeneity and generosity of redistribution has been well established, there is little evidence on the mechanisms underlying this correlation. Easterly and Levine (1997) and Alesina et al. (1999) posit that demographic fragmentation affects redistribution because it influences how the political process aggregates individual preferences. Interpersonal preferences provide a complementary explanation. If individuals prefer to redistribute to their own racial, ethnic, or religious group, they prefer less redistribution when members of their own group constitute a smaller share of beneficiaries. As demographic heterogeneity increases, on average, the share of beneficiaries belonging to one's own group declines. Thus average support for redistribution declines as heterogeneity increases.

To measure whether interpersonal effects partially explain the relationship between demographic heterogeneity and redistribution, I relate differences in state-level welfare benefits to a predictor of welfare support based solely on interpersonal preferences and the demographic composition in each state. The construction of this predictor is explained in detail in Appendix B. Column 1 of table 7 shows that this predictor can explain 33 percent of the variation across states in the log real AFDC benefits for 1970, 1980, and 1990. This figure is quite large given that coefficient estimates used to predict welfare are based

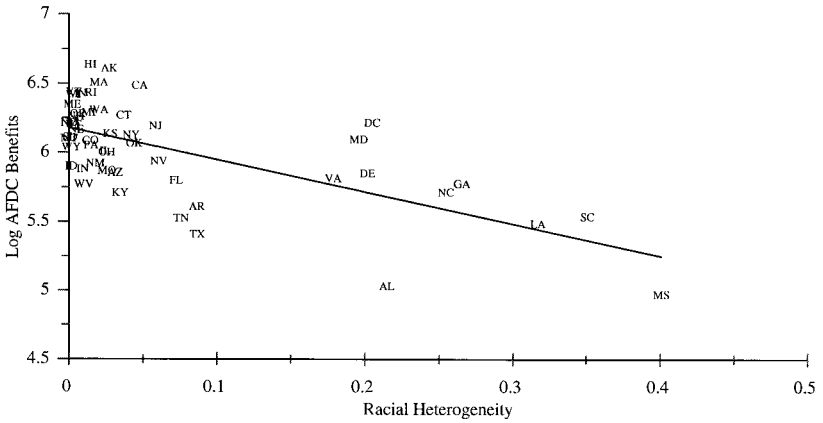

FIG. 2.—Correlation between real AFDC benefits and racial heterogeneity, 1990. Racial heterogeneity is defined as the probability that two randomly selected persons belong to a different racial group, where the racial groups are black and nonblack: racial heterogeneity = 1 − (fraction black)^2 − (fraction nonblack)^2. AFDC benefits are the maximum benefits in each state for a family of four. Benefits are adjusted for cost-of-living differences across states using the cost-of-living index published by the American Chamber of Commerce Researchers Association. This index is published for 291 urban areas in 1990. As in Glaeser (1998), the state-level index was constructed by taking the population-weighted average of the indices for the urban areas. The regression line has a slope of −2.32 with a standard error of .38. Adjusted R^2 = .42; there are 51 observations. The correlation remains negative and significant if Mississippi and Alabama are dropped.

on variation *within* states. Column 2 shows that the predictor remains significant when the state-level welfare caseload, the state poverty rate, and the fraction black in the state are added as controls. Thus the welfare predictor captures how individuals respond to welfare recipients of another race, and not the fraction black, the poverty rate, or the average level of welfare recipiency in their area. Columns 3–5 show that the predictor is also significant for each year separately.

While data constraints restrict my analysis to racial heterogeneity in the United States, heterogeneity in other dimensions, such as ethnicity or religion, is likely to be important as well. Similarly, it seems plausible that the effects of racial, ethnic, or religious group loyalty apply to other redistributive policies and to other countries. This suggests that interpersonal effects can explain why the heterogeneity of the U.S. population compared to western European countries leads to relatively low levels of redistribution in the United States.

This paper argues that interpersonal preferences help explain the relation between ethnic fragmentation and redistribution, but are there deeper mechanisms that can explain interpersonal preferences? Soci-

TABLE 7
EXPLAINING STATE WELFARE BENEFIT LEVELS
Dependent Variable: Log Real State Maximum AFDC Benefits for a Family of Four

	POOLED 1970, 1980, AND 1990 (N=151)		1970 (N=49)	1980 (N=51)	1990 (N=51)
	(1)	(2)	(3)	(4)	(5)
Predicted support for welfare spending	11.9 (2.2)	6.4 (2.0)	13.7 (4.3)	10.7 (1.8)	13.0 (2.3)
Welfare caseload/ population	…	24.3 (4.9)	…	…	…
Fraction below the poverty line	…	−6.5 (.7)	…	…	…
Fraction black	…	−.2 (.4)	…	…	…
Dummy for 1970	.44 (.03)	.45 (.04)	…	…	…
Dummy for 1980	.18 (.03)	.11 (.02)	…	…	…
$\bar{R}^2$	.441	.768	.164	.411	.389
$\bar{R}^2$ (excluding explanatory power from year dummies)	.332	.724			

NOTE.—Standard errors (in parentheses) are corrected for group effects within states in the pooled regressions. Support for welfare spending is predicted using the following steps. For each census tract, the four boldfaced regression coefficients of table 2 are multiplied by the appropriate welfare recipiency rates by race in the census tract. This gives the support for welfare spending in that census tract. Predicted state-level welfare support is a weighted average of tract-level support, with the tracts weighted by population. To ensure that the prediction is not driven by a possible bias in the welfare proxy that varies across states, I rescaled the welfare proxy for each state such that the caseload/population ratio according to the proxy equals the caseload/population ratio from administrative data. This predictor has a standard deviation of 0.019. AFDC benefits are the maximum benefits in each state for a family of four. Benefits are adjusted for inflation using the consumer price index for urban consumers. Benefits are adjusted for cost-of-living differences across states using the cost-of-living index published by the American Chamber of Commerce Researchers Association. This index is published for 139 cities in 1970, 206 cities in 1980, and 291 urban areas in 1990. As in Glaeser (1998), the state-level index was constructed by taking the population-weighted average of the indices available in each state. In 1970, Vermont and Wyoming are excluded because they did not yet have census tracts. The explanatory power of the year dummies is excluded by demeaning both the dependent and independent variables in each year.

ologists have emphasized "group self-interest," which can be viewed as altruism toward members of one's own racial group (Bobo and Kluegel 1993). Social psychologists have documented perception biases in which poor outcomes of "in-group" members tend to be attributed to adversarial external circumstances but poor outcomes of "out-group" members tend to be attributed to characteristics of those out-group members (Brown 1986; Brewer and Miller 1996). This might explain why respondents perceive welfare recipients of their own racial group as more deserving. Many have argued that idleness, out-of-wedlock births, and other behaviors of welfare recipients that conflict with mainstream values influence public support for welfare spending (Heclo 1986; Will 1993; Kull 1994; Bowles and Gintis 1998). There is no definitive evidence on mechanisms through which interpersonal effects operate. Investigation of these mechanisms is left for future research.

Appendix A

TABLE A1
SUMMARY STATISTICS FOR THE GSS SAMPLE: MEANS (and Standard Deviations)

VARIABLE	ALL OBSERVATIONS (N=18,764)		RESPONDENT BELIEVES WELFARE SPENDING IS: Too High (Support=0) (N=9,635)		About Right (Support=$\frac{1}{2}$) (N=5,419)		Too Low (Support=1) (N=3,710)	
Support for welfare (WelfPref)	.34	(.39)	0	(0)	1/2	(0)	1	(0)
Black	.13	(.33)	.06	(.24)	.12	(.33)	.29	(.46)
White	.86	(.35)	.92	(.27)	.86	(.35)	.69	(.46)
Other	.02	(.13)	.02	(.12)	.02	(.14)	.02	(.14)
Household income in:								
Quintile 1	.20	(.40)	.12	(.33)	.22	(.41)	.36	(.48)
Quintile 2	.20	(.40)	.20	(.40)	.21	(.41)	.21	(.40)
Quintile 3	.20	(.40)	.22	(.41)	.20	(.40)	.17	(.37)
Quintile 4	.20	(.40)	.23	(.42)	.19	(.39)	.15	(.35)
Quintile 5	.20	(.40)	.24	(.42)	.18	(.38)	.12	(.33)
Female	.54	(.50)	.53	(.50)	.55	(.50)	.58	(.49)
Married	.61	(.49)	.67	(.47)	.58	(.49)	.51	(.50)
Widowed	.10	(.29)	.09	(.28)	.11	(.31)	.10	(.30)
Divorced	.10	(.29)	.09	(.29)	.09	(.29)	.11	(.31)
Separated	.04	(.18)	.03	(.16)	.03	(.18)	.06	(.24)
Never married	.16	(.37)	.13	(.34)	.18	(.39)	.22	(.41)
High school dropout	.28	(.45)	.24	(.43)	.28	(.45)	.37	(.48)
High school diploma	.51	(.50)	.55	(.50)	.50	(.50)	.45	(.50)
Some college	.04	(.19)	.04	(.19)	.03	(.18)	.03	(.17)
College degree	.12	(.32)	.12	(.33)	.12	(.33)	.09	(.29)
Graduate or professional degree	.05	(.22)	.05	(.21)	.06	(.24)	.05	(.22)
Age	44.2	(17.2)	44.7	(16.6)	44.9	(18.1)	42.1	(17.3)
1-person household	.19	(.39)	.18	(.38)	.21	(.40)	.19	(.39)
2-person household	.32	(.46)	.33	(.47)	.32	(.47)	.28	(.45)

3-person household	.18	(.39)	.18	(.39)	.18	(.38)	.18	(.38)
4-person household	.17	(.37)	.17	(.38)	.16	(.37)	.16	(.37)
5 or more–person household	.15	(.36)	.14	(.35)	.14	(.35)	.19	(.39)
Has had child/children	.73	(.44)	.75	(.43)	.71	(.45)	.71	(.45)
Child present at home	.44	(.50)	.44	(.50)	.42	(.49)	.48	(.50)
Single mother	.07	(.26)	.05	(.22)	.07	(.26)	.13	(.33)
AFDC benefit in state ($100s)	5.64	(2.26)	5.75	(2.28)	5.62	(2.21)	5.39	(2.24)
25th percentile of earnings ($100/wk.)	2.30	(.25)	2.31	(.25)	2.29	(.25)	2.29	(.25)
Log population in town/city	3.31	(2.23)	3.11	(2.16)	3.33	(2.22)	3.82	(2.36)
Missing town/city population	.02	(.15)	.03	(.16)	.02	(.15)	.01	(.11)
Not in an MSA	.36	(.48)	.38	(.48)	.36	(.48)	.32	(.47)
New England	.05	(.21)	.05	(.21)	.05	(.21)	.04	(.20)
Mid Atlantic	.16	(.36)	.16	(.37)	.16	(.36)	.14	(.35)
East North Central	.21	(.41)	.21	(.41)	.21	(.40)	.20	(.40)
West North Central	.08	(.27)	.07	(.26)	.08	(.28)	.07	(.26)
South Atlantic	.18	(.39)	.19	(.39)	.17	(.38)	.19	(.40)
East South Central	.07	(.25)	.06	(.23)	.07	(.25)	.08	(.28)
West South Central	.09	(.28)	.08	(.28)	.08	(.28)	.09	(.29)
Mountain	.05	(.22)	.05	(.22)	.06	(.23)	.05	(.21)
Pacific	.13	(.34)	.13	(.33)	.13	(.34)	.13	(.34)

NOTE.—Income is household income as a percentage of the poverty line. Household income quintiles are determined relative to all observations in the GSS with nonmissing household income data. The break points between the quintiles occur at 131 percent, 228 percent, 332 percent, and 506 percent of the poverty line. AFDC benefits are the maximum AFDC benefits for a family of four in 1990 dollars. The twenty-fifth percentile of the earnings is based on the distribution of real weekly earnings of privately employed workers (self-employed workers are excluded) measured in hundreds of 1990 dollars (source: May Current Population Survey for 1973–80 and the Current Population Survey Merged Outgoing Rotation Groups for 1980–94).

TABLE A2
SUMMARY STATISTICS FOR MEASURES OF WELFARE RECIPIENCY

	ALL RESPONDENTS (N=18,764)		BLACK RESPONDENTS (N=2,346)		NONBLACK RESPONDENTS (N=16,418)	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Black welfare recipiency in expected tract	.0118	.0243	.0626	.0396	.0046	.0052
White welfare recipiency in expected tract	.0091	.0074	.0092	.0094	.0091	.0071
Black welfare recipiency in MSA	.0106	.0102	.0174	.0122	.0097	.0096
White welfare recipiency in MSA	.0092	.0062	.0083	.0055	.0093	.0063
Black welfare recipiency in state	.0097	.0082	.0142	.0113	.0091	.0074
White welfare recipiency in state	.0081	.0048	.0076	.0043	.0081	.0048
	Measures of the Fraction Black					
Fraction black in expected tract	.1239	.1867	.5780	.1609	.0591	.0498
Fraction black in MSA	.1154	.0860	.1800	.0811	.1062	.0823
Fraction black in state	.1198	.0752	.1663	.0907	.1131	.0703

NOTE.—The nonmetropolitan parts of each state are treated as though they formed a single MSA. On the basis of comparisons with administrative data, these proxies are fairly accurate for the caseload by race divided by the total population. This rate is about three times as low as the number of welfare recipients divided by the total population because each welfare case has, on average, three recipients (one mother and two children). The welfare recipiency and racial composition variables are based on information from the census STF. The proxy for black welfare recipiency as a fraction of the tract population is calculated as (black female–headed families/total families) × (black persons below poverty/total black persons), where all counts are performed at the tract level. The proxy for nonblack welfare recipiency is formed analogously. These proxies are validated in Luttmer (1999). Because the census STF is available only for 1970, 1980, and 1990, the welfare recipiency and racial composition variables for the years in between are formed by linear interpolation, and the 1990 variables are used for 1991–94. The MSA-level variables are formed by taking a weighted average of the variables for the tracts that constitute the MSA; the weights are given by the number of families in the tract divided by the total number of families in the MSA. The aggregation for the state level is done similarly.

Appendix B

Construction of Expected Welfare Recipiency Rates

While the GSS does not provide more detailed information about the location of respondents than their MSA, it is possible to use a procedure similar to 2SLS to estimate whether individuals respond to the rate and composition of welfare recipiency in their neighborhood. Instead of using the actual welfare recipiency in the census tract of an individual, I use predicted tract-level welfare recipiency based on the individual's characteristics and census information on the pattern of race and income segregation in the MSA. Race and income segregation in an MSA m in census year y is denoted by Segr_{my}, which is not a one-dimensional number but reflects the full distribution of race and income across the tracts in this MSA. Conditional on the race and income segregation in census year y in MSA m of individual i, the probability that this individual lives in tract n is given by

$$\pi_{niy} = \Pr(i \text{ lives in tract } n | \text{inc}_i, \text{race}_i, \text{Segr}_{my})$$
$$= \frac{\sum_{j \in \text{tract } n} I(\text{inc}_j = \text{inc}_i \wedge \text{race}_j = \text{race}_i)}{\sum_{j \in \text{MSA } m} I(\text{inc}_j = \text{inc}_i \wedge \text{race}_j = \text{race}_i)}, \quad \text{(B1)}$$

where $I(\cdot)$ is an indicator function that equals one if the expression in parentheses is true (and zero otherwise), inc_i and race_i denote the income bracket and race of individual i, and inc_j and race_j denote the income bracket and race of all individuals in the census. Because the income of individual i is observed in year t, which may be different from the census year y, this individual's income is adjusted for economywide movements in income by multiplying it with the ratio of mean income in year y to mean income in year t. Hence, the numerator gives the number of individuals with the same characteristics as individual i living in tract n, and the denominator gives the total number of individuals with the same characteristics as individual i living in the MSA. With these probabilities, black and nonblack welfare recipiency in individual i's tract are predicted by

$$\sum_n \pi_{niy} \frac{(\text{black welfare})_{ny}}{\text{population}_{ny}}, \quad \sum_n \pi_{niy} \frac{(\text{nonblack welfare})_{ny}}{\text{population}_{ny}}, \quad \text{(B2)}$$

where n indexes census tracts and y indexes census years. Expected tract-level welfare recipiency for years between census years are found by linear interpolation. Recipiency rates for years after 1990 are set equal to those in 1990.

Instrumental Variables Interpretation of Expected Recipiency Rates

The expected welfare recipiency rates can be interpreted as the result of a first-stage regression, where the main instrument is the interaction of the race and income of the respondent with contemporaneous race and income segregation in the MSA of the respondent. The main instrument is the interaction term because the direct effects of the respondent's income and race are absorbed by the demographic controls and the direct effects of segregation are largely absorbed by the MSA fixed effects. To fully absorb the direct effects of segregation, the MSA fixed effects need to vary over time. The second-stage regression is the regression of welfare support on the expected welfare recipiency measures. This estimator is a version of a two-sample 2SLS estimator because the sample used to predict welfare recipiency rates (all observations in census tracts) is different from the sample in the second stage (18,764 GSS respondents).

To show this more formally, suppose that the true model of welfare support is given by

$$\mathbf{y} = \mathbf{X}_1\boldsymbol{\beta}_1 + \mathbf{X}_2\boldsymbol{\beta}_2 + \mathbf{X}_3\boldsymbol{\beta}_3 + \boldsymbol{\epsilon} = \mathbf{X}\boldsymbol{\beta} + \boldsymbol{\epsilon}, \quad \text{(B3)}$$

where $\mathbf{y}$ is support for welfare spending; $\mathbf{X}_1$ is tract-level welfare recipiency rates; $\mathbf{X}_2$ contains income, race, year, and time-varying MSA fixed effects; and $\mathbf{X}_3$ consists of the remaining demographic controls. The error term $\boldsymbol{\epsilon}$ has mean zero and is uncorrelated with the $\mathbf{X}$ variables. The problem is that the tract-level recipiency measure, $\mathbf{X}_1$, is not observed (and may be endogenous). To overcome this problem, I predict $\mathbf{X}_1$ with $\mathbf{X}_2$ and race and income segregation as described in the previous subsection:

$$\hat{\mathbf{X}}_1 = E[\mathbf{X}_1 | \mathbf{X}_2, \text{Segr}], \quad \text{(B4)}$$

where $\hat{\mathbf{X}}_1$ is the expected tract-level recipiency measure and Segr contains the

income and racial composition of all census tracts in each MSA. Any conditional expectation, like equation (B4), can be rewritten as

$$\mathbf{X}_1 = \hat{\mathbf{X}}_1 + \boldsymbol{\eta}, \tag{B5}$$

where the error term, $\boldsymbol{\eta}$, has mean zero and is uncorrelated with the predictor. Hence, $E[\hat{\mathbf{X}}_1'\boldsymbol{\eta}] = 0$. Moreover, the error term is not correlated in expectation with those variables used in predicting the expected recipiency rate. This implies that $E[\hat{\mathbf{X}}_2'\boldsymbol{\eta}] = 0$. However, the information in $\mathbf{X}_3$ was not used to calculate the expected recipiency rates.[10] There is no guarantee that $E[\hat{\mathbf{X}}_3'\boldsymbol{\eta}] = 0$, but there is also no compelling reason to believe that this correlation is large.

Because the expected welfare recipiency measures are calculated only for a sample of the total population, they are not exactly orthogonal to the error term because of sampling variation. Hence, $\hat{\mathbf{X}}_1'\boldsymbol{\eta} = 0$ only in expectation, but in any sample $\hat{\mathbf{X}}_1'\boldsymbol{\eta}$ differs from zero. For the same reason, $\hat{\mathbf{X}}_2'\boldsymbol{\eta}$ is not exactly zero. This differs from the regular 2SLS, where the error term of the first stage is exactly orthogonal to the predicted variables and the exogenous variables in the second stage. This is the case because in the regular 2SLS the same sample is used for the first and second stages.

In the second stage, the missing (or endogenous) variables are replaced by their predicted values. Hence, the coefficient estimates are given by

$$\begin{aligned}\hat{\boldsymbol{\beta}} &= (\hat{\mathbf{X}}'\hat{\mathbf{X}})^{-1}\hat{\mathbf{X}}'\mathbf{y} = (\hat{\mathbf{X}}'\hat{\mathbf{X}})^{-1}\hat{\mathbf{X}}'[(\hat{\mathbf{X}} + \boldsymbol{\eta})\boldsymbol{\beta} + \boldsymbol{\epsilon}] \\ &= \boldsymbol{\beta} + (\hat{\mathbf{X}}'\hat{\mathbf{X}})^{-1}\hat{\mathbf{X}}'(\boldsymbol{\eta}\boldsymbol{\beta} + \boldsymbol{\epsilon}),\end{aligned} \tag{B6}$$

where $\hat{\mathbf{X}} = (\hat{\mathbf{X}}_1 \vdots \mathbf{X}_2 \vdots \mathbf{X}_3)$. From equation (B6), it is clear that two key requirements for the consistency of $\hat{\boldsymbol{\beta}}$ are that $E[\hat{\mathbf{X}}'\boldsymbol{\epsilon}] = 0$ and $E[\hat{\mathbf{X}}'\boldsymbol{\eta}] = 0$. The first requirement is the standard condition that the instrument must be uncorrelated with the error term. The second requirement is fulfilled by construction in the regular 2SLS but relies on $E[\hat{\mathbf{X}}_3'\boldsymbol{\eta}]$ being zero in my application.

The asymptotic variance-covariance matrix of $\hat{\boldsymbol{\beta}}$ is given by

$$\begin{aligned}E(\hat{\boldsymbol{\beta}} - \boldsymbol{\beta})(\hat{\boldsymbol{\beta}} - \boldsymbol{\beta})' &= (\hat{\mathbf{X}}'\hat{\mathbf{X}})^{-1}\hat{\mathbf{X}}'(\boldsymbol{\eta}\boldsymbol{\beta} + \boldsymbol{\epsilon})(\boldsymbol{\eta}\boldsymbol{\beta} + \boldsymbol{\epsilon})'\hat{\mathbf{X}}(\hat{\mathbf{X}}'\hat{\mathbf{X}})^{-1} \\ &= (\hat{\mathbf{X}}'\hat{\mathbf{X}})^{-1}\sigma^2_{\boldsymbol{\eta}\boldsymbol{\beta}+\boldsymbol{\epsilon}},\end{aligned} \tag{B7}$$

and the standard errors can be estimated by the diagonal elements of $(\hat{\mathbf{X}}'\hat{\mathbf{X}})^{-1}\hat{\sigma}^2_{\boldsymbol{\eta}\boldsymbol{\beta}+\boldsymbol{\epsilon}}$. This means that, in contrast to the regular 2SLS, the standard errors of the second stage do not need adjustment by the factor

$$\sqrt{\frac{\hat{\sigma}^2_{\boldsymbol{\epsilon}}}{\hat{\sigma}^2_{\boldsymbol{\eta}\boldsymbol{\beta}+\boldsymbol{\epsilon}}}}.$$

The standard errors need adjustment only if η drops out of (B6) because $\mathbf{X}'\boldsymbol{\eta} = 0$. As noted earlier, $\mathbf{X}'\boldsymbol{\eta} = 0$ holds by construction for regular 2SLS but holds only in expectation for the two-sample 2SLS used in this paper.

[10] This was not possible because the census STF does not contain n-way cross tabulations by census tract of all n demographic characteristics contained in $\mathbf{X}_2$ and $\mathbf{X}_3$.

Predicting State-Level Support for Welfare Using Estimates of Interpersonal Preferences

To construct a predictor of support for welfare driven by interpersonal preferences, I calculate for each census tract n in census year y

$$\text{(black support for welfare)}_{ny} = \alpha_y - 0.77\frac{\text{(black recipients)}_{ny}}{\text{population}_{ny}} - 3.71\frac{\text{(nonblack recipients)}_{ny}}{\text{population}_{ny}} \quad \text{(B8)}$$

and

$$\text{(nonblack support for welfare)}_{ny} = \beta_y - 6.67\frac{\text{(black recipients)}_{ny}}{\text{population}_{ny}} + 2.02\frac{\text{(nonblack recipients)}_{ny}}{\text{population}_{ny}}. \quad \text{(B9)}$$

The coefficients on welfare recipiency are those of table 2. The constants α_y and β_y are chosen such that in each year average black and nonblack support for welfare equals zero. This prevents the predictor from being driven simply by the statewide proportion of blacks. Average support for welfare spending in each tract is calculated as a weighted average of black and nonblack support:

$$\begin{aligned}\text{(support for welfare)}_{ny} = {} & \text{(black support for welfare)}_{ny} \\ & \times \text{(fraction black)}_{ny} \\ & + \text{(nonblack support for welfare)}_{ny} \\ & \times \text{(fraction nonblack)}_{ny}. \end{aligned} \quad \text{(B10)}$$

State-level welfare support is calculated as a population-weighted average of welfare support in the census tracts. To ensure that the predictor is not driven by a possible bias in the welfare proxy that varies across states, I rescaled the welfare proxy for each state such that the caseload/population ratio according to the proxy equals the caseload/population ratio from administrative data. This rescaling slightly reduces the statistical significance of the predictor.

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