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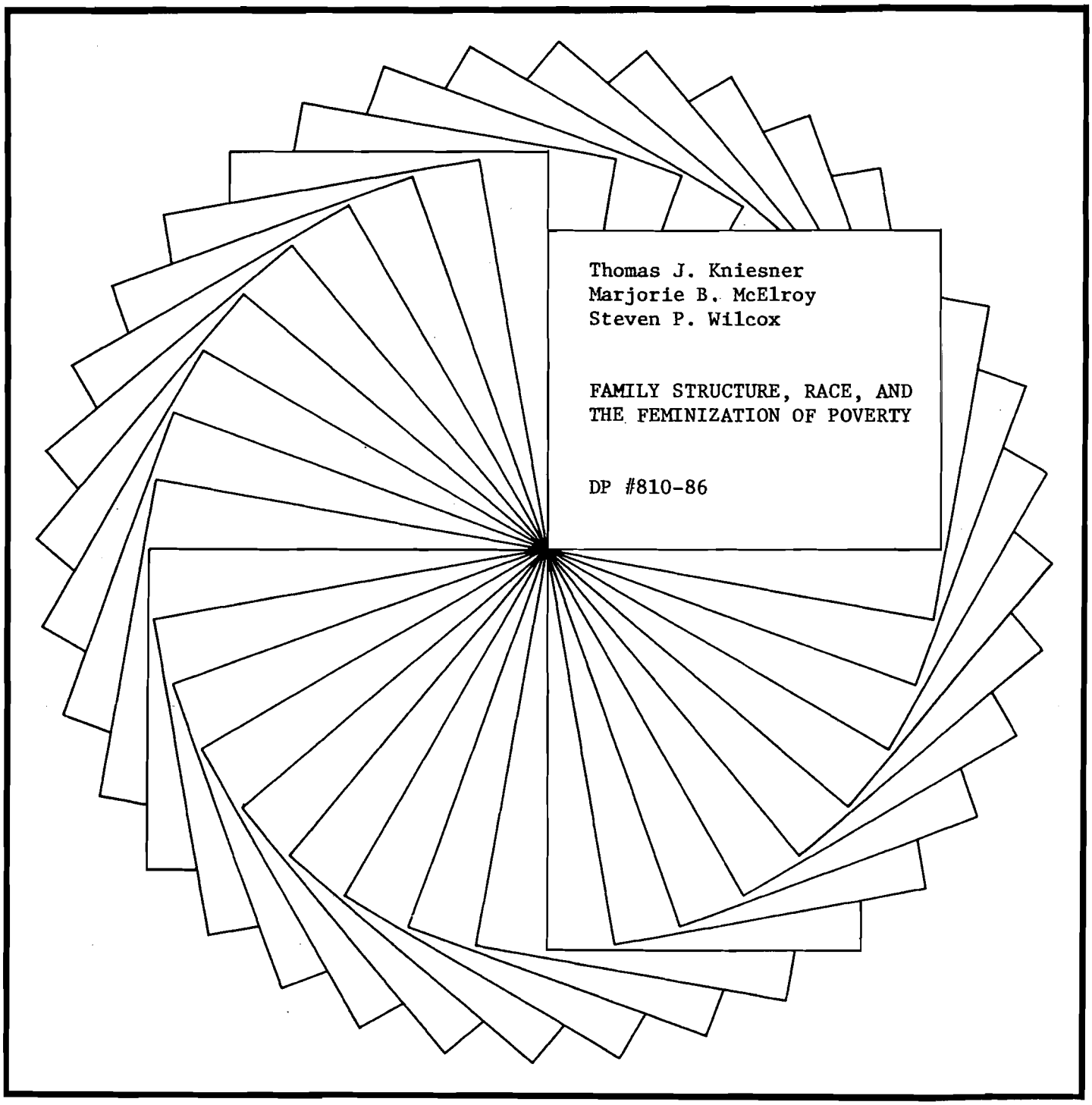

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FAMILY STRUCTURE, RACE, AND
THE FEMINIZATION OF POVERTY

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Abstract

From 1970 to the early 1980s the population of adults of both sexes living in poverty in the United States increased by about 30 percent. The greater absolute increase in the number of women living in poverty during the period has been termed the feminization of poverty. This paper presents a theoretical and empirical analysis of changes in family structure over the last 15 years and their resulting effect, by race, on the feminization of poverty.

Our empirical analysis uses the National Longitudinal Survey of Young Women (NLSYW), which tracks 5,159 women, ages 14 to 24 in 1967, for 14 years. This is an especially valuable data base because it oversamples blacks, permitting racial comparisons, and covers the time of life when most marital and fertility transitions occur. We argue that for the purpose of analyzing the feminization of poverty the NLSYW is clearly superior to other data bases commonly used to study poverty.

The feminization of poverty occurred almost solely because of the startling secular growth in the number of single mothers. Thus, we focus our efforts on quantifying the factors behind the movement of women into and out of single motherhood during the early stages of their adult lives. Our statistical method is to estimate multivariate proportional hazard functions for poverty entry and exit. Our list of explanatory variables is parsimonious and contains only variables that are truly predetermined and, other things equal, of policy relevance.

Of major interest are the differences and similarities in how young black versus young white women enter and leave poverty. We find that even after controlling for family background, age, and a measure of human

capital accumulation, as well as for interstate variation in AFDC generosity, in per capita income, and in gender mix, young black women still enter poverty (through the single motherhood status) at almost three times the rate of their white counterparts. Young black women have longer average spells of poverty because they not only enter poverty at higher rates but also exit the poverty associated with single motherhood more slowly. Even controlling for the variables in our list of explanatory factors, the poverty exit rate for young black women is still only about two-thirds that of the young white women in our data.

In conclusion, an important dimension of this research is that it permits us to (1) rule out several possible explanations for the feminization of poverty and (2) speculate on whether it will continue in the future. Concerning (1), we find that while AFDC generosity affects poverty rates, such programs have trended in a direction that should have slowed the feminization of poverty. Concerning (2), we find that aging tends to retard poverty entry more than it retards poverty exit. Since the U.S. population of women is now aging, we expect that the number of poor single mothers with children will fall between now and the end of this century.

Family Structure, Race, and the Feminization of Poverty

I. BACKGROUND

Leaving home, marriage, childbearing, and remarriage all play fundamental roles in the well-being of individuals over their life cycles. For women, these events are often accompanied by drastic changes in income: divorce or bearing a child out of wedlock frequently accompanies entry into poverty, while marriage or remarriage often results in exit from poverty. In the United States between 1970 and the early 1980s the population of adults of both sexes living in poverty increased by about 30 percent: from 9.9 to 12.9 million adult women and from 5.9 to 7.7 adult men (Kniesner, 1983).[1] Although the ratio of poor women to poor men was 5:3 over this period, the increase in the number of poor women exceeded the increase in the number of poor men by more than 1.2 million. This greater absolute increase in the number of women living in poverty has been termed the feminization of poverty. In this paper we provide a theoretical and empirical analysis of changes in family structure over the last decade and a half and their impact, by race, on the feminization of poverty.

An important consequence of the feminization of poverty is that a large number of children are now being raised in poor families headed by women. The most recently available data, for 1984, show that just over 50 percent of black families with children were headed by women. This compares to an already high 31 percent in 1970. The corresponding figures for white families with children are just over 15 percent in 1984, up from 8 percent in 1970.

As suggested in Table 1, the secular increase in the number of women living in poverty during the 1970s and 1980s stems not from higher poverty rates within various family structures, but from changes in the distribution of women among family structures. Specifically, the proportion of women who are married has declined, whereas the proportion who are divorced, separated, or never married has grown.

For both races, the poverty rate of female-headed families is substantially higher than the poverty rate for husband-wife families--three and-one-half times as high in 1983. A higher incidence of poverty among black women reflects startling changes in black/white differences in marriage patterns. While divorce rates grew for both black and white women, in 1970 the odds that a black woman was divorced were about one-and-a-half that of her white counterpart; by 1983 those odds were nearly two times as great.[2]

In light of these facts our basic research goal is straightforward. It is to analyze theoretically and empirically changes in family structure and the comcomitant contribution to the trend known as the feminization of poverty. We do not wish to imply that changes in income that push a woman and her children below the poverty threshold are necessarily the only important issues. If one woman's annual income plummeted by $10,000 to a level $1 above the poverty line while another woman's income dipped by only $100 but took her below the poverty line, we would be loath to judge the latter loss as more serious than the former (or vice versa). Nonetheless, counts of individuals above and below the poverty threshold are useful, though crude, indexes of economic well-being, and are often the ones used to target government welfare policies. Thus, this study of the feminization of poverty counts only income changes that

Table 1

Poverty Rates by Family Structure[a]

	1970	1983
Husband-wife families	7%	8%
Female-headed families	25	28
Black female-headed families	52	54

[a]For sources, see note 1 in the text.

cross the poverty threshold and change the poverty counts. It is important to point out, however, that we are not interested here in merely temporary dips in income below some threshold but rather in poverty that exhibits some persistence. To check the robustness of our conclusions to the selection of the threshold we vary the income level that defines poverty by ±25 percent, leaving the study of the size of income changes and utility-based welfare changes to future work. As we emphasize throughout this paper, persistent poverty among women is largely tied to marital status and family structure.

The next section of this paper summarizes evidence from micro panel data on the race differences in flows into and out of poverty by women heading households with children. Section III presents our theoretical framework for analyzing the poverty experience of women--emphasizing the joint roles played by chance, choice, and exogenous background factors in the determination of family structure. Section IV presents corresponding estimated multivariate hazard functions for divorce and remarriage and their relationship to entry into and exit from poverty. The focus is on exogenous factors, including both welfare generosity and demographics. We conclude by conjecturing that (at least through the year 2000) the poverty population will contain proportionately fewer female-headed households.

II. CHANGING FAMILY STRUCTURE AND THE FEMINIZATION OF POVERTY

For empirical analysis we chose the National Longitudinal Survey of Young Women (NLSYW), which follows a large number (5,159) of young women (aged 14 to 24 in 1967) at a stage in the life cycle when most marital

and fertility transitions occur. Equally important, the NLSYW covers a fourteen-year period (1968-1982) that includes the tail end of a long trend when feminine poverty declined (1968 through the early 1970s) and the beginning of a long trend when feminine poverty increased, as well as cyclical variations around these two trends. This, coupled with an oversampling of blacks (1,459) that permits comparisons by race, gives the NLSYW data a decided edge in analyzing how women become poor single mothers, how long they remain so, and the events that trigger exits from this state. In contrast, the data bases commonly used to analyze poverty, the Current Population Survey (the source of the official U.S. poverty statistics) and the Panel Study of Income Dynamics (as used, for example, in Bane and Ellwood, 1986, and Danziger et al., 1982) are not suitable for this study: the former is basically cross sectional, and the number of women in the latter is too small to study poor single mothers and much too small to make meaningful comparisons by race.

A. Definition of Family Structure

For the purposes of this research, we define family structure broadly as the intersection of legal marital status, family headship status, and living arrangements. Thus, a divorced woman living with her parents and children has a different family structure from that of a divorced woman living only with her children. Following the Census Bureau's terminology, we refer to a female head of household with dependents as a female family householder (hereafter FFH), or less formally, as a single mother.[3] The feminization of poverty occurred almost solely because of the startling growth of the number of female family householders: over 4 million more women were classified as FFH in March 1970. Thus, we con-

centrate on quantifying the incidence of and forces behind the movement of women into and out of this FFH structure during the early stages of their life cycle.

B. Determining Poverty Status

Officially, a given family is classified as poor if its income lies below the threshold initially established by the Census Bureau,[4] updated annually by the rate of inflation of the CPI.[5] Because we are not interested in momentary dips below the threshold (poor for a week or poor between paychecks), we recognize only those spells of poverty in which a given family unit's annual income lies below the associated annual threshold. We establish the poverty status of each woman as of each survey date between 1968 and 1982, tracking both the family unit to which she belonged and the income of all members of those units.

The NLSYW asks respondents for their household's income by household member and category, including wages, farm and business income, unemployment insurance, alimony, and gifts from relatives. Remember that, among other things, we are interested in analyzing the impact of income support policy on the decisions of couples to divorce--decisions that enlarge the numbers of poor single mothers. Thus, government cash and in-kind transfers are excluded from our measure of income, while the parameters of the welfare system are treated as exogenous variables.[6] Likewise, the income of an absent or former husband is excluded from the family's total.[7]

To check for the robustness of our results with respect to the definition of poverty, we repeat our econometric analysis using 75 percent

and 125 percent of the official OMB poverty thresholds. For more discussion of how we determine poverty status, see Appendix A.

C. Modes of Entry into FFH-Poverty

At least 1,101 women in the sample entered the FFH state at some time between 1969 and 1982. This count of 1,101 omits those who either left the survey before their entry into FFH or had missing information that precludes ascertaining their poverty status. Excluding the 63 censored women who were in FFH poverty in the first survey year leaves 1,038 women who were not already FFH poor at the start of the survey.[8] Of these, 645 entered FFH poverty at least once. We use only the first observed spell of FFH poverty.[9]

Entry into the FFH state often brings with it swift entry into poverty--59 percent, or 479 of the 817 FFH women, are classified as poor the first time we observe them as single mothers. Moreover, of those who enter FFH but are not immediately poor (338), few (only 40, or 12 percent) subsequently become poor during that spell of FFH. Second, because of their lower marriage, higher divorce, and lower remarriage rates, the incidence of FFH poverty is substantially higher among young black women--in our sample, 24 percent of young black women but only 7 percent of young white women were observed to experience at least one spell of FFH poverty.

For those 260 whites plus 385 blacks with observed first spells of FFH poverty, Table 2 gives an overview of entry and exit modes. Going down the left-hand side of the table is a mutually exclusive and exhaustive list of entry modes; exit modes adorn the top. Thus the first number (upper left-hand corner) in the table indicates that of the 260

Table 2

Mode of Entry into FFH Poverty by Mode of Exit for Whites (for Blacks), in Percentages

Entry Mode \ Exit Mode	Married			Other Change in Family Structure	Isolated Increase in Income	ROW TOTAL
	To Non-Poverty	To Poverty	To Indeterminant Poverty Status			
1. Separated, divorced, and married spouse absent	26.7 (5.1)	1.2 (2.8)	6.7 (2.8)	10.9 (11.3)	25.4 (7.9)	70.9 (29.9)
2. Birth out of wedlock	1.8 (4.0)	0.0 (0.0)	0.0 (1.1)	2.4 (6.8)	1.8 (5.1)	6.1 (17.0)
3. Isolated drop in income	0.0 (0.0)	0.0 (0.0)	0.0 (0.6)	0.0 (1.7)	0.6 (1.1)	0.6 (3.4)
4. Left the household of another adult	7.3 (9.0)	1.2 (1.7)	0.6 (2.8)	4.8 (19.2)	3.0 (13.0)	17.0 (45.8)
5. Income fell and had another child	2.4 (0.6)	0.0 (0.0)	0.0 (0.6)	0.6 (0.0)	2.4 (2.8)	5.4 (4.0)
COLUMN TOTAL	38.2 (18.6)	2.4 (4.5)	7.3 (7.9)	18.8 (39.0)	33.3 (29.9)	100.0 (100.0)
	66.7% exit via a change in family structure (70.1% exit via a change in family structure)					

Note: The total number of whites is 260; of blacks, 385.

observed first spells of whites, 26.7 percent began with separation or divorce (henceforth "divorce") and terminated with a marriage above the poverty line; summing across all exit modes gives the row total of 70.9 percent—the percentage of the observed spells for whites that began with marital disruption and terminated in one of the five given modes. The parallel percentages for blacks appear in parentheses below those for whites.

A major black/white difference appears: while 71 percent of whites entered FFH poverty via divorce, only 30 percent of blacks entered this way. Nonetheless, for both races changes in family structure overwhelm isolated income changes as the mode of entry. Recall that we disregard temporary income fluctuations. Consequently, we find that only 0.6 percent of whites and 3.4 percent of blacks with known entry modes began a spell of FFH poverty with a drop in income that was unaccompanied by a change in family structure (row 3). This means that over 99 percent of white, and almost 97 percent of black, initial spells of FFH poverty commence with a change in family structure. Finally, in these data, entry via bearing a child out of wedlock is a rare event: despite a sample size of over 5,000 in the NLSYW, their youth, and the oversampling of blacks, we observe only 16 white and 29 black entries into FFH poverty via a birth out of wedlock[10]—numbers too small to support separate econometric analysis.

D. Poverty Durations and Exit Modes

There are large race differences in durations of spells of FFH poverty. For whites, over four-fifths of the spells of FFH poverty ended within two years; for blacks, only about two-thirds did so.

Similarly (adjusting for the censoring implied by sample attrition as well as missing data on poverty and noninterview years), the average duration of a spell of FFH poverty was about 3.8 years for blacks but only 2.5 years for whites. More details are available in Appendix B.

As seen in Table 2, changes in family structure dominate exit modes as well as entry modes. The column totals show that for whites the modal change in family structure leading to exit from FFH poverty is (re)marriage (38.2 + 2.4 + 7.3, or 48 percent). For blacks, remarriage is less important (31 percent of exits); other changes in family structure (39 percent) dominate exits. Of these other changes in family structure for blacks, 87 percent entail exiting poverty by joining the family of another adult--often a return to the parent's household. In contrast, escaping FFH poverty by joining the household of another adult is relatively unimportant for whites (12 percent). Overall, changes in family structure account for 67 percent of white and 70 percent of black exits. The residual--increases in income unaccompanied by a change in family structure--accounts for only about one-third of white and less than one-third of black exits.

III. POVERTY SPELLS, MATCHING, AND CHANGING FAMILY STRUCTURE

As just seen, most observed first spells of FFH poverty both commence and terminate with a change in family structure; isolated income changes (that is, income changes that are unaccompanied by a change in family structure) are relatively unimportant. With this in mind, we now sketch the theoretical model of changing family structure that guides our subsequent econometric analysis.

A. Entry into Poverty via a Change in Family Structure

In economic models of the family such as that of Becker (1981), changes in family structure, such as divorce, are attributed to surprises that render a particular family structure suboptimal. These surprises are unexpected bad or good outcomes (such as changes in income, health, or employment) that must be in principle unforeseeable at the time the family structure was established. Consider, for example, the case of a marriage. For a given surprise, the personal characteristics of the couple as well as their economic environment condition the likelihood of divorce. In this way, a change in family structure such as a divorce shares many features with labor turnover (quits and layoffs). The subsequent theoretical discussion of changing family structure synthesizes the theoretical analysis of the family and that of job search and employer-employee matching (see Lippman and McCall, 1976; Jovanovic, 1979; and Mincer and Jovanovic, 1981). For pedagogical convenience, the theoretical model we develop in the rest of this section is couched in terms of divorce and remarriage, which are used as generic terms for the dissolution of one two-parent family structure and the subsequent reconstitution of another.

In an efficient marriage market, a couple remains married if marital output exceeds the sum of the expected outputs each spouse could receive if they divorced. For a match that has lasted for t periods, let expected present value of total marital output consist of a systematic component, $M(t)$, and a random component, $m(t)$. Likewise, let their expected present value of individual incomes once divorced sum to a systematic component, $D(t)$, plus a random component, $d(t)$. Hence, a

couple divorces at time t if and only if

(1) $M(t) + m(t) < D(t) + d(t)$,

where D and d are net of any transaction costs of divorce. Rewriting (1), the couple divorces if and only if

(2) $U(t) < u(t)$,

where the expected present value of the systematic marital gain is

(3) $U(t) \equiv M(t) - D(t)$,

and the surprise marital loss is

(4) $u(t) \equiv d(t) - m(t)$.

Over the course of a marriage, the value of the marriage increases, inter alia, with marriage-specific capital, x(t), or

(5) $M(t) = M(x(t))$ with $\frac{\partial M}{\partial x} > 0$.

The accumulation of marital-specific capital is assumed to obey

(6) $x(t,k_0) = k_0 + k(t)$ with $\frac{\partial x}{\partial k_0} = 1$, $\frac{\partial x}{\partial t} = \frac{\partial k}{\partial t} > 0$,

where k_0 measures the quality of the match at the beginning of the marriage, and k(t) is cumulated marital capital as of t. Likewise, as the length of the marriage increases there may be systematic changes in the sum of their divorced incomes, D(t). Relative to changes in M(t), these changes in D(t) are likely to be small. For analytical convenience, we assume that $\frac{\partial D}{\partial t} = 0$.

A given marriage faces a distribution of internal (m) and external (d) surprises. Periodically, surprises arrive from the distribution of surprise marital losses $u \equiv d - m$ (a sudden illness, a new job opportunity). These possibilities are characterized by a cumulative distribution function $F(u)$, with $F' \equiv f > 0$, $F(-\infty) = 0$ and $F(\infty) = 1$. Across-the-board improvements in opportunities outside of a marriage shift up the cumulative distribution. For example, a recession may put a husband out of work. This is manifested as a large, negative m (a surprise marital loss). When such a surprise marital loss arrives, a couple compares the present value of the systematic marital gain, $U(t)$, to their current draw on marital loss, $u(t)$. Assuming that the couple knows (the moments of) the distribution of surprise marital losses, and that decisions to divorce are made sequentially and irrevocably, then there is a reservation level of marital gain--namely the current level, $\overline{U}(t) \equiv \overline{M}(t) - \overline{D}(t)$. If $u(t) > \overline{U}(t)$, then they divorce. Thus, given a draw from the distribution of surprise marital losses, $F(.)$, a marriage dissolves with probability

$$(7) \qquad 1 - F[\overline{M}(x(t,k_0)) - \overline{D}(t)] \ .$$

Finally, assume that new information on the offer distribution is a rare event that follows a Poisson probability law with parameter λ. Given that a marriage has lasted until time t, the probability of divorce at time t (the hazard rate), is given by

$$(8) \qquad h(t) = \lambda[1 - F(\overline{M}(x(t,k_0)) - \overline{D}(t))]$$

(see Kalbfleisch and Prentice, 1980). In equation (8), the reservation utility level, $M - D$, embodies the choice to divorce, whereas λ and $F(.)$

manifest the chance elements in divorce. Using the result that $\frac{\partial U}{\partial M} = \frac{\partial x}{\partial k_0} = 1$, the salient properties of the hazard function in (8) are

(i) $\partial h/\partial k_0 = -\lambda\ f(\overline{M} - \overline{D})\ \frac{\partial M}{\partial x} < 0$, and

(ii) $\partial h/\partial t = -\lambda\ f(\overline{M} - \overline{D})\ \frac{\partial M}{\partial x}\ \frac{\partial k}{\partial t} < 0$.

That is, (i) couples who are well matched (who have a large k_0) are less likely to divorce, and (ii) as long as the rate of accumulation of marital-specific capital is positive (and therefore marital output increases with the duration of the marriage), the probability of divorce declines with the length of time married.

There are six ways in which environmental factors and past decisions condition the exit rates from marriage. We see this more easily by rewriting the hazard (8) as

(9) $h(t,k_0;z_1,z_2,z_3,z_4,z_5) = \lambda(z_5)\{1 - F[\overline{M}(x(t,k_0;z_1);z_2) - \overline{D}(z_3);z_4]\}$,

where the z's are shift parameters for the five functions involved in the right-hand side of (9). In equation (9), k_0 includes all those factors that increase the initial quality of the match; z_1 includes all those factors that increase the rate of accumulation of capital therein; z_2 includes factors that increase the utility of either spouse in the match apart from increasing the initial level of match-specific capital. Similarly, z_3 includes all variables that increase the sum of divorced outputs, D. The remaining two shift factors in (9) are z_4, which captures the influence of variables that increase the probability of favorable alternatives to the match (that is, a location parameter that

shifts the distribution of surprise marital losses to the right, thereby increasing the hazard rate of exit from marriage), and z_5, which contains factors that increase the arrival rate of alternative offers. The elements in k_0, and z_i (i=1,...,5) are not necessarily mutually exclusive. To summarize,

$$\text{(iii)}\quad \frac{\partial h}{\partial k_0} < 0,\ \frac{\partial h}{\partial z_1} < 0,\ \frac{\partial h}{\partial z_2} < 0,\ \text{while}\ \frac{\partial h}{\partial z_3} > 0,\ \frac{\partial h}{\partial z_4} > 0,\ \frac{\partial h}{\partial z_5} > 0\ .$$

The empirical measures of these shift variables will be identified in the next section.

B. Exits from Poverty via a Change in Family Structure

Once divorced, a mother becomes a FFH—if only momentarily. We employ a hazard function for exit from FFH that parallels the previous hazard for entry into FFH. In the obvious notation, λ^* is the arrival of information on alternatives to FFH, k_0^* is the initial FFH-specific human capital the woman has at the beginning of her spell of FFH, $x^*(\tau)$ is the FFH-specific human capital accumulated in the τ periods since the beginning of the spell of FFH, $M^*(\tau)$ is the present value of her expected utility in this state, $D^*(\tau)$ is her expected level of utility in the next best alternative family structure, $U^*(\tau) \equiv M^*(\tau) - D^*(\tau)$ is the present value of her expected systematic net gain from remaining FFH, $u^*(\tau) \equiv d^*(\tau) - m^*(\tau)$ is her surprise net loss from remaining FFH, $F^*(u^*(\tau))$ is the distribution of the surprise net losses in the next best family structure, and $1 - F^*(\bar{U}^*(\tau))$ is the probability that she leaves FFH, where $\bar{U}^*(\tau) \equiv \bar{M}^*(\tau) - \bar{D}^*(\tau)$ is her current systematic gain from FFH. The derivatives of these functions are the same as their unstarred counterparts above. Thus,

$$(10) \qquad h^*(\tau, k_0^*; z_1^*, z_2^*, z_3^*, z_4^*, z_5) = \lambda^*(z_5^*)\{1 - \bar{F}^*[\bar{M}^*(x^*(\tau, k_0^*; z_1^*); z_2^*) - \bar{D}^*(z_3^*); z_4^*]\}$$

is the hazard rate for leaving FFH given a duration of τ periods. The z_i^* in (10) are shift variables and the partials of (10) with respect to them are

$$(iv) \quad \frac{\partial h^*}{\partial k_0^*} < 0, \frac{\partial h^*}{\partial z_1^*} < 0, \frac{\partial h^*}{\partial z_2^*} < 0 \quad \text{while} \quad \frac{\partial h^*}{\partial z_3^*} > 0, \frac{\partial h^*}{\partial z_4^*} > 0, \frac{\partial h^*}{\partial z_5^*} > 0 .$$

IV. THE INS AND OUTS OF FFH POVERTY

It is important to reemphasize that 98 percent of all poverty spells of the single mothers in our data begin with a change in family structure, most frequently divorce. We also saw that changing family structure—particularly remarriage—dominates isolated income changes in moving women out of poverty. Thus, the foregoing theoretical analysis of family structure and the implied hazard functions also describe the transition rates into and out of FFH poverty.

Based on the model of family formation and reformation developed in Section III, this section first specifies the associated dynamic empirical model of entering and exiting spells of FFH poverty. Next, we briefly describe the estimation procedure and associated independent variables. The final part of this section presents and discusses our empirical results.

A. Specification of the Hazard Functions

For the empirical implementation of (9) and (10) we chose the proportional hazard specification (see Kalbfleisch and Prentice, 1980, Ch. 4) because of its well-known advantages—the main one being its nonparametric character in the form of an unspecified base-line hazard ($g(t)$ and $g^*(\tau)$ in (11) and (12) below). Although it might prove enlightening to estimate an elaborate competing-risks model for various modes of poverty exit (wherein different modes of exit compete to be the first effective mode), there are well-known problems with competing-risk models, including doubts about identifiability. (For an interesting discussion, see Diamond and Hausman, 1984, and the references therein.) We estimate separate hazards for (9) and (10) rather than a full information hazard, as do Flinn and Heckman (1981), for several reasons. There are, of course, always doubts about specification. In general, single-equation techniques quarantine the effect of misspecification to that equation and prevent it from spreading to the parameter estimates in the remaining equation(s). Second, the main gain from full-information methods is increased efficiency. In our case, we have a sufficient number of observations so that efficiency is not a major concern. This, in conjunction with the greatly increased computational burden of full-information methods, swayed us to single-equation techniques.

In light of the discussion in the last paragraph, the functional form specified for the entry hazard (9) is

$$h(t,z) = g(t)\exp(zb) \quad ; \tag{11}$$

the parallel functional form for the exit hazard (10) is

(12) $h^*(\tau, z^*) = g^*(\tau) \exp(z^* b^*)$.

Here $z \equiv (k_0; z_1, z_2, z_3, z_4, z_5)$, and z^* is analogously defined for the exit hazard. Note that in (11), $\exp(zb)$ is the product of $\lambda(z_5)$ and another exponential function that is linear in z. Thus, if a variable (such as father's occupation) enters both k_0 and z_2, its corresponding element in b is the sum (or difference) of two structural coefficients. Similar remarks apply to the elements of b^* in (12). Finally, it is important to keep in mind that each component of b, b_i, is interpreted as the proportionate change in the hazard due to a unit increase in the corresponding element of z, or $\partial \ln h / \partial x_i$. The exponentiated coefficient, e^{b_i}, is interpreted as the proportionate rate of change of the hazard due to an increase in x_i (hence the name, proportional hazard model).

B. Factors that Explain Entry into and Exit from FFH Poverty

In Sections II.A and II.B above, we explained both our choice of data set and our measure of poverty. Subject to data constraints due to missing values, we selected a parsimonious list of measured explanatory variables corresponding to the vectors z and z^* in our theory. We chose only variables that are truly predetermined, and, other things equal, of policy relevance.

Of particular interest is the AFDC variable, which is an index of welfare generosity in the state of residence. Parameterizing the tangled safety net of AFDC payments, housing benefits, Medicaid, and food stamps is essentially hopeless. For example, our initial work included a three-parameter representation of the AFDC budget constraint: a slope, an intercept, and a dummy variable for states with AFDC-UP. These added no

additional explanatory power to the simple AFDC index used here (the maximum benefit available in a state to a three-person family). It has been forcefully argued elsewhere (for example, Ellwood and Bane, 1985) that this maximum benefit level is probably the best possible instrument for a "correct" index of total welfare generosity. The map of the states' maximum AFDC payments shows enormous contrasts: the highest peaks are $719 and $555 for Alaska and California, respectively; the low spot is Mississippi, with $96 per month. Over time, these relative heights vary little, although the ellusive differential enforcement of eligibility rules might alter this picture.

We view fertility as jointly determined with changes in family structure such as divorce. Hence, KIDS is not an independent variable for hazards explaining transitions from non-FFH to FFH poverty or from non-FFH to FFH. In contrast, once a woman is a FFH, the number of children in the survey prior to entry into poverty (KIDS) is exogenous. Hence, we included KIDS as an explanatory variable in the econometric analysis of dips below the poverty line following entry into FFH as well as in the FFH poverty-exit hazards.

Also included in the exit but not the entry hazards is UCYCLIC, our measure of the aggregate cyclical unemployment rate. We cannot use UCYCLIC in the entry hazards because all spells of non-FFH poverty begin in the first sample year, making the variable identical for all respondents for all durations.

The complete set of independent variables (the x_i's and x_i^*'s) for each hazard appears in Table 3. Also listed are the expected signs of the partial effects of the independent variables on the hazard for entry

Table 3

Predicted Effects of Shift Variables on Hazard Functions

	A. Entry into FFH Poverty[a]							B. Exit from FFH Poverty[b]							
Sign $\frac{\partial h}{\partial z_j}$	(-)	(-)	(-)	(+)	(+)	(+)		Sign $\frac{\partial h^*}{\partial z_j^*}$	(-)	(-)	(-)	(+)	(+)	(+)	
x_i \ z_j	k_0	z_1	z_2	z_3	z_4	z_5	net effect = sign $\partial h/\partial x_i$	x_i^* \ z_j^*	k_0^*	z_1^*	z_2^*	z_3^*	z_4^*	z_5^*	net effect = sign $\partial h^*/\partial x_i$
AFDC				+			+	AFDC			+				-
AFDCSQ				-			-	AFDCSQ			-				+
AGE			-	-		-	?	AGE			+	-		-	-
AGESQ			+	+		+	?	AGESQ			-	+		+	+
DUNCAN	+	+	+				-	DUNCAN	+	+	+	+			?
KWW							?	KWW	+	+	+	+			?
%FEMALE				±			±	%FEMALE					-		-
STATEY	+	+	+	+			?	STATEY	+	+	+	+			?
TWOPAR	+	+	+				-	TWOPAR	+	+	+				-
								KIDS					-	-	-
								UCYCLIC					-	-	-

Variable Definitions

AFDC: maximum benefits available in 1984 under Aid to Families with Dependent children for a 3-person family (mother and 2 children) in the current state of residence (in hundreds of dollars).
AFDCSQ: square of (AFDC - 3).
AGE: age in years. This is a time-varying variable (age at beginning of spell + duration of spell to date).
AGESQ: $(AGE - 25)^2$
DUNCAN: NLSYW Duncan score for head of household at age 14 divided by 100.
KWW: knowledge of the world of work calculated from a test given the respondents.
%FEMALE: 1970 Census percentage of women in current state of residence.
STATEY: per capita income for 1979 in the current state of residence (from the 1980 Census).
TWOPAR: dummy for two-parent family when the woman was age 14.
KIDS: number of children in the woman's family in the survey prior to entering FFH poverty.
UCYCLIC: aggregate unemployment rate minus the estimated normal (full employment) unemployment rate.
NOSTATE: a dummy variable = 1 when the respondent's state of residence is unknown. In this case we set AFDC, AFDCSQ, %FEMALE, and STATEY to their means.

[a]Elements of columns 2-5 are sign $(\partial z_j/\partial x_i)$, where x_i is an element of the vector z_j in equation (11).

[b]Elements of columns 2-5 are sign $(\partial z_j^*/\partial x_i^*)$, where x_i^* is an element of the vector z_j^* in equation (12).

into (exit from) FFH poverty. These have appeared as equations (iii) and (iv) in the last section and can be obtained via the relationships

$$(13) \qquad \frac{\partial h}{\partial x_i} = \frac{\partial h}{\partial z_j}\frac{\partial z_j}{\partial x_i}, \text{ and } \frac{\partial h^*}{\partial x^*_i} = \frac{\partial h^*}{\partial z^*_j}\frac{\partial z^*_j}{\partial x^*_i}.$$

In Panel A, the plus and minus signs above the column heads record the signs of $\partial h/\partial z_j$ in accordance with (iii) above; the signs in the table are those of $\partial z_j/\partial x_i$. The sign of the product--$\partial h/\partial x_i$--is in the next-to-last column of Panel A. For example, k_0 includes variables that increase initial marital-specific capital, while z_2 includes variables that increase the couple's well-being while married; both, in turn, decrease the divorce hazard ($\partial h/\partial k_0 < 0$ and $\partial h/\partial z_2 < 0$) as indicated by the minus signs above k_0 and z_2. Further, $\partial k_0/\partial \text{TWOPAR} > 0$ and $\partial z_2/\partial \text{TWOPAR} > 0$ are indicated by the plus signs following TWOPAR. This means that the model predicts

$$\frac{\partial h}{\partial \text{TWOPAR}} = \frac{\partial h}{\partial k_0}\frac{\partial k_0}{\partial \text{TWOPAR}} + \frac{\partial h}{\partial z_2}\frac{\partial z_2}{\partial \text{TWOPAR}} < 0,$$

as indicated by the corresponding minus sign in the next-to-last column of Panel A. In a parallel fashion, Panel B of Table 3 summarizes the empirical predictions of our exit hazard.

C. Varying the Poverty Threshold

All of the econometric results reported in subsequent sections are based on the official poverty threshold. Results obtained using first a poverty threshold of 75 percent of the official poverty line and then 125 percent of the official poverty line are suppressed, for the following reason: obviously, because the poorer poor are disproportionately black

and the richer poor are disproportionately white, decreasing the poverty threshold not only decreases the number of respondents who fall into FFH poverty but also increases the proportion of blacks who do so. The converse holds for increasing the poverty threshold. We observe, however, no additional interesting variations in our results when we changed the poverty line substantially (±25 percent)--the signs, sizes, and significance of coefficients remained remarkably similar. Consequently, the empirical results we discuss are based exclusively on use of the official poverty line.

D. Becoming a Poor Head of Household

The first four columns in Table 4 present exponentiated hazard function coefficients for entry into FFH poverty (the $e^{\hat{b}_i}$ from equation (11)). If x_i increases by one unit, the implied proportionate change in the hazard function is $e^{\hat{b}_i}$. Note that if $\hat{b}_i$ is positive (negative), then $e^{\hat{b}_i}$ is greater (less) than one. The absolute values of the t-ratios for the associated coefficients, $(\hat{b}_i/\hat{\sigma}_{\hat{b}_i})$, appear in parentheses. (Table 5 shows the sample means for the hazard functions.)

Of major interest are the similarities and differences in how blacks and whites enter and leave FFH poverty. Because blacks are more likely to divorce and also to have lower income levels, they are much more likely to become poor heads of households. In particular, the first column of Table 4 shows that, at any instant, not controlling for any other factors, we estimate young black women to enter FFH poverty at 3.92 times the rate of their white counterparts. Column 2 shows that after controlling for family background, age, a measure of human capital, as well as for interstate variations in AFDC generosity, in per capita

Table 4

Estimated Hazard Functions for Transitions Into and Out of FFH Poverty

	Entry Hazards								Exit Hazards			
	From Not in FFH Poverty to FFH Poverty				From Not FFH to FFH		From Not FFH to FFH Poverty Immediately	From Not in Poverty to FFH Poverty Eventually	From in FFH Poverty to out of FFH Poverty			
Variable	$\overline{FFH}$ + FFHPOV[a]				$\overline{FFH}$ + FFH		logit	$FFH\overline{POV}$ + FFHPOV	FFHPOV + $\overline{FFHPOV}$			
	pooled		white	black	white	black	pooled	pooled	pooled		white	black
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
BLACK	3.92[b]	2.70					.88	1.79	.51	.67		
	(14.90)[c]	(8.79)					(.77)	(1.51)	(5.57)	(2.72)		
AFDC		1.22	1.17	1.30	.96	1.24	1.12	.90		1.05	.87	1.27
		(2.91)	(1.76)	(2.58)	(.65)	(2.59)	(.99)	(.50)		(.55)	(1.15)	1.72
AFDCSQ		.95	.96	.90	1.08	.99	1.07	.99		1.00	1.08	.93
		(1.86)	(.82)	(2.19)	(2.48)	(.28)	(1.14)	(.16)		(.003)	(1.25)	(1.19)
AGE		1.03	1.05	1.00	1.08	1.01	.86	.95		.92	.92	.92
		(1.86)	(1.95)	(.07)	(4.23)	(.43)	(5.71)	(.63)		(3.45)	(2.27)	(2.36)
AGESQ		.99	.99	.98	.99	.99	1.00	1.00		1.01	1.01	1.01
		(5.10)	(3.02)	(4.81)	(4.38)	(4.62)	(1.20)	(.03)		(2.91)	(2.30)	(1.68)
DUNCAN		.47	.62	.19	.76	.40	.57	.43		1.97	2.02	2.58
		(2.92)	(1.58)	(2.89)	(1.28)	(2.16)	(1.36)	(.90)		(2.12)	(1.94)	(1.26)
KWW		.87	.85	.89	.93	.94	.82	.96		1.16	1.13	1.18
		(6.80)	(5.12)	(4.26)	(2.80)	(2.63)	(4.86)	(.48)		(5.11)	(2.93)	(4.09)
KIDS							2.52	1.37		.90	.91	.89
							(8.38)	(1.78)		(1.91)	(1.15)	(1.39)
%FEMALE		1.15	1.06	1.35	1.01	1.27	.98	1.72		.98	.82	1.21
		(1.71)	(.52)	(2.39)	(.16)	(2.56)	(.10)	(.85)		(.18)	(1.20)	(1.03)
STATEY		1.00	1.10	.87	1.08	.95	.83	1.10		.94	1.03	.75
		(.04)	(.78)	(1.11)	(.83)	(.53)	(1.20)	(.35)		(.56)	(.20)	(1.46)
TWOPAR		.55	.48	.61	.59	.65	.79	1.00		.94	.91	1.01
		(5.96)	(4.57)	(3.91)	(4.15)	(3.99)	(1.25)	(.01)		(.45)	(.52)	(.03)
NOSTATE							1.14	.87		1.34	1.63	1.14
							(.49)	(.27)		(1.55)	(1.79)	(.48)
UCYCLIC							1.05	1.32		.66	.61	.67
							(.56)	(1.06)		(3.47)	(3.28)	(2.06)
AGE parabola												
AGE turn		26.4	27.9	24.9	28.7	25.3	40.9	113.5		29.9	29.6	30.1
AFDC turn		$475	$512	$430	$331	$1410	$391	$16		$24,050	$396	$446
AFDC parabola												
-log likelihood		3806.83	1732.07	1738.82	3211.78	2390.14	462.20	210.56		1568.27	686.48	675.52
sample size	4,297	4,297	3,200	1,097	3,200	1,097	817	338	456	456	199	257

[a]The overbar denotes the complement of the state. Thus, $\overline{FFH}$ is any state (such as married) prior to FFH poverty and $FFH\overline{POV}$ + FFHPOV denotes the transition from FFH but not poor to FFH and poor.

[b]Except for column (7), the numbers in this table are the exponentiated hazard function coefficients, exp (b_i) and exp (b_i^*). In column (7) they are the exponentiated logit coefficients.

[c]The numbers in parentheses are asymptotic t-ratios. For column (7), these were calculated as the square root of the Chi-square statistics.

Table 5

Sample Means for Estimated Hazard Function Variables
(100% Poverty Threshold)

Variable	Entry Hazards							Exit Hazards		
	$\overline{FFH} \rightarrow FFHPOV$			$\overline{FFH} \rightarrow FFH$		logit	$FFH\overline{POV} \rightarrow FFHPOV$	$FFHPOV \rightarrow FFH\overline{POV}$		
	pooled (1) or (2)	white (3)	black (4)	white (5)	black (6)	pooled (7)	pooled (8)	pooled (9) or (10)	white (11)	black (12)
BLACK	.26					.48	.38	.56		
AFDC	3.20	3.47	2.43			3.17	3.32	2.81	3.29	2.44
$(AFDC-3)^2$	1.86	1.93	1.65			1.97	2.09	2.58	2.76	2.44
STATEY	7.13	7.28	6.72			7.14	7.24	6.38	6.67	6.16
AGE_t	18.77[a]	t.v.[b]	t.v.			25.45[c]	t.v.	24.9[d]	t.v.	t.v.
AGESQ	48.01	t.v.	t.v.	same as column (3)	same as column (4)	17.22	t.v.	15.42	t.v.	t.v.
DUNCAN	.32	.37	.17			.26	.30	.23	.33	.55
KWW	7.27	7.80	5.73			6.59	7.39	6.05	7.17	5.19
KIDS								1.68	1.64	1.71
%FEMALE	51.3	51.3	51.4			51.35	51.34	46.2	46.6	45.8
TWOPAR	.82	.87	.66			.70	.78	.63	.73	.55
NOSTATE								.10	.09	.11
$UCYCLIC_t$[e]						.10		t.v.	t.v.	t.v.
sample size	4297	3200	1097			817	338	456	199	257

[a]AGE is time varying. This is the mean age in the first year of the sample, 1968.
[b]t.v. denotes time varying variable.
[c]AGE is time varying. This is the mean age upon first entry into FFH.
[d]AGE is time varying. This is the mean age upon entry into FFH-poverty.
[e]For the survey years between 1968 and 1982 the annualized values of UCYCLIC were -1.2, -1.4, -1.7 -.4, .4, -.1, -.55, 2.2, 1.1, .05, 1.7.

income and in the gender mix,[11] young black women still enter FFH poverty at about 2.7 times the rate of their white counterparts.

The transition to FFH poverty can occur in two steps--a change in family status that makes the woman a FFH, followed by a movement below the poverty line--or in a single step, straight to FFH poverty. To clarify the difference, we have resolved the single-step transition for the pooled data (column 2) into the events: (i) the transition (of 817 women) to FFH status ($\overline{\text{FFH}} \rightarrow$ FFH hazards by race in columns 5 and 6); (ii) logit analysis of which 479 of these 817 women are poor upon arrival in FFH (logit regression in column 7); and (iii) for those 338 who were not poor upon arrival, the subsequent transition of 43 of them to FFH poverty.

Using this resolution we see that in column 5 (6), other things the same, young white (black) women from intact families of origin (TWOPAR = 1) become single mothers at just under (somewhat over) 60 percent of the rate of their counterparts from broken families. They become poor single mothers at even lower rates (columns 3 and 4). Young black women whose fathers had a relatively high socioeconomic status (DUNCAN) are dramatically less likely to become single mothers (column 6) and poor single mothers (column 4); these effects are much less pronounced for whites. For both races, more market human capital (as measured by KWW) clearly retards both entry into FFH status (columns 5 and 6) and the chances of being poor upon that entry (column 7). For those who become single mothers but are initially not poor, more children just prior to entry into FFH speeds eventual transition to poverty (column 8). However, none of the measures of background or human capital seem to promote or retard these transitions.

As was indicated in Table 3, the percentage of women in the population increases expected divorced income for men, because it means they have relatively more choices of a potential wife, but decreases it for women, because they in turn have relatively fewer choices of a potential husband, and therefore has a theoretically ambiguous effect on the divorce hazard. As column (6) shows, black women in states with one more percentage point (which is about two standard deviations) of women in the population have a 27 percent higher risk of single motherhood. Their risk of poor single motherhood is even greater (column 4), 35 percent. For blacks, the increase in the man's expected income upon divorce evidently outweighs the decrease in the woman's expected income. We find no such effect for whites.

The preponderance of respondents who appear to become householders and poor simultaneously (479 of the 522 who became FFH poor in our sample) corroborates the aggregate time-series evidence cited in Section I that the feminization of poverty is closely linked to the secular trend in divorce. One of the main implications we should draw from the first eight columns of Table 4 is that factors hastening entry into female family householder status (columns 5 and 6) are also the factors underlying the increasing rate of entry over time into FFH poverty (columns 1 through 4). Apart from STATEY, most of our independent variables help to explain rates of entry into FFH and into FFH poverty. Further, all of these entry hazards underline the importance of a good economic start in life and the subsequent accumulation of human capital. Nonetheless, once a woman becomes a FFH, few of our independent variables help to explain either immediate (column 7) or subsequent (column 8) moves below the poverty line. Only (i) growing older, (ii) more

knowledge of the workplace, and (iii) fewer children just prior to entry into FFH seem to reduce the initial probability of poverty. For those who change family status but are not immediately poor, column 8 shows that only more children just prior to entry into FFH hastens subsequent movements below the poverty line.

Life-cycle effects are reflected in the coefficients of AGE and AGESQ in Table 4. In the lower part of the table, we draw the shape of the implied parabolas indicate the sample mean with a dot, and report the turning points as AGE turn. Where the turning point is so far from the mean as to be outside of the relevant range (for example, AGE turn = 114 years in column 8), only one leg of the parabola is shown. Note that the chances of becoming a single mother and of becoming a poor single mother increase until roughly age 29 for whites and 25 for blacks; they decrease thereafter. This pattern reflects the fact that FFH status is almost always preceded by the set of events marriage, childbearing, and divorce, and that by their middle to late twenties nearly 80 percent of women have been married (Statistical Abstract of the United States, 1986., p. 38). Beyond ages 28 or 29 for whites and age 25 for blacks, further aging retards both entry into FFH and FFH poverty, possibly reflecting (i) the development of marital-specific capital that outweighs the development of labor market capital, and (ii) a general decline in alternative marital opportunities to both spouses.

The impact of AFDC support has also been specified as a parabola. In the same manner as for AGE, the turning point (AFDC turn), shapes, and sample means for these parabolas are reported in the lower portion of Table 4. Recall that while government transfer policies are exogenous, the amounts transferred are endogenous and thereby excluded from the

income we used to ascertain poverty status. The strength of the entire income maintenance safety net for each state is proxied by monthly maximum AFDC payments.[12] We find that throughout the observed range, greater welfare generosity increases entry into single motherhood and thereby entry into poor single motherhood. The estimated coefficients in Table 4 imply that if welfare generosity increased so that our index rose by $100 per month, then white women would enter FFH poverty at a 12 percent higher rate (column 5) and black women would enter at a 22 percent higher rate (column 6), ceteris paribus.[13] These increases reflect elasticities of the probability of becoming a female family householder with respect to AFDC payments of 0.33 for white and 0.53 for black women. We cannot, however, detect any secondary impact of AFDC generosity on earnings or other income of single mothers. Specifically, women in states with relatively generous income maintenance systems are no more or less likely to fall beneath the poverty threshold either immediately upon entering FFH (column 7) or subsequently (column 8) than otherwise similar women in states with less generous systems.

E. Escaping FFH Poverty

Young black women not only enter FFH poverty at higher rates than their white counterparts, but also exit FFH poverty more slowly and, consequently, have longer average spells. The last four columns of Table 4 report the exit hazards for pooled (columns 9 and 10) and race-stratified (columns 11 and 12) hazards. Recall that Table 2 told us that isolated changes in income play a relatively small role in exits for both races (one-third of white and less than one-third of black exits), leaving changes in family structure as the dominant exit mode. Of these

changes in family structure that result in poverty exit, remarriage accounts for nearly three-quarters of the white but less than half (44 percent) of the black transitions (see Table 2).

As seen in Table 4, the average young black single mother exits poverty at only about half the rate of her white counterpart (column 9); even controlling for all other variables in Table 4, blacks still exit FFH poverty at only about two-thirds the white rate (column 10). More generous welfare programs as indexed by AFDC do not appear to retard exits from FFH poverty. Indeed, for blacks, more generous programs appear to hasten exits. (Remember that income is measured exclusive of government transfers.)

Poor single mothers are more than twice as likely to exit FFH poverty via a change in family structure than via an isolated change in income (Table 2). This provides some evidence that single mothers with more children may exit poverty (often via remarriage) at slower rates, but no evidence that coming from an intact family of origin makes a difference. Although changes in family structure dominate FFH poverty exits, nonetheless columns 11 and 12 show that, other things equal (including welfare policy), the human capital of a single mother is a significant determinant of her chance of rising above the poverty threshold: more market human capital (as measured by KWW), and, at least for whites, coming from a family with a higher socioeconomic status (as measured by DUNCAN) are both associated with significantly higher exit rates. Likewise, for both races aging seems to retard exit up through approximately age 30; after that, aging is associated with a significant increase in exit rates. It appears that prior to age 30 the negative effects of age on remarriage

dominate, while in later years the dominant effects are general human capital accumulation and the maturation of children.

The marketability of human capital depends upon the state of the economy as a whole. We estimate that an increase of one percentage point in the cyclical unemployment rate (UCYCLIC) retards by one-third the exit rates of young black mothers. The observed retardation is somewhat greater for whites. In typical postwar U.S. recessions, the unemployment rate rose by about 3.5 percentage points (Zarnowitz, 1985). This suggests that during a recession the poverty exit rate for young white mothers will be only about 18 percent of what it is during a period of full employment. The analogous figure for young black women is 25 percent. This implies that the business cycle affects white FFH-poverty durations relatively more than black FFH-poverty durations.

In conclusion, it should be emphasized that changes in family status dominate movements into and out of FFH poverty. Further, the institution of marriage works much better at keeping young white women out of poverty than at keeping young black women out of poverty. One clue is that, of the young women who exit FFH poverty via (re)marriage, only 6 to 20 percent of whites do so to marriages that are below the poverty line, whereas 15 to 40 percent of blacks exit to marriages that are below the poverty line (see Table 2).

V. THE IMPORTANCE OF DEMOGRAPHICS AND THE FUTURE DEFEMINIZATION OF POVERTY

In studying poverty, our research underscores the overwhelming importance of the institution of marriage. The trend known as the feminization of poverty reflects a sharp increase in the fraction of women with

children but without husbands. The relatively small proportion of black women who are married goes a long way toward explaining the higher poverty rates of young black women. Using the estimated hazard functions for poverty entry and exit in Table 4 we can tentatively rule out several possible explanations of the feminization of poverty. For example, while we find that welfare generosity affects interstate differences in poverty rates, such programs have trended in a direction that should have slowed the feminization of poverty. In particular, between 1970 and 1984, average real AFDC benefits fell by about 66 percent (Statistical Abstract of the United States, 1986, pp. 379 and 477). Likewise, the patterns of statistical (in)significance and magnitudes of our parameter estimates for TWOPAR in the entry and exit hazards rule out the secular increase in the proportion of women who come from broken families of origin as quantitatively important in explaining the feminization of poverty. In short, we speculate that the feminization of poverty over the last 15 years stems largely from demographics: a great increase in the number of women in their childbearing years coupled with the (as yet unexplained) secular upward trend in the fraction of single mothers.[14] Economists emphasize the role of the sex and age composition of the labor force in determining the so-called normal unemployment rate. In a parallel fashion our empirical results underscore the intertwined roles of population demographics, the marriage market, and family structure in explaining the size of the female poverty population and the trend known as the feminization of poverty.

In conclusion, we note that our results indicate that once a woman reaches her late twenties, aging tends to both retard entry into FFH poverty and hasten exit. This is important because the U.S. population

of women is now aging. For example, from 1970 to 1983, the core of the period when poverty was feminized, the number of women 18 to 24 years old rose by over 2.6 million. Compare this to what is predicted to happen between now and the year 2000: the population of women ages 18 to 24 is projected to fall by about 2 million (Statistical Abstract of the United States, 1986, p. 25).[15] These data suggest, then, that the number of poor single mothers with children will decline between now and the year 2000. The down side of this story is, however, that single mothers will probably continue to rear a growing fraction of U.S. children. The fundamental structural changes in families analyzed here call for further economic research.

Notes

[1]All of the summary statistics in this section are available in Kniesner (1983) and also in more dispersed form in A Growing Crisis (1983), U.S. Bureau of the Census (1984), and Statistical Abstract of the United States (1986 and earlier years).

[2]For blacks, the odds rose from 81/1000 in 1970 to 230/1000 in 1983, while the corresponding odds for white women increased from 55/1000 to 120/1000.

[3]A woman is defined as a FFH if she is the head of her household and has children in the household. She is the head of the household if she is (i) not married-with-spouse-present, and, (ii) reports herself as either the head of the household or as the sister of head of household but no related adults (including the sister) are present. She is not the head of the household if she is either (iii) married, with spouse present or in the armed forces, or (iv) does not meet (ii) above. By this definition a female family householder could have dependent parents.

[4]The modal AFDC household consists of a single mother with two children. In 1982, the last year of our sample, the annual poverty threshold for the average three-person family was $7,693 in 1982 dollars. (Statistical Abstract, 1986, p. 430).

[5]We do not address the issue that the CPI may overstate the inflation rate and, thereby, overstate the feminization of poverty.

[6]By ignoring cash transfers, the discrepancy between our definition of poverty and that of the federal government is the number of individuals who are lifted out of poverty via such cash transfers.

[7]The financial aid that a woman receives from relatives and alimony payments were included but were quite meager. In the CPS for 1982, the last year of our sample, alimony payments to women 18 to 29 years of age were too few in number to compute a reliable mean. In 1981, only 40 percent of these women held child support awards; of them, less than 50 percent actually received payments. For those who received payments in this young cohort, the average total payment was about $100 per month. The average for all women is higher by only $20 per month (Statistical Abstract, 1985, p. 383).

[8]This result is based on what we have referred to above as the 100 percent poverty threshold. From now on we discuss only the 100 percent poverty threshold unless substantive differences arose when the threshold was varied.

[9]This avoids oversampling spells from multispell individuals. Although there is information in second and higher-order spells, these spells tend to be associated with second divorces or other repeated changes in family type and are of secondary importance here.

[10]If the woman is in FFH poverty in the current survey but was unmarried and without children on the previous survey, then her entry mode was defined as entry via birth out of wedlock.

[11]The last three variables are time-varying in that they change as a respondent moves from state to state.

[12]Note that state per capita income (STATEY) and the percentage of the state population that is female (%FEMALE) help to shield these results from contamination due to unmeasured differences across states. Unreported results using a dummy variable for the presence of a state AFDC-UP program produced no significant differences among states.

[13]Ellwood and Bane (1985) report a 10 percent increase in divorce by women of all ages due to a $100 per month increase in monthly maximum AFDC payments.

[14]See, for example, Michael (1985), who finds that the time-series of divorce rates in the United States seems statistically to "lead" other important trends.

[15]The significance of this can be most easily understood by noting that through the end of this century the total population of U.S. women is expected to rise by 25 million.

Appendix A

CALCULATING POVERTY STATUS

The National Longitudinal Survey of Young Women (NLSYW) interviewed respondents who were ages 14-24 in 1968. These interviews were conducted annually from 1968 to 1982, except for 1974, 1976, 1979 and 1981. In each survey year, the respondents were asked detailed questions about the last calendar year's income and current family structure. For each survey year we ascertained family structure and poverty status. This allowed us to create beginning and ending years for FFH and FFH-poverty status as well as censor codes for noninterview and missing income.

Occasionally, respondents claimed no income or income transfers of any kind. We assumed that these respondents had "missing" income and therefore classified their poverty status as missing as well. When other income data indicated that the household was above the poverty threshold, respondents were designated as nonpoor even though income was missing from particular categories.

In some cases, the composition of the family unit was problematic. In particular, some households had a member (other than the spouse) who was age 14 or older, and this extra member, perhaps a teenage son or the woman's parent, may have contributed income. In this case, the income of the woman (and her spouse if present) was used as a lower bound on family income. The separate questions on the categories of household income were used to establish upper and lower bounds. We combined these to arrive at upper and lower bounds for household income. Where working-age nonspouses are present, the lower bound is the maximum of the lower bound income revealed by the income questions and the lower bound of the income

category selected. The upper bound is the minimum of the income sum (possibly missing) and the upper bound for the category selected. For each family we compared these upper and lower income bounds to the real poverty threshold.

(i) If the upper bound is less than the threshold, then a woman is called poor.

(ii) If the lower bound is greater than the threshold, then she is called not poor.

(iii) Otherwise, if the woman was FFH, on AFDC and not living with working-age relatives, then we classified her as poor.

The problematic case occurred when the threshold lay between the upper and lower income bounds and the woman did not receive AFDC.

(iv) If she does not live with other working-age persons, then poverty status is missing.

(v) If she lives with other working-age persons (husband excepted), then she is classified as poor if the poverty threshold is greater than the midpoint of the upper bound and lower bounds.

Missing values on questions regarding wages were patched up using self-reported usual hours worked per week, weeks worked in the past year, and hourly wages. Our calculation of income was checked against the key variables in the NLSYW data tape. The wage imputations were then introduced and AFDC and food stamp income netted out.

Finally, to calculate poverty thresholds for minors-only households, we defined the head as an "adult" for the purposes of selecting the family type in the poverty tables.

Appendix B

Year of Entry by Year of Exit for Whites (for Blacks)

Year of Entry (Percentage)	Year of Exit									
	1970	1971	1972	1973	1975	1977	1978	1980	1982	TOTAL
1969	5.4 (3.4)	1.2 (2.3)	0.6 (1.7)	0.6 (0.0)	0.6 (2.3)	0.0 (0.0)	0.0 (0.0)	0.0 (0.6)	0.0 (0.6)	8.5 (10.7)
1970		3.0 (5.1)	0.6 (1.1)	0.0 (2.8)	0.0 (0.6)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	3.6 (9.6)
1971			7.9 (6.2)	0.6 (1.1)	0.6 (2.8)	0.6 (2.3	0.0 (1.1	0.0 (0.0)	0.0 (0.0)	9.7 (13.6)
1972				9.1 (7.3)	1.8 (4.5)	1.2 (2.8)	0.0 (1.7)	0.6 (0.6)	0.6 (0.0)	13.3 (17.0)
1973					10.9 (10.2)	1.2 (2.3)	0.0 (2.3)	0.6 (0.0)	0.0 (0.0)	12.7 (14.7)
1975						13.9 (10.2)	6.7 (2.8)	2.4 (1.7)	0.0 (1.1)	23.0 (15.8)
1977							13.3 (5.1)	0.6 (5.1)	0.6 (0.0)	14.6 (10.2)
1978								6.7 (2.8)	0.6 (1.7)	7.3 (4.5)
1980									7.3 (4.0)	7.3 (4.0)
TOTAL	5.5 (3.4)	4.2 (7.3)	9.1 (9.0)	10.3 (11.3)	13.9 (20.3)	17.0 (17.5)	20.0 (13.0)	10.9 (10.7)	9.1 (7.3)	100.0 (100.0)

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