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# Does Welfare Dependency Cause Female Headship? The Case of the Black Family

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*This paper examines empirically the "economic motivation" explanation for the dramatic rise in the proportion of black families headed by females, an explanation positing the attractiveness of welfare as an inducement to black women to "choose" to remain unmarried. Using a Granger-Sims statistical causality test, applied to Current Population Survey and Social Security Administration data for the years 1955 to 1980, we establish that black female headship is not statistically caused by welfare attractiveness. We also argue for the endogeneity of relative AFDC benefit rates in a model of welfare dependency and female headship. Estimation of female headship, welfare dependency, and welfare benefit equations using an instrumental variable technique further fails to expose a short-term effect of welfare on family structure. The statistical driving force behind the increase in black female-headed families appears to be the decline in the supply of black males. The black female age distribution also is found to be a significant determinant of female headship among these families. We conclude that there indeed may be more than purely demographic effects involved in the changing composition of black families, such as long-term effects of social policies; these effects, however, cannot be uncovered in short time-series data.*

American families increasingly are headed by females. In 1960, among those families with one or more children under 18, slightly more than 7%

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were headed by women. By 1979 the proportion had risen to 17%. This is cause for significant concern because female-headed families are (a) more likely to live in poverty, (b) less likely to have a head in the labor force, and (c) more likely to experience economic hardship than are male-headed families.

The incidence of female headship among black families is even more alarming. Social policy commentators in the 1960s characterized the one-fourth of black families headed by females as irrefutable evidence that blacks are caught in a "tangle of pathology" (e.g., Moynihan, 1965:30). However, while reports of dramatic improvement in the economic condition of blacks proliferated, (e.g., Freeman, 1973) mounting evidence showed that more than 40% of black families are female headed and that these families are overwhelmingly poor.

A number of plausible explanations have been advanced to aid our understanding of the greater prevalence of female heads in black as opposed to white families. These explanations range from claims regarding continuity with traditional African family forms to hypotheses related to the class composition of the black population. We have reviewed these explanations at length in an earlier essay. (Darity and Myers, 1983a). Among policy-makers one of the more controversial explanations centers on economic motivations. This explanation posits that welfare "causes" blacks to choose family structures with women heads because of the strong inducements presented in the form of AFDC benefit payments.

This paper adopts a statistical framework within which to examine the economic explanation. The analysis focuses on the relatively recent experience of increasing rates of welfare dependence and female headship among black families in the United States. Our conclusion is that during the period 1955-1980 the statistical "driving force" behind the rising incidence of female-headed black families was not the attractiveness of welfare or welfare dependency. Moreover, if there is any empirical relationship among these factors at all, it appears to be the impact that female headship has had on welfare dependency and welfare benefit levels, not the reverse.

In a final commentary, however, we emphasize that the methodology of determining "causation" in short time-series data is hardly satisfactory in uncovering causal forces related to historical patterns of black economic dependency in America. There is no technique for establishing causation in a philosophical sense; and while there is a technique for establishing causation in a purely statistical sense, it has important limitations.

Historical theories certainly are rich in plausible hypotheses, but they also expose the weaknesses of existing statistical methods. If the interaction between welfare and female headship is viewed as merely another phase in the continuing disruption of black family life in America, then testing this Frazier-inspired (1939) theory rigorously would require data on black families ranging as far back as postdepression years. Our final comments reveal that such a test is worth undertaking.

#### THE ECONOMIC MOTIVATION ARGUMENT

The argument that black female headship is an economically motivated phenomenon has a long history. For the sociologist Oliver Cox (1940), it was the fragile economic position of the black male that compounded the inability of black women to find marriage partners. Moynihan

(1965) treated the extremely high rates of black male unemployment as the critical contemporary factor precipitating black male desertions of their families. There is a long tradition arguing that the stresses caused by poverty and male unemployment are important elements leading to marital disruption. John Bishop (1980:302-308) concluded, after assessing the literature, that "the association between unemployment and marital instability and dissatisfaction is well established."

At the heart of the economic argument is the idea that the economic insecurity of the black male is central to female headship. The weaker the black male's capacity to fulfill the provider role, the less likely he will be to marry or to stay in a marriage. The situation is aggravated when black women have access to income comparable with or in excess of that which black men could earn for their families; hence the significance of introducing the welfare system as an incentive for the formation of female-headed families.

In the hands of Gary Becker, the mix of constraints and opportunities leads to a rationalist explanation for the disproportionate growth in female headship among blacks. Blacks literally choose this family structure as an *optimal* form, given the economic conditions confronting them. Becker argues that racial differences in family structures are attributable to differences in the entire range of economic conditions faced by blacks and whites. Consider the following passages from Becker's (1981:231) recent collection of essays on the family:

The instability of black families in recent decades has been the subject of considerable interest and comment—the controversial Moynihan report . . . , for instance. The greater instability of black families is not entirely explained by migration to the North or by the recent growth in welfare; black families have been much less stable than white families since the beginning of the century, and probably even earlier, in both the South and the North. . . .

Black families should be less stable than white families, if only because blacks are much poorer and black women earn much more relative to black men than white women do relative to white men. . . . Black-white differences in income, earnings, and unemployment can explain much of the difference in their marital instability during recent years. . . . In view of the earning pattern of blacks over the past hundred years, we would expect black families to have been less stable than white families for a long time, whether or not they were similar in other respects. . . .

Of course, for Becker, if there was a marked change in the economic position of blacks, the characteristics of the black family would change

as well. Higher relative earnings for black males would produce more two-parent black families; so would a decline in independent sources of income for black women.

Becker's primary problem with this explanation is critical for understanding recent changes in black family structures. Since blacks have been poor, on average, for many years and since the earnings gap between black males and females has been less than that for whites for many years, what accounts for the accelerated growth in black female headship since 1960? As the previous quotation indicates, Becker is reluctant to ascribe it solely to the structure of the current scheme of welfare payments. Interestingly, Becker's (1974) early work on the economics of marriage points to the possibility of sex ratios affecting the marriage rate. Few writers have pursued this lead. A rare exception was the work of Becker's disciple Alan Freiden (1974) although Freiden's research did not involve an investigation of black marriage patterns. The prevailing wisdom among writers following the Becker approach is that the growth in welfare during the 1960s and 1970s is the proximate cause of the growth in female-headed black families.

Empirical analysis suggests a complete interaction of family formation and welfare. Richard Coe (1982) reports that the most overly represented group of individuals who are "long-term" dependents on welfare are nonelderly female heads of families. In particular, nonelderly black female heads represent a disproportionate share of long-term dependent welfare recipients. He suggests that welfare dependency may be caused by female headship:

Black women in general have low expected wages in the labor market, a result of a combination of low human capital and double discrimination (being black and female). With child care responsibilities piled on top of bleak labor market prospects, welfare may be the only source of livelihood for this group. [Coe, 1982:48]

While arguing that the welfare system does not promote long-term dependency, Coe presents illuminating evidence that suggests a completely different conclusion. He shows that "of all non-elderly black female heads or wives in 1969 who were ever in a household which received welfare at some time in the 1969-1978 period" (Coe, 1982: 48), most were themselves dependent on welfare at some time. A significant proportion of the members of this group experienced long-term dependency on welfare. Rather than implying that female headship causes welfare dependency, Coe's finding could equally reveal an opposite direction in causation. Perhaps welfare dependen-

cy or the welfare system causes black female headship.

The heart of an increasingly pervasive economic argument lies in the claim that welfare in America has caused the breakup of the family. The high level of female headship among black families is cited as evidence in favor of the argument. Specifically, so the argument proposes, female-headed families arise out of marital disruption or result from single women who bear children out of wedlock and who then decide not to marry. The AFDC system of welfare, as MacDonald and Sawhill (1978:103) relate, "relieves economic pressure to remain married, or to (re)marry, since it provides a source of income for women outside of marriage." Thus, the current welfare system presents destabilizing incentives for the family.

A starker variant of the Becker-type explanation is that the attractiveness of welfare—rather than the existence of the welfare system alone or its particular categorical requirements—is the cause of female headship. The explanation for the higher rate among black families as compared with white ones is that welfare is relatively more attractive to blacks.

The rich empirical literature provides the major thrust for the hypothesis that AFDC benefits are positively related to the rate of female (especially black female) headship. MacDonald and Sawhill have reviewed the early evidence—based largely on 1960 data—and have cautiously concluded that the evidence is mixed. However, the evidence from the 1970s for blacks and nonwhites seems more certain. In particular, Ross and Sawhill (1975) demonstrate that there is a positive and significant effect of welfare benefit levels on the proportion of nonwhite women heading families.

Virtually all of these many studies examining the effect of AFDC either on the fraction of families headed by women or on the fraction of women who head families have used *nominal* AFDC benefits as a measure of welfare attractiveness. Yet, more erudite studies obtain similar results. Danzinger et al. (1982), for example, compute measures of the expected earnings and value of leisure for the "state" of being married. As these measures rise—and, therefore, the relative attractiveness of the female-headed-cum-welfare state falls—the incidence of female-headed families falls.

The conventional economic wisdom, then, is that family structure depends on various incentives and disincentives, including potential payments from welfare. The causal chain between welfare and female headship, however, is blurred by the finding that family structure seems to influence directly the dependence on welfare. This

suggests that previous results adopting estimation techniques that assume a unidirectional relationship between welfare and family structure may be erroneous.

#### EMPIRICAL ASPECTS OF THE ECONOMIC MOTIVATION ARGUMENT

The source for our analysis of recent changes in female-headed families among blacks is the Current Population Survey (CPS). Published since 1955 in the P-20 Series of the Bureau of the Census's *Current Population Reports* are data on family heads by race. Before 1968 the racial breakdown of family status refers to whites and nonwhites. Actual black enumerations are used from 1968 on. The analysis of female heads presented in the following section ignores these pre- and post-1968 racial distinctions. However, attempts to adjust other data for nonwhite-black differences suggest that any potential bias from using nonwhite data in the pre-1968 period is likely to be small.

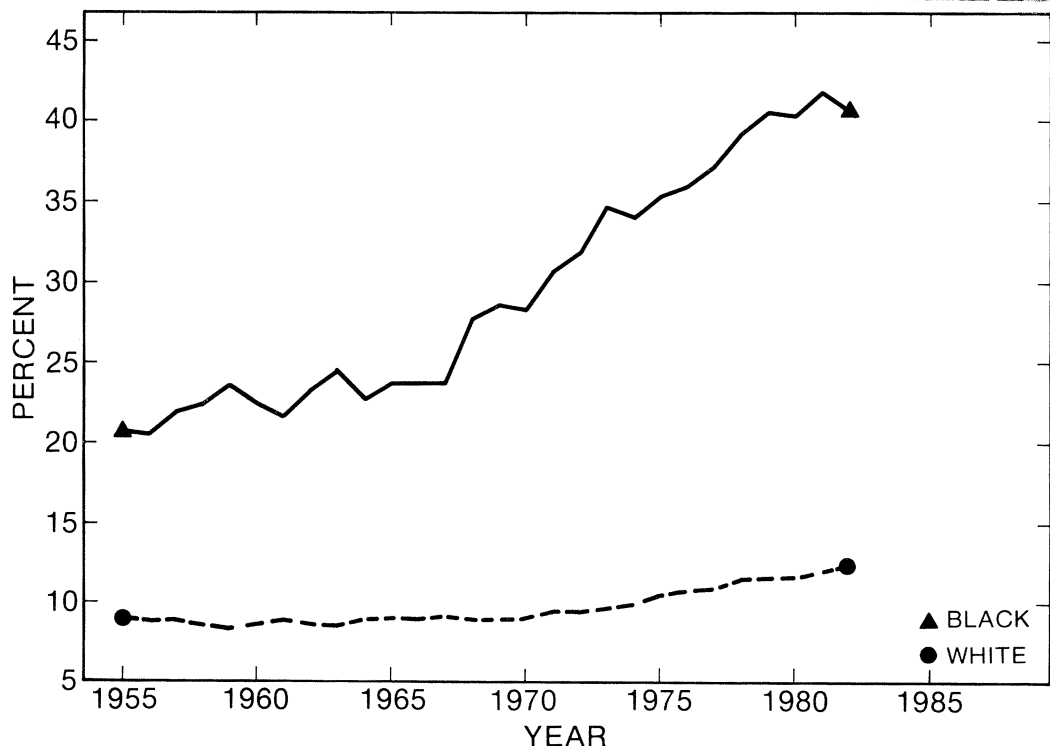
Figure 1 displays the ratio of female-headed families to total families for blacks and whites. We observe the sharp rise in the proportion of black families headed by females beginning in

1970. Although from 1955 to 1969 there seem to be erratic year-to-year shifts in the percentage of female-headed families among blacks, the overall trend seems little different from the virtually flat trend among whites during those years.

Two facts stand out conspicuously. Even from the beginning of our data series, there is a large and significant gap in the measure of family structure between blacks and whites. The evidence, consistent with earlier studies, suggests that blacks are twice as likely to form female-headed families as whites are. A second fact, which is the basis for our immediate inquiry, is that the gap has widened since 1970. This widening is almost exclusively a result of the rapidly accelerating rate of female heads among black families.

We also have gathered data on welfare dependency and average welfare benefits. One measure of black welfare dependency is the percentage of black families receiving AFDC benefits. To compute this we obtained the nonwhite proportion of AFDC families from the Social Security Administration's odd-year publication, *Recipient Characteristics Study*. Even years were extrapolated. The number of AFDC families for each year was obtained from various issues of the *Social Securi-*

FIGURE 1. PERCENTAGE FEMALE FAMILY HOUSEHOLDERS



ty Bulletin, from which AFDC benefit data were also obtained. Multiplying the percentage of AFDC families that are nonwhite by the number of AFDC families and then dividing this product by the number of black (nonwhite) families gives an estimate of the proportion of black families on welfare.<sup>1</sup>

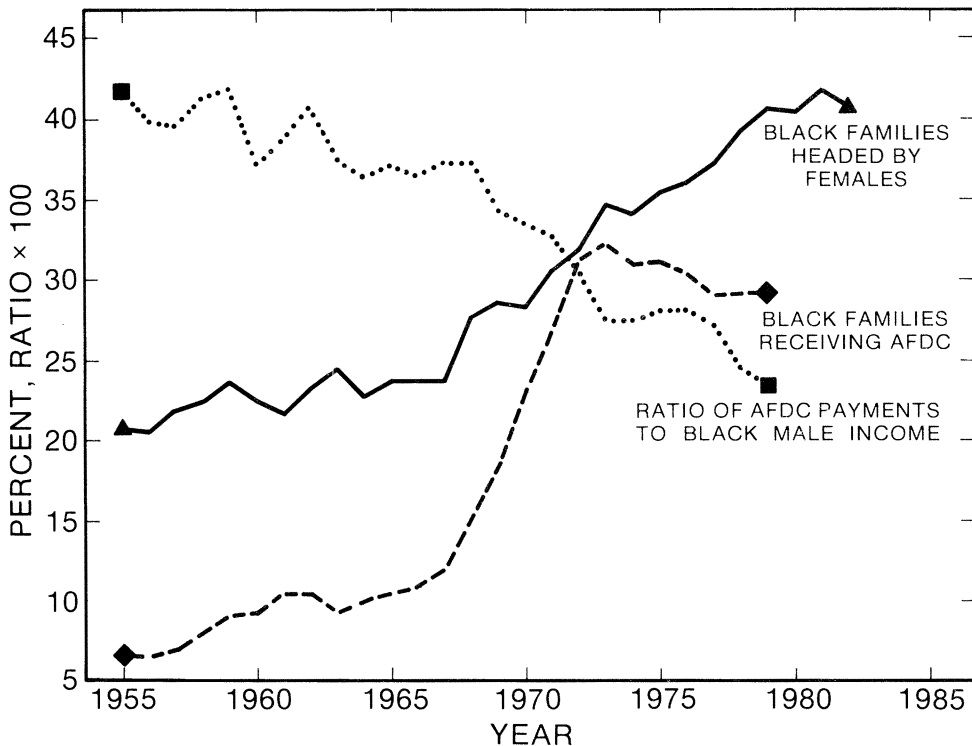
Another variable we are interested in measuring is the relative attractiveness of being on welfare. Real AFDC payments—which have been falling since 1966—represent one possible measure. Since our interest is in a measure of the attractiveness of welfare relative to alternative lifestyles (e.g., working and living in two-parent households) a more refined measure is required. We define expected nonwhite male income to be the product of that group's probability of being employed and the income received if employed. Data for these variables, based on the CPS, were obtained from various editions of the Census Bureau's *Statistical Abstract*. The ratio of AFDC monthly payments to the expected income (per month) of full-time employed black males is a proxy for the attractiveness to a female of being on welfare relative to being with a full-time employed male.

Another notion of the relative attractiveness of welfare is the ratio of AFDC benefits to black female income. What is measured here is the so-called return from her being on welfare rather than working full-time.

Both of these measures display remarkably similar patterns. They both reveal erratic fluctuations during the 1950s and early 1960s, followed by an overall decline in the 1970s. There is a very sharp and pronounced drop in welfare attractiveness from 1968 to 1972, followed by a mild yet temporary rise in both trends. The short-lived "improvements" were concentrated in the recession years of 1974–1975. From 1976 on, the attractiveness of welfare continued to plunge.

Figure 2 shows this clear pattern of welfare attractiveness using the male measure. Reproduced is the black female-headed family ratio along with the plot of the fraction of black families on welfare. What we see is a suggestive reversal of trends occurring during the years 1968–1972 at the very time when relative welfare benefits were falling rapidly. Before the 1970s an apparent similarity in trends existed among black welfare dependency, relative welfare benefits, and black fami-

FIGURE 2. WELFARE DEPENDENCY, RELATIVE AFDC BENEFITS, BLACK-FEMALE FAMILY HOUSEHOLDERS



lies headed by females. Welfare participation and female-headed families were increasing, and welfare attractiveness was falling. The year 1972 marks a perceptible turning point in these trends: welfare dependency begins to drift downward, welfare becomes less attractive, and yet the fraction of black families headed by females continues its rise. This is the crux of the relationship that we would like to investigate.

Immediately we see a major contradiction to the hypothesis that the rising incidence of female-headed families among blacks can be attributed to welfare. Not only is welfare attractiveness falling everywhere as the fraction of black families headed by women is rising, but until 1972 this inverse relationship is also seen to hold for welfare attractiveness and welfare participation. Rather than inducing increases in female-head families, welfare benefits seem to do exactly the opposite; they seem to be associated with lower rates of female-headship and welfare participation.

#### A TEST OF "CAUSALITY"

Typically, in cross-sectional data, information about direction of causation is grounded upon prior theoretical premises. The untested assumptions or maintained hypotheses guide the choice of appropriate estimation technique. With time-series data a recommended preliminary statistical check for direction of causation is provided by the Granger-Sims Test (e.g., Sims, 1972). The logic of the test is simple.

We observe two series through time,  $A(t)$  and  $B(t)$ . The question is whether the  $A$  series is driving the  $B$  series or whether  $A$  is merely responding passively to  $B$ . For convenience, in the former case we say that  $A$  is a cause of  $B$ . In the latter case we would want to explore further to see if  $B$  is a cause of  $A$ .

We have the following equations:

$$A_t = f(B_{t-m}, B_{t-m-1}, B_{t-m-2}, \dots, B_{t-1}, B_t, \dots, B_{t+n}, t), \quad (\text{Eq. 1})$$

$$B_t = f(A_{t-m}, A_{t-m-1}, \dots, A_{t-1}, A_t, \dots, A_{t+n}, t), \quad (\text{Eq. 2})$$

where  $m$  denotes periods of lag and  $n$  denotes periods of lead. Equations 1 and 2 state that the leads and lags of  $B$  affect  $A$  and that the leads and lags of  $A$  affect  $B$ . If there is no relationship at all between  $A$  and  $B$ , we would expect estimated coefficients of the lags and leads to be zero. Any appearance of a dependency of  $A$  on  $B$  or of  $B$  on  $A$  would be eliminated by inclusion of the time trend,  $t$ .

Now, if there is a one-way direction of causation so that  $B$  causes  $A$  but  $A$  does not cause  $B$ , then we would expect the lag values of  $B$  to have significant effects on  $A$ —the past leads to the present—but we would not expect the lead values of  $B$  to exhibit any influence on  $A$ . Moreover, when we estimate the effects of the leads and lags of  $A$  on  $B$ , we will observe significant effects of the leads of  $A$  on  $B$ , but only because  $B$  causes  $A$ —the past values of  $B$  determine the current values of  $A$ —so the illusion is that the future of  $A$  is affecting the current value of  $B$ . This instance implies that  $B$  is exogenous and  $A$  is endogenous.

If we find that the future values of  $A$  affect  $B$  and that the future values of  $B$  affect  $A$ , then there is a bidirectional relationship between  $A$  and  $B$ . They are dependent upon one another. This instance implies that  $A$  and  $B$  are both endogenous. Of course, to rigorously show endogeneity, one must be prepared to offer a fully specified simultaneous equation model. In general, then, "causality" tests are at most explanatory devices for statistical sorting-out of endogenous variables.

The specific Granger-Sims test we conducted relates to the proportion of black families headed by females ( $BFFH_t$ ), the attractiveness of welfare relative to expected black male income ( $BAFDC_t$ ), and the percentage of black families on welfare ( $BAFDC_t$ ) taken in pairs. Given the relatively short time series, only two leads and two lags are included in each regression, which also includes a constant term and linear time trend.

It is instructive to focus on one pair,  $BFFH$  and  $BAFDC$ . The coefficient estimates to be obtained are:

(Eq. 3)

$$BFFH'_t = \hat{\theta}_0 + \hat{\theta}_1 t + \hat{\theta}_2 BAFDC'_{t-2} + \hat{\theta}_3 BAFDC'_{t-1} + \hat{\theta}_4 BAFDC'_t + \hat{\theta}_5 BAFDC'_{t+1} + \hat{\theta}_6 BAFDC'_{t+2}, \quad (\text{Eq. 4})$$

$$BAFDC'_t = \hat{\phi}_0 + \hat{\phi}_1 t + \hat{\phi}_2 BFFH'_{t-2} + \hat{\phi}_3 BFFH'_{t-1} + \hat{\phi}_4 BFFH'_t + \hat{\phi}_5 BFFH'_{t+1} + \hat{\phi}_6 BFFH'_{t+2},$$

where  $BFFH' = \ln [BFFH / (1 - BFFH)]$  and  $BAFDC' = \ln (BAFDC)$ . A test of unidirectional causation—e.g., that welfare causes female-headed families but the proportion of female-headed families has no effect on the fraction of families receiving welfare—is a test of the hypothesis that  $\hat{\theta}_5 = \hat{\theta}_6 = 0$ , while  $\hat{\theta}_2, \hat{\theta}_3, \hat{\theta}_4 \neq 0$  and  $\hat{\phi}_3, \hat{\phi}_6 \neq 0$ . This is easily seen to be an  $F$  test

TABLE 1. GRANGER-SIMS TEST FOR ENDOGENY OF BLACK WELFARE DEPENDENCY, RELATIVE ATTRACTIVENESS OF WELFARE, AND FEMALE-HEADED FAMILIES (1957-1977)

	Female Head on AFDC	AFDC on Female Head	Welfare Dependency on AFDC	AFDC on Welfare Dependency	Female Head on Welfare Dependency	Welfare on Dependency Female Head
Leads & lags						
$R^2$	.9783	.9629	.9364	.9729	.9506	.9477
$F(6, 15)$	112.8040	64.8421	36.8355	81.7841	48.1575	45.3455
Lags only						
$R^2$	.9565	.9560	.9098	.9409	.9342	.9234
$F(4, 17)$	93.3528	92.3372	42.8744	67.7148	50.3098	51.2541
$F(2, 15)$ for leads	7.5346	1.3949	3.1368	8.8561	2.4899	3.4847

Sources: U.S. Dept. of Commerce, Bureau of the Census, *Current Population Reports Series P-20 and Statistical Abstracts of the United States*; U.S. Dept. of Health and Human Services, Social Security Administration, *AFDC Recipient Characteristics Study and Social Security Bulletin, Annual Statistical Supplement*.

of whether the leads in equation 3 are zero, the lags are nonzero, and the leads in Equation 4 nonzero. Rejecting the hypothesis that  $\theta_1 = \hat{\theta}_1 = 0$  means that the two variables are endogenous.

Table 1 summarizes the Granger-Sims results. The first two rows present the  $R^2$ s and  $F$  statistics for three pairs of regressions. Displayed in the middle two rows are the summary results of the regressions without the leads. The final row provides the  $F$  statistic for the null hypothesis that the lead coefficients are zero. If the value of  $F$  statistic exceeds 3.68, we reject the null hypothesis at a 5% significance level.

The leads of AFDC, the relative attractiveness of welfare, have a statistically significant effect on the current black female-headed family rate. The  $F$  statistic of 7.5 leads us to reject the null hypothesis that there is no effect of future values of AFDC on female headship. Since the reverse test—the effects of future values of the female-head variable on current AFDC—does not reveal a parallel effect and since the lagged values of BFFH have a significant effect on AFDC, we conclude that the rate of black female-headed families is a “cause” of the level of AFDC payments, rather than the other way around. The complete regression results for this pair of equations reveals an intriguing finding. Not only does female headship seem to be driving AFDC benefits; it also does so inversely. Higher black female-headed family propensities are associated with lower relative AFDC benefits. This unconventional result, evident in Figure 2, is entirely consistent with the view that government policy instruments are often a response to significant public policy problems. The falling relative levels of welfare benefits may be a result of the growing awareness among policymakers that female-headed families are growing. Evidently, led by the delusion that reduced welfare attractiveness would curtail the growth of such families, policymakers throughout the 1970s may have permitted the growth of AFDC benefits among blacks to lag the growth in black male income.

The remaining four columns in Table 1 are equally informative. The future values of welfare dependency have significant effects on current AFDC, suggesting that welfare dependency depends on the relative attractiveness of welfare. In contrast, AFDC seems exogenous with respect to black welfare dependency. At the chosen level of significance, moreover, we are unable to reject the null hypothesis that welfare dependency and family structure are exogenous: the leads of neither BFFH nor BAFDC affect the current values of the other variable at the 5% level of significance. The evidence of a causal relationship



between welfare dependency and female-headed families among blacks is quite weak.

These results neither provide an explanation for female headship among black families nor demonstrate irrefutably the causal link among welfare dependency, welfare attractiveness, and family structure. What the results show, however, is the likelihood that AFDC and possibly welfare dependency should be regarded as endogenous when estimating equations that purport to predict the rate of female-headed families. This likelihood is the justification for the instrumental variables estimation procedure adopted next.

#### FURTHER RESULTS

Other important factors, of course, could affect female headship and welfare dependency, factors omitted from our Granger-Sims tests. For example, as MacDonal and Sawhill (1978) have pointed out, illegitimate birth rates can be a determinant of family structure by way of the incentives and disincentives of the welfare system; so they also should affect welfare participation rates and possible benefit levels. The supply of black men captured by the ratio of black females to males in various age groups also should influence welfare and family structure. Male mortality rates also may influence welfare dependency and family structure by way of their effect on the male supply.

The attractiveness of welfare is the ratio of AFDC monthly payments per AFDC recipient family to expected nonwhite male income. The numerator of this measure is unadjusted for changing family size. However, the AFDC recipient is to be firmly preferred to the individual recipient as a reference group, because the economic choice involved here is that regarding leadership of the family. Although the AFDC benefits are intended for the care and welfare of dependent children, it is the head of the family who normally receives the benefits; thus it is the family benefit that ought to affect the leadership decisions. The denominator of the relative AFDC measure, in turn, represents the earnings potential of an alternative to heading a family. Marriage to a male employed full-time is the alternative considered. There are other alternatives, of course. We investigated the time path of a measure that uses expected full-time employee female earnings as a denominator and found that it moved almost symmetrically with the AFDC-expected male-earnings measure. Still another measure of relative attractiveness is the ratio of nonwhite male income to nonwhite female income.

A final factor that we control for is the black female age distribution. This is captured by vari-

ables denoting the percentage of black females over 18 years old in the age groups 20-24, 25-29, 30-34, 35-39, over 65.<sup>2</sup>

Denoting the odds ratio of black female headship or  $BFFH_t/(1 - BFFH_t)$  by  $BFFH_t^*$ , the ratio of illegitimate nonwhite births to nonwhite females by  $ILLEG_t$ , the ratio of mean earnings for nonwhite males to nonwhite females by  $MF_t$ , and the black female-male ratios and black female age distribution for age cohorts  $j$  and  $k$  respectively by  $RATE(j)_t$  and  $AGE(k)_t$ , we propose the following log-linear model:

$$\ln BFFH_t^* = \alpha_0 + \alpha_1 \ln(AFDC_t) + \alpha_2 \ln(BAFDC_t) + \alpha_3 \ln(ILLEG_t) + \alpha_4 \ln(MORT_t) + \alpha_5 \ln(MF_t) + \alpha_6 \ln(RATE(j)_t) + \alpha_7 \ln(AGE(k)_t) + \epsilon_t, \quad (\text{Eq. 5})$$

$$\ln(BAFDC_t) = \beta_0 + \beta_1 \ln(AFDC_t) + \beta_2 \ln(BFFH_t^*) + \beta_3 \ln(ILLEG_t) + \beta_4 \ln(MORT_t) + \beta_5 \ln(MF_t) + \beta_6 \ln(RATE(j)_t) + \beta_7 \ln(AGE(k)_t) + \mu_t, \quad (\text{Eq. 6})$$

$$\ln(AFDC_t) = \gamma_0 + \gamma_1 \ln BFFH_t^* + \gamma_2 \ln(BAFDC_t) + \gamma_3 \ln(ILLEG_t) + \gamma_4 \ln(MORT_t) + \gamma_5 \ln(RATE(j)_t) + \gamma_6 \ln(AGE(k)_t) + \nu_t. \quad (\text{Eq. 7})$$

The interdependence of  $\epsilon_t$ ,  $\mu_t$ , and  $\nu_t$  justifies the adoption of an instrumental variable estimation technique (Pindyck and Rubinfeld, 1981: 174-183). Note that, if BAFDC and AFDC truly are exogenous in determining the proportion of black families headed by females, then the instrumental variable estimation yields the OLS estimates.

The instruments chosen include the logs of all the exogenous variables in Equations 5, 6, and 7 in addition to a linear time trend, a constant term, and the black male unemployment rate. Varia-

TABLE 2. INSTRUMENTAL VARIABLE ESTIMATES OF THE DETERMINANTS OF BLACK FEMALE-HEADED FAMILIES, WELFARE DEPENDENCY, AND RELATIVE AFDC PAYMENTS (*t* STATISTICS IN PARENTHESES)

Right-side Variables <sup>a</sup>	Dependent Variable <sup>a</sup>				
	Female Head (BFFH*)		Welfare Dependency (BAFDC)	Relative AFDC Payments (AFDC)	
Endogenous:					
AFDC <sup>b</sup>	-.4164 (-1.1980)	-.3377 (-.8384)	.1124 (.1740)	—	—
BAFDC <sup>c</sup>	-.1157 (-1.0531)	-.0693 (-.3880)	—	.0430 (.1576)	.1558 (1.0601)
BFFH <sup>d</sup>	—	—	1.0280 (2.6248)	-.4462 (-1.1111)	-.5918 (-1.9303)
Exogenous:					
Rate <sup>e</sup>	6.6340 (1.3908)	6.5310 (1.8827)	7.8439 (2.9498)	-1.8089 (-.7078)	-2.6939 (-1.9303)
Age 6 <sup>f</sup>	2.4060 (3.1065)	2.3591 (3.0490)	1.4640 (1.3854)	-.4619 (-.6015)	-.5690 (-.7512)
Age 7 <sup>g</sup>	1.0540 (2.0963)	1.0011 (1.9420)	-.3121 (-.5238)	.1328 (.3337)	.1358 (.3345)
Age 5 <sup>h</sup>	1.9601 (1.5219)	1.6391 (1.0618)	3.3745 (1.6563)	.1395 (.0872)	-.2654 (-1.1762)
Illegitimacy <sup>i</sup>	-.3273 (-.7205)	-.1746 (-.2869)	-2.0753 (-2.6643)	.0094 (.0127)	.3438 (.8073)
Mortality <sup>j</sup>	1.2506 (1.9607)	1.0187 (1.1489)	2.3026 (2.2171)	.5263 (.6003)	.2310 (.3278)
MFk	—	.2857 (.3709)	-2.7361 (-3.2941)	-.4741 (-.5468)	—
Constant	2.4025 (.8294)	2.7722 (.9267)	-5.3633 (-.0380)	-2.3780 (-.6721)	-1.3849 (-4.470)
Standard Error of Estimate	.0526	.0519	.0766	.0507	.0517
Durbin-Watson Statistic	2.2772	2.1960	1.9059	2.0658	1.9625
N	25	25	25	25	25

<sup>a</sup>All variables are expressed in natural logs.

<sup>b</sup>Ratio of (a) monthly AFDC payments per AFDC family to (b) expected nonwhite male income.

<sup>c</sup>Percentage of black families receiving AFDC.

<sup>d</sup>Odds of black family being female headed.

<sup>e</sup>Ratio of black females to males: (a) in BFFH, equation relates to ages 18 and over; (b) in BAFDC and AFDC, equations relates to ages 20-39.

<sup>f</sup>Fraction of black women 18 and over who are 20-29.

<sup>g</sup>Fraction of black women 18 and over who are 30-39.

<sup>h</sup>Fraction of black women 18 and over who are 65 and over.

<sup>i</sup>Ratio of nonwhite illegitimate babies to nonwhite women over 14.

<sup>j</sup>Number of nonwhite male deaths per 1,000 nonwhite male population.

<sup>k</sup>Ratio of nonwhite male income to nonwhite female income for full-time year-round employed workers.

tions in the specifications of these equations and the instruments used in estimating them were tested, primarily by varying the inclusion of demographic factors. The overall results are not particularly sensitive to choice of instruments or included demographic variables.

Table 2 presents instrumental variable estimates for these basic equations: the odds ratio of female heads among black families (BFFH\*), the fraction of nonwhite families receiving AFDC (BAFDC), and the relative attractiveness of AFDC, all expressed in logarithms. Hence, the coefficient estimates can be regarded as elasticities.

The attractiveness of welfare and welfare dependency exhibit no effects on black female family heads. Similarly, neither nonwhite illegitimate birth rates nor male-to-female income ratios affect family structure. The statistically significant determinants of black family structure are the female age distribution, the nonwhite male mortality rate, and the female-male ratio.

Some of the rise in the proportion of female-headed families among blacks can be accounted for by the rise in the fraction of black females who are 20-29 years of age; however, the largest marginal effect on the odds of a black family be-

ing headed by a female comes from the female-male ratio. A 1% increase in the ratio of black women to black men results in more than a 6% increase in the black female-headed family odds. For example, black female-headed family odds of 2/3 are associated with a 40% rate of female headship. A 1% rise in the ratio of black females to males (say from 1.1400 to 1.1514) would raise the black female-headed family odds to more than 7/10, meaning that more than 41% of black families would be female-headed. This is an elastic response suggesting that the availability of black men is a key and crucial factor explaining female-headed families among blacks.<sup>3</sup>

The welfare dependency equation yields equally telling results. The ratio of females to males in the 20–39 age group significantly raises welfare dependency rates, as does the nonwhite male mortality rate. Higher relative male incomes reduce welfare dependency, while illegitimate nonwhite birth rates unexpectedly are inversely related to welfare dependency. Although there is a positive relationship between the fraction of black females over 65 and welfare dependency, virtually no significant impacts are found among other age groups.

The incidence of female-headed families, however, has a strong and elastic effect on welfare dependency. A 1% increase in the BFFH odds ratio results in a little more than 1% increase in the fraction for nonwhite families on welfare, once other relevant factors have been accounted for. Furthermore, the relative attractiveness of welfare appears not to raise significantly the proportion of black families that are AFDC recipients, once factors such as female age distribution and the relative supply of men have been accounted for.

Finally, the results from the AFDC estimation suggest a novel story worthy of further investigation. The only significant determinant of relative AFDC rates is the odds that a black family is female headed. As these odds rise, the relative attractiveness of AFDC falls! Just as Piven and Cloward (1971) have argued that to encourage black outmigration Southern states kept welfare benefits covertly low relative to northern AFDC rates during the 1960s, our results suggest that over the period of 1955–1980, as the supply of eligible welfare recipients increased, states permitted nominal AFDC benefits to lag behind male earnings. This seems particularly relevant for the post-1960s era when relative AFDC benefits saw their sharpest drop. This dramatic finding is particularly plausible in light of the widely heralded attempts during the current period to reduce welfare rolls and to increase labor-force participation rates of welfare-eligible individuals.

## PESSIMISM FOR CAUSALITY: INSIGHTS FOR AN ALTERNATIVE THEORY

Unlike other researchers who find that the attractiveness of welfare or other measures of relative returns from being unmarried determine the female's "choice" to head her own family rather than adopt a traditional family structure, we find no such statistical effect. We do not find a strict "welfare dependency" effect either. Our findings reveal no short-term effect of variations in welfare payments on female headship among black families. We do find a possible feedback loop from black female headship to welfare payments; but on the basis of our statistical investigation, we must reject the hypothesis that the relationship between these two phenomena is bidirectional.

The techniques employed to demonstrate that welfare does not "cause" female headship have included essentially statistical tests incapable of proving or disproving causality. As John Geweke (1982:20) has so aptly indicated, the notion of causality here is not akin to that used by philosophers of science:

The difficulty is that Weiner-Granger causality is a statement about predictability in the population . . . but contains no reference to the notion of *systematic forcing* (Bunge, 1959, Chapter 12) that is common to classical definitions.

Specifically, he notes that a rejection of a unidirectional causation hypothesis, such as ours relating welfare dependency to female headship, does not constitute rejection as a causal law. This point has been made most succinctly by Robert Goodin and Ilmar Waldner (1979:7), who remind us that appearances may be deceiving:

If the goods of a policy come immediately but there is a hundred year time lag between a program and its ill effects, incrementalist [policy-makers] will be expanding a program every year for a century before feeling the unwelcome consequence, of the first year's intervention; and even if they then halt the program immediately they will reap the increasingly grievous fruits of a hundred years of misguided intervention.

While the many criticisms of Granger-Sims-type concepts of causality range from the cute (Sheehan and Grieves [1982] show, using a "causality" test, that business cycles cause sun spots) to the sublime (Ando [1981] argues that a complete model specification is needed to avoid a test that is marred by omitted variable bias), the most telling relate to the "sleepier effect" to which Goodin and Waldner allude. It is entirely plausible that welfare system changes in the 1960s failed to evoke changes in observable patterns of family formation until the 1970s. With relatively short time-series data, even tests of statistical "causality"

ty" are inadequate. Our own continuing research is focusing on the possibility that today's generation of young, black female heads of families represent the offspring of a significantly welfare-dependent and largely female-headed generation during the 1960s. We want to learn more about whether the changing patterns of marital status among black female heads (never married during the 1970s and divorced in the 1960s) is the cumulative outcome of the experiences of growing up in female-headed families. Although the tentative conclusions of Hill and Ponza (1983) are not supportive of an intergenerational transmission hypothesis, we feel that evidence from the Michigan Panel Survey data that they examine may be misleading. If the probability of a female ever heading a family is positively related to whether her mother was a family head, then a test based on short panel data almost certainly will be deceptive.

There always has been an element in the black American population that has maintained male-centered, two-parent nuclear families; but across the mass of the black population, the pattern of family structure has been markedly different. Each time the conventional family forms have appeared to take root among the members of the lower strata of the black population, those beginnings have been swept away by the destructive impact of a major social transformation. In his preface to Frazier's *The Negro Family in the United States* (1939:ix), Ernest Burgess observed that no other people have ever been subjected to such a drastic and rapid sequence of disruptions:

Never before in the recorded history of mankind has the family life of a people, in so short a period, experienced so great and so sudden dislocations, necessitating adjustment to new and unforeseen situations.

Between 1780 and 1930 black Americans experienced the overthrow of a succession of "worlds"—overthrows that seemed to come just when they had made constructive adaptations to the changed environment. Burgess (Frazier, 1939:ix) stressed three phases highlighted in Frazier's study: (a) "the transplantation of the Negro from Africa to America," (b) "the transition from slavery to freedom," and (c) "the mass migration from the plantation to the metropolis." The latter phase was drawn ever more decisively after Frazier's book was written; but Burgess (Frazier, 1939:xiii), writing in the 1930s, also anticipated a fourth phase of disruption to the family life of blacks associated with the introduction of the New Deal programs (of which the contemporary welfare systems was an important part).

The initial destruction of conventional patterns

of black family life occurred during slavery times. By the late antebellum period, however, we find an increasing tendency among the slave population for the formation and maintenance of two-parent, nuclear families. Then, blacks saw that world shattered by emancipation. Afterwards, blacks settled into the lifestyle of rural peasant folk, working as farmers throughout the South. In that setting, except for an extremely footloose element of the black population ("in the lumber and turpentine camps" according to Frazier [1939:273]), there was a rejuvenation of the conventional family forms. Then came the migration to the cities and another wrenching apart of the stability achieved in the previous environment. Moreover, urbanization's effects were compounded by a wave of social legislation that, Burgess (Frazier, 1939:xiii-xiv) noted with great prescience, reduced the importance of the family as an agency for providing economic security.

Burgess (Frazier, 1939:xiv) saw an ever-diminishing role for the family in American society:

... we should look upon social security as a symbol of all the forces that are shearing from the family its institutional significance and leaving it only its affectional and cultural functions.

This led Burgess (Frazier, 1939:xiv) to raise the fundamental question as to whether these remaining functions were enough to maintain the usual traditions of family life:

Are affection and common cultural interests sufficiently binding to give substance and continuity to family life?

The black family, more than any other in the United States except perhaps the Native American, has been buffeted by a series of shocks that have made it more and more difficult to maintain customary norms. The most recent shock—the social transfer programs of the 1930s—further diminished the imperatives making for the two-parent, nuclear family. Although our statistical findings suggest that over the period 1955–1980 sufficient momentum has gathered to produce significantly more female-headed families among blacks, independent of variations in the availability of welfare payments, this does not mean that the existence of the social welfare system has been irrelevant to the process. As Sudarkasa (1981:46) has observed:

Before the twentieth-century policy of public assistance for unwed mothers, virtually all young unmarried mothers in black communities continued to live in households headed by other adults.

Moreover, for a population with a relatively long history of greater female headship, cultural

supports can emerge making that a normal or accepted family form. Daughters who grow up in female-headed families may emulate their mothers in establishing their own families. Not only is there a lack of familiarity with another arrangement; there is the sheer absence of marriageable men—due in large part to the sex-ratio problem. Young women, then, grow up without the expectation of forming two-parent nuclear families. Frazier (1939:354–355) already saw this cycle of repetition present in the formation of families by never-married black women in urban environs during the 1930s. Young men—if they survive their youth—come to expect independence from any long-term familial obligations, except to their mother's family. Patterson (1979:265) writes:

[For the effect of] migration and early urbanization on black family life, we should look not at the migrants themselves but at their children. Sure enough, when we observe the cohort of black women born since 1925 we find a high proportion of out-of-wedlock births among them and when we examine their children—the third generation, so to speak—those born after 1945, and who are now reproducing, we witness a massive disintegration in their familiar patterns.

Thus, the cumulative effects of all the disruptions to family life tend not to appear immediately, but with a lag:

. . . the effects of the migrations and urbanization have been delayed and amplified with each new generation so that there is a real sense in which, current economic disasters aside, the effects of these developments are really only now being realized. [Patterson, 1979:265]

To add to the disruptions that occurred prior to 1930, the ongoing economic difficulties of black urban life—high male unemployment and a nexus of income support programs that reduce the necessity of a male adult presence—prescribe the demise of the male-headed black family. An integral part of this process has been the legal system's tendency to reduce the responsibility of males—whether white or black—in the family (see Darity and Myers, 1983b). For blacks the process has been exacerbated by the outright disappearance of men in the marriageable years—via mortality, incarceration, and institutionalization.

It may be that the male-headed family generally is on its way out, but among the black masses its disappearance is not a farsighted anticipation of the future; it is an ongoing legacy of a past and present during which the black population has become increasingly marginalized. The evidence we find of a declining effective pool of eligible males to head black families undoubtedly is related to the problems of incarceration, military conscription, black male mortality, alcoholism

and drug abuse. The black family, the institution of nurturing new generations, has borne an ongoing assault that has taken an immense toll. The sex-ratio gap among blacks is a glaring signal of the marginalization of Afro-Americans.

In slavery times blacks were essential as the direct producers in Southern agriculture. After emancipation blacks were still important in the rural South, not so much as the primary laborers but as a large element of the agrarian work force. By the 1920s the necessity of black labor still existed, though primarily with a residual function as a major element of the industrial reserve of labor. At that juncture, however, black nationalist Marcus Garvey (1967:36–37) worried that even that function soon would be denied blacks:

The Negro's prosperity today, limited as it is, is based upon the foundation laid by an alien race that is not disposed to go out of its way to prepare for the economic existence of anyone else but itself; therefore our present prosperity, as far as employment goes, is purely accidental. It is as accidental today as it was during the war of 1914–18 when colored men were employed in different occupations, not because they were wanted, but because they were filling the places of men of other races who were not available at that time. Negroes are still filling places, and as time goes on and the age grows older our occupations will be gone from us, because those for whom we fill the places will soon appear, and as they do we shall gradually find our places among the millions of permanent unemployed. . . .

Today, in the new age of science and technology, there appears to be no significant place for a population that remains disproportionately without the technical skills required for the new era. In the new age there will be new forms of childrearing—perhaps a further diminution in the functions of the family as even the “affectional” and “cultural” functions give way to new institutions. Marriage partners may have children but need not bear primary responsibility for their upbringing. There will be a collective institution to raise children instead.

Blacks enter the new age with familial arrangements that have emerged from the crush of history. Blacks enter the new age without a technocratic alternative to conventional modes of childrearing and without prospects for obtaining the resources to make the older mode consistently effective. Likely to be excluded from the new age, blacks are left to face the vanishing two-parent, nuclear family without a form suitable to the coming era replacing it. The growing incidence of black female-headed families reflects a deepening problem of sheer survival for black people in America, rather than foreshadowing the family structure appropriate to the future.

## FOOTNOTES

1. The proportion of black families headed by females is calculated from the P-20 Series of the Bureau of the Census's *Current Population Reports* (annual), "Household and Family Characteristics," Table 4, nos. 67, 75, 83, 88, 100, 106, 116, 125, 139, 153, 164, and 173; and Table 1, nos. 191, 200, 218, 233, 246, 258, 276, 291, 311, 326, 340, 352, and 366. Data on welfare recipients and AFDC benefit levels come from the Social Security Administration's *Social Security Bulletin, Annual Statistical Supplement* (1982), Table 192, "Average Monthly Numbers of Recipients, Total Amount of Cash Payments, and Average Monthly Payments, 1936-1981." For odd-year racial breakdowns, welfare recipient data are obtained from the table, "AFDC Families by Race of Payee," in the Social Security Administration's *AFDC Recipient Characteristics Study* (biennial).
2. Sex ratios and age distributions are calculated from the P-25 Series of the Bureau of the Census's *Current Population Reports* (annual), "Estimates of the Population of the United States by Age, Sex, and Race," Table 3, "Civilian Population." All other variables are obtained from the *Statistical Abstracts*.
3. The link between the supply of black males and the fraction of families headed by females could be challenged on two accounts. One is that black women might form single households; another is that they might marry white or other nonblack males. Neither possibility, however, is likely to eliminate the direct impact that male supply has on family structure.

The first of these challenges claims that a reduction in the number of available males leads to a reduction in the number of married units and not necessarily to an increase in the number of female-headed families. This is not at all in conflict with the conclusions we reach. Our measure of *family*, which follows the convention of the Current Population Survey, excludes single, childless, female-headed households. It is possible that declining availability of black men increases the number of single households formed at the expense of family-unit formation. The family units include, of course, married couples with or without children. When the supply of men falls, the growth in the number of these units is reduced. A reduction in family units, in turn, can lead to an increase in the *proportion* of families headed by females. This can occur even in the absence of an increase in the *number* of female-headed families. Thus, the rise in the fraction of families headed by females may be directly affected by the reduced supply of males, or indirectly affected by it by way of reduced numbers of family units.

The second challenge claims that black women marry nonblack men when the supply of black men falls. Clearly convincing evidence suggests, however, that potential mates for black women are largely constrained to black males (U.S. Department of Commerce, 1978). For example, there were only 24,000 black-wife/white-husband married couples in

the United States in 1970. This number increased to 30,000 in 1977. Yet the proportion of black-white marriages accounted for by couples with black females *fell* from 37% to 24% in the 7-year interval. The number of black women married to men of other races actually fell from 4,000 to 2,000. These statistics reveal, therefore, not only that marriage of black females to nonblack males is a rare occurrence but also that it has become even less important in recent years.

An entirely different issue is whether the decline in black male population is but an illusion created by undercounting in the Census. For example, recent preliminary analysis by demographers at the Bureau of the Census (1982) suggests that the black male undercount may have been nearly 20% among 25- to 44-year-olds in 1970 and more than 15% among 35- to 54-year-olds in 1980. Because the undercount of black females in these age groups was much smaller than it was for black males, there may be a serious overestimation of the female-male ratio.

Still, even the Census's corrected estimates of the sex ratio for blacks reveal a sharp and pronounced increase in the female-male ratio from the ages of 18 to about 24. Among whites and other races in 1980, the ratio of females to males does not rise above unity until the age of 40; among blacks, the excess of females over males is evidenced as early as the age of 15. Moreover, the corrected estimates do not reverse the conclusion that the female-male ratio rose from 1970 to 1980. The Census reports a net undercount of black males of 1,023,000 in 1980 and of 1,204,000 in 1970. Similarly, it reported black female undercounts of 308,000 and 660,000 in 1980 and 1970 respectively (U.S. Bureau of the Census, 1982:7). Applying these numbers to the census count reported in Table 1 of *Current Population Report P-23*, No. 115 (U.S. Bureau of the Census, 1982:6), one can calculate that for all age groups the black female-male ratio rose from 1.046 to 1.055. Using the Census figures uncorrected for undercounting, one computes an increase in the sex ratio from 1.101 to 1.116. Both the corrected and uncorrected black female-male ratios show remarkably similar relative declines in black male supply: the increase in the female-male ratio using either of these ratios is approximately 1%.

These conclusions firmly support our contention that black male supply has fallen in recent years and that the unavailability of mates has contributed to the rise in black female-headed families.

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