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by

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ABSTRACT: A large body of empirical research has concluded that, at least during the 1950s and 1960s, the effect of welfare benefits on migration differed significantly by racial group, with blacks being attracted by and whites repulsed by areas that provided high welfare benefits. This study revisits the issue of racial differences in attractiveness to interregional differences in welfare benefits, using data from the U.S. Census of Population and a simultaneous equation model of state-to-state migration that accounts for a variety of economic, amenity, and spatial factors. In contrast to most previous empirical work, there is no statistically significant evidence that either origin or destination AFDC benefits affected migration during the 1965-70 period. The analysis indicates that conclusions regarding the influence of interregional differentials in welfare benefits on migration can be very sensitive to specification of the migration model. A carefully specified model estimated using an appropriate econometric methodology, however, will yield robust results. This is critical to understand given the renewed interest in this policy issue as a consequence of the current decentralization of the welfare system.

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The 1996 welfare reform bill (the Personal Responsibility and Work Opportunity Reconciliation Act), replaced the Aid to Families with Dependent Children (AFDC) program with the Temporary Aid to Needy Families (TANF) program. Under TANF, the federal government provides funding through fixed block grants to states. States now have much greater authority for administering the program, including decisions regarding eligibility, benefit levels, and program rules.

These major welfare system changes have renewed interest in an old topic: the effect of interarea welfare benefit differences on location decisions of low-income households. If low-income households respond to significant welfare benefits differences by migrating, then states offering relatively easy eligibility and generous benefits would attract a disproportionate number of the poor, thus bearing a relatively large burden of caring for the poor. If state legislators perceive this as the case, they may consider providing low benefit levels along with strict eligibility criteria and program rules. Advocates for the poor fear that states will engage in a "race to the bottom." Legislators may view benefit reduction as a means to encourage outmigration and discourage inmigration of the poor, thus partially exporting the poverty burden to other states.

Studies of migration that occurred during the 1950s and 1960s provide most statistical evidence regarding this "welfare magnet" issue. Many of these studies focused primarily on explaining the migration of black-Americans from the South to the North between World War II and about 1970. A second strain of literature, however, explicitly addressed the issue of whether the welfare system (usually the AFDC program) distorted migration choices, such that low-income households sought out high welfare-benefit locations. Some also looked for evidence that high-benefit locations repulsed the nonpoor, presumably due to higher tax burdens and negative externalities. This second strain typically used race to proxy poverty status, with blacks representing the poor and whites representing the nonpoor. The vast majority of the studies focused either exclusively on blacks (or nonwhites) or else stratified by race and compared outcomes for blacks and whites. With some significant exceptions, the most common

finding and lasting impression of the empirical literature was that the influence of welfare benefits on migration differed significantly by racial group. During the 1950s and 1960s, blacks searched for higher welfare benefits while whites tended to avoid locations that provided high welfare benefits.

This study reconsiders historical racial differences in attractiveness to interregional welfare benefit differences, using an interstate migration model. Methodologically, the research emphasizes shortcomings in model specification. I analyze migration during the 1960s, the most commonly used time period for previous studies. I hope to determine whether statistical evidence robustly supports a racial difference in response to welfare benefits or whether that conclusion resulted from model (mis)specification. Conclusions regarding specification issues should provide some guidance and cautions for the inevitable new round of studies as this issue's importance increases due to recent changes in the welfare system. With race and poverty so intertwined in the United States, it also helps to place race and welfare programs in proper historical context.

The Literature

Most studies regarding welfare benefits' effects on blacks' migration decisions during the 1950s and 1960s found that higher welfare benefits attracted blacks.[1] This supported the assertion of some scholars that "welfare discrepancies are large enough to constitute a powerful migration motive" [Groh (1972), p.69] for explaining the mass migration of blacks from the South to the North during the 1940-1970 period. Of those empirical studies that also reported separate results for whites, nearly all concluded that whites were less attracted to (or more repulsed by) higher welfare benefits.[2] Most authors acknowledged using black/white differences to proxy poor/nonpoor differences, since on average blacks were much poorer than whites. This literature leaves the lasting impression of significant racial differences in the response to interregional welfare benefit differences.

Published surveys have all concluded that this literature has serious shortcomings.[3] Most importantly, the surveys considered race as an inadequate proxy for poverty. This criticism led to a few more recent studies focusing more specifically on the poor population.[4] The criticism's validity,

however, actually strengthens a key impression from the earlier literature. If race serves as a poor proxy for poverty, then the early literature may indicate a real racial/cultural difference in the migration response to interregional welfare benefit differences.

The early literature also suffers from inadequate econometric specification. Most models lacked potentially important economic or amenity variables. Only a couple incorporated variables to capture "family/friends" factors which McHugh (1987, 1988) and others have found to be very important for explaining black migration. A few studies used a single variable such as distance to capture spatial relationships among origins and/or destinations. The remainder had no accounting for space. Any of these omissions might cause serious misspecification bias. For example, DeJong and Donnelly (1973) concluded that nonwhite migration tends to flow to large cities that *coincidentally provide higher AFDC benefits* (own emphasis). Given the findings of McHugh (1987, 1988) and others regarding channelized migration flows, one might also state that nonwhite migration from the South tended to follow the previously established migration channels to large cities of the Northeast and Midwest that *coincidentally provided higher AFDC benefits.*

The empirical model employed for the analysis, derived from a household utility maximization model, substantially remedies the misspecification problems. It includes a wide array of economic and amenity variables which more completely account for origin and destination characteristics. The model uses the two migrant stock variables employed by McHugh (1988) to capture the "family/friends" effect. It incorporates variables to better measure spatial relationships among origins and destinations. These specification issues can influence conclusions regarding the welfare system's effect on migration.

A Model of State-to-State Migration

The empirical migration model developed below follows directly from household utility maximization. Households maximize utility,

(1) $U = U(X, A)$,

subject to a budget constraint,

(2) $Y = PX$,

where X represents all goods and services for which households pay, P is the price of these goods and services, and A represents nontraded goods such as location-specific amenities. A household's utility may vary by location due to spatial variation in income potential, traded goods prices (i.e., the cost of living), and availability of nontraded goods. A household will move from location *i* if the expected discounted stream of utility at some other location exceeds that at location *i* by more than the cost of relocation. Extending the household model to an aggregate migration model yields

(3) $M_{ij} = M(Y_i, Y_j, A_i, A_j, P_i, P_j, t_{ij})$,

where M_{ij} is the volume of migration from *i* to *j* and t_{ij} is the cost of relocating from *i* to *j*. M_{ij} varies directly with Y_j, A_j, and P_i, and inversely with Y_i, A_i, P_j, and t_{ij}. Locations having characteristics generally associated with higher utility levels disproportionally attract migrants (or inhibit outmigration). High migration costs mute a potential destination's attraction.

The Empirical Model. This study employs a model of state-to-state population flows. The dependent variable is the number of migrants from state *i* to state *j* during the five year period as a percentage of state *i*'s beginning of period population-at-risk (MIGRATE).[5] Though a large areal unit has some disadvantages, the large sample size (small place-to-place flows of blacks often cause data problems) and stable areal boundaries over time (unlike the case for many metropolitan areas) make it useful. In addition, AFDC benefits generally were set at the state level, with limited local variation in some states. Most related early literature used states as the unit of analysis.

The model incorporates several variables to capture income potential, including origin and destination nonagricultural employment growth (EMPGROW), farm employment growth (FARMGROW), unemployment rates (UNEMPLOY), and per capita income (INCOME).[6] Generally, destinations (origins) with greater employment growth, a lower unemployment rate, and higher income will attract (retain) people. Higher origin unemployment and lower origin income, however, may also indicate a reduced overall ability to move, making the signs for their coefficients less certain for the

origin. Lacking a good composite measure of living costs, the model employs a measure of housing cost as a proxy. Low destination (origin) housing costs (HOUSING) should attract (retain) potential migrants, *all else equal*.[7]

The empirical model includes a variety of location-specific amenities. Climatological amenities measure cold weather (TEMPJAN) and relative humidity (HUMIDITY), with the expectation that warmer and drier climates attract people. Other amenity variables include the percentage of the population that is black (BLACKPCT), the percentage of the population residing in a metropolitan area (METRO), proximity to a major coastline (DCOAST), and type of terrain (TERRAIN). On average, a higher value of BLACKPCT may attract blacks (greater likelihood of acceptance and support), but possibly repulse whites.[8] A more metropolitan population may indicate better economic and social opportunities and more cultural diversity, but also more disamenities such as congestion and pollution. Coastlines and mountains may correlate with greater recreational opportunities, thus attracting population, but there is no strong theoretical basis for predicting the effects of these variables.

The relative size of both the origin and destination state populations (POPULATION), the number of persons born in destination state *j* but residing in origin state *i* prior to the migration period, as a proportion of the population of state *i* (RETURN), and the number of persons born in origin state *i* but residing in destination state *j* prior to the migration period, as a proportion of the population of state *i* (STOCK) capture some aspects of location-specific amenities and some of migration costs. Larger populations provide more and better economic, social, and cultural opportunities, ceteris paribus. In addition, large destination populations increase information flows regarding a potential destination, thus reducing migration costs. This may be relatively more important for blacks since it may help overcome some costs imposed by prejudice and discrimination. Previous migrants often return to family and friends and, due to more and better information, may incur relatively low costs in making such a move. Thus larger values of RETURN, which proxies the potential for return migration, should coincide with relatively greater migration from state *i* to state *j*. STOCK is similar to the migrant stock variable that Greenwood (1969) and others have used. Scholars have debated whether a positive migrant stock impact

represents a family, friends, and information effect or whether it simply reflects temporal stability in migration patterns (and washes out the effects of other variables). The documented importance of channelized migration flows for blacks necessitates using a migrant stock variable.[9]

Two variables capture the spatial relationship between origin and destination states. Greater spatial distance (DISTANCE) between origin and destination states should yield less migration. A simple distance measure, however, inadequately captures spatial relationships among large areal units, such as states. As in Cushing (1986), the model includes a dummy variable for adjacent states (DSTATE), with adjacent states expected to have relatively large migration flows, ceteris paribus.

Three variables control for additional factors that might otherwise bias empirical results. DFEDGOVT is a binary dummy variable equal to one for Maryland and Virginia, the two states most affected by having the seat of the Federal Government in the District of Columbia.[10] Biennial congressional elections, quadrennial presidential elections, and the resulting changes in political appointments cause inordinate movement into and out of these locations. MILITARY, the proportion of the adult population employed in the armed forces, should have a positive coefficient, reflecting greater inmigration and outmigration flows due to military turnover and transfers.[11] MOBILAGE controls for the percentage of the origin state's population in the highly mobile 20-34 age group, which should increase outmigration from a state.

Most scholars and policy makers hypothesize that high welfare benefits attract low-income individuals for whom such benefits may constitute a significant source of income.[12] This does not hold, however, for the black population as a whole. Most black persons are not poor. For blacks classified as poor during the period covered by this study, only families with dependent children (and for the most part single-parent households), met AFDC eligibility requirements. For high AFDC benefits to attract the black population as a whole, the AFDC benefit-migration association for the AFDC-eligible population would have to be so strong that the migration behavior of the much larger AFDC-ineligible population would not wash it out statistically. A state's AFDC benefit level may indicate the general level and quality of all social welfare programs available. In this case a greater portion of the black population

may respond to social welfare differentials as represented by AFDC differentials. For this minority of the population, however, the welfare benefit attraction would still have to be very strong in order to show up empirically as a net attraction for the black population as a whole.

Most assume that high welfare benefit states repulse nonpoor persons because of the association with higher taxes. By itself, the AFDC program would not affect taxes enough to drive the nonpoor out of an area. If AFDC benefits indicate the general level of social welfare services available, a significant repulsive tax effect could occur. The substantial amount of Federal funding of social welfare programs, however, should greatly mitigate any potential tax effect.

With both the benefit-attraction and the tax-repulsion effects at work, a study of aggregate migration should reveal an insignificant effect on black migration and an insignificant or small repulsive effect on white migration. The the tax-repulsion effect for the nonpoor majority of blacks should offset the benefit-attraction for the substantial poor minority of the black population. The small tax-repulsion effect for the substantial nonpoor majority of whites may more than offset the benefit-attraction for the small proportion of poor whites.[13] The welfare benefits variable used here (AFDCMAX) is the maximum monthly payment for a family of four (one adult and three children with no other source of income). For the 1965-70 period, it varied from $62.00 (Mississippi) to $339.50 (New Jersey).

The empirical model may seem rather large. Ultimately, the choice of explanatory variables comes down to the classic trade-off between the inefficiency of having too many variables and omitted-variable bias from having too few variables. Too many migration studies, especially older studies, have erred on the side of having too few variables, thus risking omitted variable bias, which can lead to statistically significant coefficients with incorrect signs. The model set out above covers the basic types of effects in the theoretical model: income potential, amenities, costs, and spatial relationships.

Model Estimation. I estimate separate equations for blacks and whites for the 1965-70 period. Each equation includes 35 explanatory variables (16 origin characteristics, 15 destination characteristics, and four spatial variables) and 1,786 observations, with the dependent variable being the migration rate from

each of 38 origin states to each of 47 possible destination states.[14] The empirical analysis uses Two Stage Least Squares estimation, with employment growth (EMPGROW) and housing value (HOUSING) as right-side endogenous variables. The model employs a mixed functional form, with theoretical considerations such as constant versus variable slope or elasticity and whether the regression line should pass through the origin guiding the choice of a specific functional form.[15] The dependent variable is logged, while the explanatory variables take a log (double-log), linear (semi-log), or reciprocal (log-reciprocal) form.

Empirical Results

Table 1 summarizes the empirical results. For purposes of comparison, the table includes point elasticities at the mean in place of estimated coefficients for all variables other than binary dummies. For the binary dummy variables, the table presents the proportional change in the migration rate when the dummy variable takes a value of one, instead of zero.

Of the 70 estimated parameters in Table 1, 50 are significant at the ten percent level or better (42 at the five percent and 35 at the one percent level). Collinearity diagnostics indicate some multicollinearity between MOBILAGE and the income variables, and perhaps among the income and various climate variables, with other variables largely unaffected.[16] Most importantly, diagnostics show no evidence that multicollinearity substantially alters the estimated coefficients of the AFDC variables.

In sharp contrast to most of the statistical literature, I find no evidence that welfare benefits influenced either inmigration or outmigration for either blacks or whites during the 1965-70 period. All estimated point elasticities are very small and statistically insignificant. The results support the hypotheses discussed above and dispute the findings of most of the previous literature, almost all of which focused exclusively on inmigration during the 1965-70 period.

There are a number of other interesting empirical results in Table 1. The return migration, migrant stock, and two spatial variables all had statistically significant effects in both equations. Migrant stock had one of the larger elasticities in the equation for whites. The "adjacent state" dummy reveals

Table 1: Empirical Results - State-to-State Migration, 1965-70

	Nonblacks		Blacks	
Variable	Spatial		Spatial	
RETURN[#]	0.295***		0.120***	
STOCK[#]	0.423***		0.373***	
DISTANCE	-0.198***		-0.292***	
DSTATE[&]	0.173***		0.599***	
	Destination	Origin	Destination	Origin
EMPGROW	0.286***	-0.216***	0.254*	-0.532***
FARMGROW	-0.032**	0.042**	0.280***	0.044
UNEMPLOY	-0.158***	0.049	0.157	-0.494*
INCOME	-0.001	0.983***	1.098*	0.636
AFDC	0.012	-0.054	-0.043	-0.181
HOUSE	0.092	0.226***	-0.979**	1.301***
BLACKPCT	-0.082***	-0.076***	0.134**	-0.174**
POPULATION	0.247***	-0.021	0.748***	0.031
METRO	0.098***	-0.229***	0.659***	-0.801***
MOBIL[#]		0.171***		0.505
DFEDGOVT[&]	0.128***	-0.004***	-0.209	-0.276*
MILITARY	0.097***	1.271	0.382***	0.184***
TEMPJAN	0.459***	0.591***	-0.464*	0.522*
HUMIDITY	-0.238***	-0.488***	-0.589*	0.039
TERRAIN	-0.034	-0.145***	0.137	0.238**
DCOAST[&]	0.076**	0.061*	0.034	-0.147

***significant at the one percent level; **significant at the five percent level; * significant at the ten percent level;

[#] Separate variables for blacks and whites.

[&] Binary dummy variable; coefficient is proportional change in the migration rate when the dummy variable takes a value of 1.

the importance of spatial effects most clearly. For whites, migration was 17 percent greater to adjacent states, all else equal. For blacks, migration was 60 percent greater to adjacent states.

Economic opportunity variables had mixed effects. For both races, higher employment growth attracted migrants to destinations and inhibited people from leaving the origin – few previous studies included any measure of employment growth. Whites stayed away from higher unemployment destinations, with blacks less likely to leave high unemployment rate origins. Income had a very strong "push" effect (out of origins) for whites and an equally strong "pull" effect on blacks to destinations. Higher cost of living, as represented by house values, pushed both groups out of origins and reduced black inmigration to destinations. Along with the pull of destination income, the cost-of-living variables had the strongest effects in the black migration equations.

Climate played a significant role in migration choices, but results very notably by racial group. Blacks were more likely to leave warmer climates and more likely to move to cooler, less humid climates. Whites were more likely to leave warmer, less humid climates but also more likely to move to warmer, less humid climates. As noted, multicollinearity appears to have influenced the coefficients of the climate variables, which may account for these seemingly conflicting results.

While most of the remaining coefficients were statistically significant in the equation for white migration, the proportion of the origin population in a highly mobile age group (MOBILAGE) had the only other strong effect. As expected, size and urbanization more strongly influenced black migration, with blacks attracted to larger, more metropolitan states and less likely to leave more metropolitan states. Military employment had much greater influence on black than on white migration, presumably reflecting a relatively greater importance of military employment opportunities for blacks.

I estimated a wide variety of migration models to determine how model specification affected conclusions regarding the influence of AFDC benefit differentials on migration. The results reported in Table 1 are robust to moderate changes in the number and types of explanatory variables included in the model. I could, however, easily develop a model that yielded the results seen in most of the literature, i.e., that blacks were attracted to and whites repulsed by higher AFDC benefits. More generally, I

obtained a variety of results by altering model specification or estimation methodology. Three results stand out in particular.

The number and specification of variables in the model substantially affected the AFDC result. Most studies used a small number of explanatory variables to explain a fairly complex migration phenomenon. Though absent in most of the literature, inclusion of variables such as RETURN, STOCK, POPULATION, METRO, HOUSE, and MOBILAGE in this study made a great difference in the empirical results, including on the welfare variable's coefficient. Going to the other extreme by using a "kitchen-sink" approach would bring on a whole new set of econometric problems. With a topic such as migration, however, researchers must think across disciplinary lines and include appropriate measures for the variety of potentially important factors.

Incorporating space, such as with a distance variable, greatly reduced the likelihood of finding statistically significant AFDC effects. Though migration is a spatial phenomenon by nature, most of the literature discussed above, including 18 of the 20 studies that found a significant attraction of blacks to higher AFDC benefits, neglected spatial considerations entirely. The two studies with the most complete accounting for space, Kau and Sirmans (1976) and McHugh (1988), did not find a significant attraction of blacks to higher AFDC benefits. In some models, specifying spatial variables would be difficult, but that does not make space any less important.

The structure of the empirical migration model makes a huge difference. Model choice can lead to the two problems noted above. Models focusing on aggregate inflows, outflows, or net flows were restricted to anywhere from 35 to 48 observations in this literature, depending on availability of necessary data by race. This provided relatively little information. Researchers either had to accept potentially severe multicollinearity or risk substantial omitted variable bias by limiting the number of explanatory variables. It appears that most chose the latter and hoped for the best. This type of model also eliminates any reasonable accounting for space. In contrast, modeling place-to-place flows allows consideration of important spatial variables and yields a large sample size, which can support a much larger set of explanatory variables without encountering severe multicollinearity.

Conclusion

Most studies regarding the effect of welfare benefits on migration decisions of blacks found that, during the 1950s and 1960s, locations offering higher AFDC benefits attracted black migrants, often in conjunction with a finding that such locations repulsed whites. This study generally supports the minority of studies that did not find an attraction of blacks to higher welfare benefits and suggests that misspecification bias drove the results of many studies. The model used here accounts for a variety of economic, social/demographic, amenity, and spatial factors. I find no statistically significant evidence that either origin or destination AFDC benefits affected migration decisions of blacks or whites during the 1965-70 period, the time period used for the vast majority of previous empirical studies.

Perhaps the most important academic and policy implication from this research concerns model specification. Conclusions regarding the influence of interregional differentials in welfare benefits on migration are very sensitive to specification of the migration model. Given the strong emotions on both sides regarding the welfare system, it is paramount that researchers develop carefully specified models, employ appropriate econometric methodology, and check robustness of results so as to clarify, rather than cloud, the issue.

The next logical step is to apply a similar model to more recent decades, focusing more clearly on the interaction between race, poverty, and migration. Unlike earlier decennial census data, aggregate migration flow data from the *1990 Census of Population* allows stratification by poverty status and , importantly, simultaneous stratification by race and poverty. Once released, migration data from the *2000 Census of Population* will allow a first glimpse at the period after welfare reform.

Obviously, analyses using microdata provide a valuable alternative to aggregate migration analyses, and often provide necessary detail on race and poverty status. Learning more about individual migration decisions helps our understanding of the migration process, but does negate the value of learning more about aggregate flows. For many policymakers, aggregate effects are the bottomline to which they respond. For better or worse, these aggregate studies also leave strong perceptions, in this case regarding a whole class of people.

As a final note, the literature on welfare benefits and migration provides a good example of how casual model specification can degrade a body of research and contribute to erroneous stereotypes or misguided perceptions. Undoubtedly, many perceive the explicit use of a black-equals-poverty proxy as racist, especially since the vast majority of blacks were not poor. On the flip side, the conclusion that blacks were attracted to high welfare benefits while whites were not certainly has fed some racist stereotypes of blacks as a predominately lazy group, content to feed at the public welfare trough. Today, many researchers express concerns that "political correctness" may have detrimental effects on scientific research. On the other extreme, however, research that unnecessarily polarizes the debate and strengthens misguided perceptions regarding a sensitive issue may be a more serious problem. In the case of the literature regarding migration and the welfare system, casual specification related to race has significantly decreased the value and effectiveness of the whole body of literature.

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Appendix

Variable Definitions and Sources (with functional form in parentheses)[a]

A. Dependent Variable

MIGRATE	number of persons residing in destination state j on April 1 of the census year who resided in origin state i five years earlier, divided by the number of persons who resided in origin state i five years prior to April 1 of the census year and were still living on April 1 of the census year[b,c] (Log)

B. Explanatory Variables

EMPGROW	percentage change in total nonagricultural employment (place of work), 1960-68
FARMGROW	change in total farm employment, 1962-66, as a percentage of the 1965 base population
UNEMPLOY	mean annual average unemployment rate, 1964-65
INCOME	per capita personal income, 1965 (Reciprocal)
AFDC	average of the maximum monthly AFDC benefit for a family of four, 1968 and 1969 (Reciprocal)
HOUSE	median value of single-family, owner-occupied housing divided by median number of rooms per unit, 1970
BLACKPCT	percentage of the base population that was black, 1965 (Log)
POPULATION	percentage of the total base population of destinations (other 47 lower states plus District of Columbia) [origins] that was residing in destination state j [origin state i], 1965 (Log)
METRO	percentage of a state's population residing in a metropolitan area, 1965
MOBIL	percentage of 1965 base population in a highly mobile age group (aged 20-34)[c]
RETURN	percentage of the 1960 population of origin state i born in destination state j[c] (Log)
STOCK	number of persons born in origin state i but residing in destination state j in 1960, as a proportion of the 1960 population of origin state i[c] (Log)
DISTANCE	highway mileage between the principal city of origin state i and that of destination state j
DSTATE	equals one if the origin and destination states are adjacent; equals zero otherwise
DFEDGOVT	equals one for states adjacent to Washington, DC (Maryland and Virginia); equals zero otherwise

MILITARY	percentage of the population aged 16 and over that was employed in the armed forces, 1970
TEMPJAN	mean temperature during the month of January (degrees Fahrenheit)[d]
HUMIDITY	mean relative humidity[d] (Reciprocal)
DCOAST	equals 1 for states that are on the coast of the Atlantic Ocean, Pacific Ocean, or Gulf of Mexico; equals zero otherwise
TERRAIN	an integer index of local topographical relief ranging from a value of 1 (very flat) to 9 (very mountainous).

[a] Variables with no functional form listed entered the model in linear form. Combined with the log form of the dependent variable, these variables have a semi-log relationship with the dependent variable. Likewise, explanatory variables in log form have a double-log relationship and those in reciprocal form have a log-reciprocal relationship.

[b] For black migration, some migration flows (MOBIL) were zero, where MIGRATE = MOBIL/Population-at-Risk. MOBIL was set equal to MOBIL + 0.1 to be consistent with the log form of the dependent variable.

[c] Variable defined separately for blacks and nonblacks.

[d] Computed as a weighted average of all metropolitan areas with a population exceeding 100,000 for which data was available. For states with no metropolitan areas in this size range, an average of the principal cities was used.

Endnotes

[1] Bass and Alexander (1972), Cebula (1974a,1974b,1975a,1975b,1975c,1976,1978), Cebula, Kohn, and Vedder (1973), DeJong and Donnelly (1973), Kaun (1970), Kohn, Vedder, and Cebula (1973), Ostrosky and Jensen (1978), Renas (1980), Sommers and Suits (1973), and Southwick (1981) found evidence that higher welfare benefits attracted blacks inmigrants. Cebula and Kohn (1975) and Kumar (1977) found that higher benefits inhibited black outmigration. Glantz (1973), Kau and Sirmans (1976), McHugh (1988), Pack (1973), and Premus and Weinstein (1977) found no evidence that higher welfare benefits increased black inmigration or inhibited black outmigration. Kleiner and McWilliams (1977) and Ziegler (1976) obtained mixed results.

[2] See Bass and Alexander (1972), Cebula (1974a,1974b,1975a,1975b,1978), Cebula and Kohn (1975), Kau and Sirmans (1976), Kohn, Vedder, and Cebula (1973), Pack (1973), Renas (1980), Sommers and Suits (1973), and Southwick (1981). All except Bass and Alexander (1972) and Kau and Sirmans (1976) found that blacks were more attracted to (or less repulsed by) welfare benefits than were whites.

[3] For example, see Glantz (1975), Cebula (1979), Moffitt (1992), and Charney (1993). In discussing the literature on black migration from the South, Long (1988, p. 149, fn. 6) concluded that the literature considering welfare benefits is flawed and provides no firm evidence that migration of blacks is strongly influenced by level or availability of welfare benefits.

[4] See Blank (1988), Cebula and Koch (1989), Cushing (1993), and Gramlich and Laren (1984).

[5] The beginning of period population-at-risk is the number of persons who resided in state *i* in April 1965 who were still residing in the United States in April 1970.

[6] Appendix A contains specific definitions for all variables.

[7] As Graves (1983) and others note, interregional differences in location-specific amenities may be capitalized into rents and incomes. With adequate controls for amenity differences, however, we can expect lower housing costs and higher incomes to attract households, holding amenities constant.

[8] The intrastate distribution of blacks and whites may influence the strength of this effect.

[9] McHugh (1987, 1988) addressed the relative importance of return migration and channelized migration flows for blacks. By itself, dropping STOCK from the model does not alter conclusions regarding the migration response of blacks to higher welfare benefits.

[10] This study excludes the District of Columbia owing to its peculiar nature as the seat of the Federal Government and because it consists entirely of a central city of an SMSA.

[11] For blacks, military employment as a percent of total employment increased from about 2.1 percent in 1960 to 2.4 percent in 1970. For whites it decreased from 2.7 percent in 1960 to 2.5 percent in 1970.

[12] Brehm and Saving (1964) viewed general assistance payments as a special case of demand for leisure, which is consistent with the alternative source of income perspective.

[13] Responsiveness to determinants of migration differs by age (for example, see Graves (1979)). Young workers tend to respond more to economic benefit differentials, presumably due to the longer time horizon for receiving benefits. The data for the time period covered by this study do not permit stratification of place-to-place flows by age. Even within specific age groups, however, a general attraction to higher AFDC benefits can only occur if the attraction to these benefits for the minority of low income blacks outweighs any repulsion for the larger nonpoor black population.

[14] The study excludes Alaska, Hawaii, and the District of Columbia as origins and destinations. It excludes ten additional states as origins: Idaho, Maine, Montana, New Hampshire, New Mexico, North Dakota, South Dakota, Utah, Vermont, and Wyoming. The *1970 Census of Population* did not provide racial breakdown for some necessary data, due to the relatively small black population of these states. Even if the data were available, black migration rates based on these small black populations would be relatively erratic, thus degrading overall results. I retain these ten states as destinations to make use of information about states that generally have not attracted blacks.

[15] See Studenmund (1997), Ch. 7.

[16] Based on collinearity diagnostics. See Belsley, Kuh, and Welsch (1980).