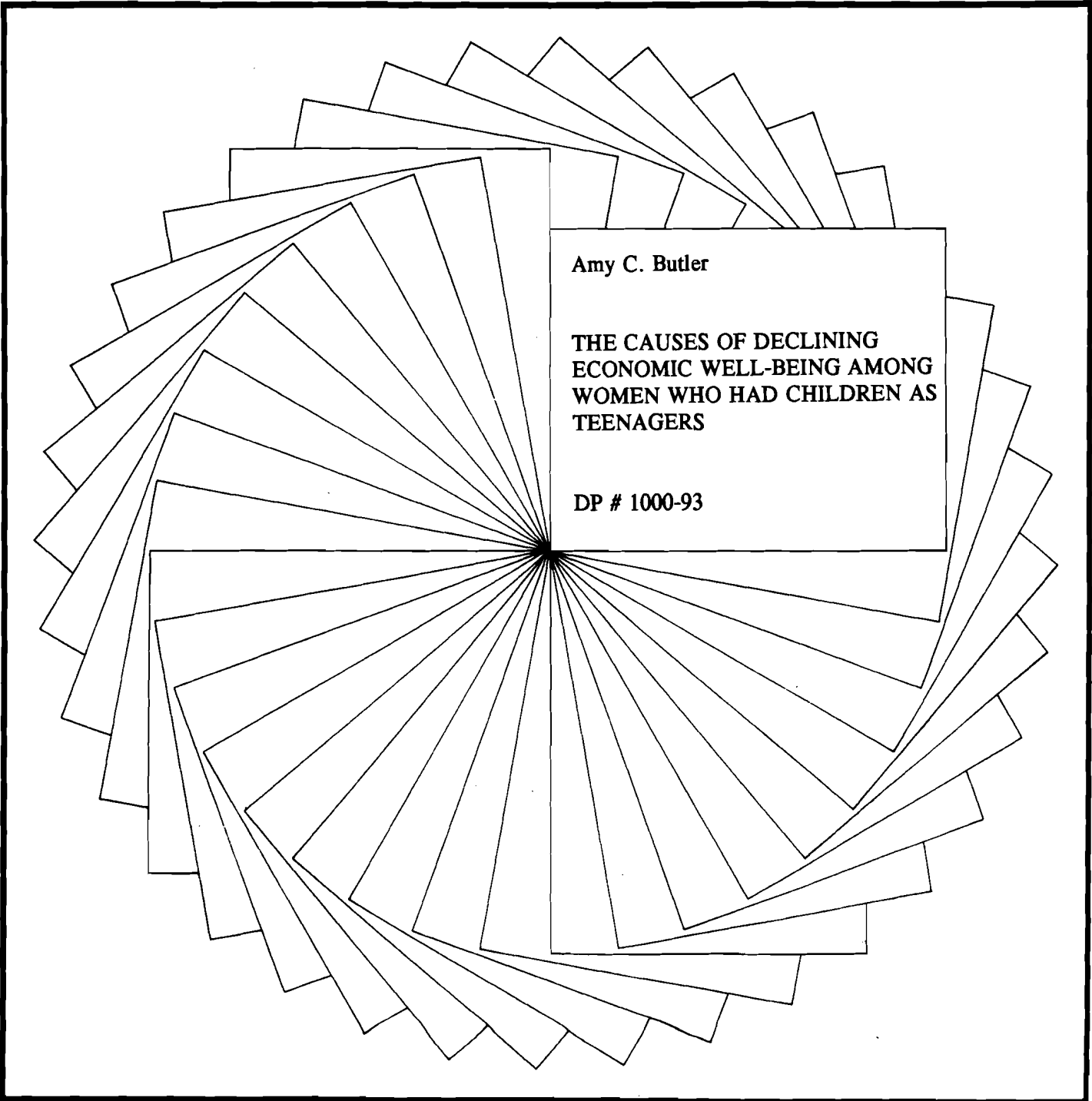University of Wisconsin-Madison

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Discussion Papers

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THE CAUSES OF DECLINING
ECONOMIC WELL-BEING AMONG
WOMEN WHO HAD CHILDREN AS
TEENAGERS

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The Causes of Declining Economic Well-Being
among Women Who Had Children as Teenagers

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Abstract

The economic well-being of 25-year-old women who began childbearing as teenagers declined during the 1970s and 1980s, whereas it did not for women who delayed childbearing until they were at least 20 years old. The decline in economic well-being appears to be due to a number of factors that changed over the last several decades, including men's wages and hours worked, local unemployment rates, and welfare benefit levels. The single most important factor contributing to the declining economic well-being was the decreasing likelihood that women who began childbearing as teenagers would be married later in life. Fewer children, higher educational attainment, and higher employment rates kept the decline from being steeper than it might otherwise have been.

The Causes of Declining Economic Well-Being among
Women Who Had Children as Teenagers

Women were less likely to have children as teenagers in the 1980s than they were in the three preceding decades (National Center for Health Statistics 1951-1989). Nevertheless, teenage childbearing is a larger social problem today than it was in previous decades because the economic consequences of teenage childbearing have worsened. A recent study conducted by this researcher found that the economic well-being of 25-year-old women who began childbearing as teenagers declined during the 1970s and 1980s, whereas it did not for women who delayed childbearing until they were at least 20 years old (Butler 1992). This suggests that the increase in poverty among young families during the 1970s and 1980s (Johnson, Sum, and Weill 1992) can be accounted for by the decrease in the economic well-being of families in which the mother began childbearing as a teenager. In this paper, I examine the reasons why the negative economic consequences of adolescent childbearing became more serious during the 1970s and 1980s.

Research on the recent increase in poverty among young families offers several explanations that may be useful in understanding the reasons behind the declining economic well-being of women who began their childbearing as teenagers. First, rates of single parenthood have been increasing (U.S. Bureau of the Census 1990a). Eggebeen and Lichter (1991) found that about one-third of the increase in child poverty between 1960 and 1988 and 51 percent of the increase in child poverty between 1980 and 1988 were due to increases in the proportion of single-parent families. Given the greater declines in the economic well-being of women who began their childbearing as teenagers, (1) increases in single-parent families had to have occurred disproportionately among women who had their first child as a teenager, or (2) single mothers who had postponed childbearing until at least their 20s must have been better able to escape poverty than single mothers who bore children as teenagers.

Changing macroeconomic conditions over the last two decades may also account, in part, for the increasingly negative economic consequences of teenage childbearing. The wages of young men declined between 1973 and 1990, particularly for young men with a high school education or less (Johnson and Sum 1987; Johnson, Sum, and Weill 1988, 1992). Such young men are likely marriage partners for teenage mothers (Card and Wise 1978), and their poor performance in the labor market may not only have caused a decrease in the family income of teenage mothers who married, but may also have contributed to the declining marriage rate of teenage mothers. William J. Wilson (1987) and John D. Kasarda (1989) argue that the decline in the number of blue-collar jobs in urban areas during the 1970s left low-skilled, inner-city black men without work and, consequently, decreased their attractiveness as marriage partners for black women. However, white men with low educations and skills and the women they would marry should also be negatively affected if they live in areas where manufacturing industries have declined. Indeed, Daniel T. Lichter, Felicia B. LeClere, and Diane K. McLaughlin (1991) found that local measures of male nonemployment rates and average earnings largely explained local variation in the proportion of currently married young women, both black and white.

Changing values may also account for some of the increase in single parenthood and subsequent poverty. Increased public tolerance of divorce and out-of-wedlock births may have affected marital decisions independent of macroeconomic factors (Jencks 1988; Preston 1984; Vinovskis 1988). This argument is supported by evidence that marriage rates have fallen among men of all education and wage levels (Jencks 1988; Johnson, Sum, and Weill 1992; Schoen and Kluegel 1988). Christopher Jencks points out that middle-class women may have gained from the increased personal and sexual freedom, but lower-class women, who are economically vulnerable, have suffered.

Another factor that may have contributed to the decline in economic well-being among women who began childbearing as teenagers is the decline in the real value of welfare benefit levels during the 1970s and early 1980s. Aid to Families with Dependent Children (AFDC) benefit levels decreased by 31 percent between 1972 and 1988 (Committee on Ways and Means 1990, pp. 962-65). Because teenage mothers are disproportionately represented on the welfare rolls (Moore 1978), this decrease can be expected to have negatively affected their incomes more than it affected the incomes of women who delayed childbearing. In addition to declining AFDC benefit levels, AFDC eligibility criteria became more restrictive and, therefore, a smaller proportion of poor, single-parent families received welfare. During the 1970s and 1980s, inflation eroded income eligibility, and the Omnibus Budget Reconciliation Act of 1981 restricted it still further (Moffitt and Wolf 1987). The percentage of poor children in families receiving AFDC benefits fell from a high of 80 percent in 1973 to a low of 50 percent in 1982 and had risen to 56 percent by 1987 (Committee on Ways and Means 1990, p. 577).

Changes in government in-kind benefit programs for low-income families have been complex, and it is not clear what their aggregate influence has been on women's economic well-being since the mid-1970s. Current Population Survey estimates of the market value of in-kind benefits received in 1979 and 1986 (two nonrecessionary years) show decreases in public and subsidized housing and school lunches (4 percent and 16 percent respectively) (U.S. Bureau of the Census 1987, Table A). Federal outlays for Food Stamps and Medicaid increased by 8 percent and 25 percent respectively.[1] The increase in poverty between 1979 and 1986 is slightly higher when in-kind benefits are counted than when they are not (U.S. Bureau of the Census 1987, Table C), which indicates that in-kind benefits have become less successful in preventing poverty. Thus, the evidence suggests that changes in AFDC policy led to increasingly lower economic well-being among women who began their

childbearing as teenagers and in-kind benefits for low-income families did not substantially counteract this trend, at least between 1979 and 1986.

But not all changes in society during the 1970s and 1980s led to a more precarious financial position for women who began childbearing as teenagers. Teenage mothers were more likely to graduate from high school by the mid-1980s than they had been in earlier years (Upchurch and McCarthy 1989; Duncan and Hoffman 1991). In addition, the subsequent fertility of teenage mothers declined. The rate of second, third, and fourth births to teenagers decreased between 1965 and 1975 (National Center for Health Statistics 1989, Table 1-15). This suggests that recent cohorts of women who began childbearing as teenagers have become more successful in limiting their family size and should therefore have an easier time avoiding poverty than did previous cohorts of women who had their first child as a teenager. Finally, the employment of women with young children increased (U.S. Bureau of the Census 1990b, Table 636), which, other things being equal, should have increased their economic well-being.

In summary, the literature suggests that the economic well-being of women who began their childbearing as teenagers declined during the 1970s and 1980s due to increases in out-of-wedlock births and marital disruption, declining employment and wages of young men, declining welfare benefits, and stricter welfare eligibility criteria. But these trends may have been at least partially offset by increased educational attainment, increased employment, and decreased fertility among early childbearers. In this study, I explore the extent to which these factors account for the decline in economic well-being among 25-year-old women who had their first child as a teenager. First, I examine the extent to which the decline in the women's economic well-being can be explained by changes in local economic conditions and welfare policy. Second, I investigate the extent to which the decline in economic well-being can be explained by changes in women's behavior during the 1970s and 1980s, specifically, changes in their marital status, whether their first birth had occurred

within marriage, their educational attainment, and the number of children they had borne. Finally, I consider changes in the main sources of income that make up my measures of economic well-being, specifically, the wages and hours worked by women and their husbands.

METHOD

Sample

The data come from the Panel Study of Income Dynamics (PSID). The PSID began in 1968 with a survey of approximately 5,000 families, who have been reinterviewed on an annual basis ever since. This study will focus on women who were 25 years old between 1968 and 1987. By age 25, most women are financially independent of their parents, yet the children of 25-year-old women who began childbearing as teenagers are still young enough to be living at home. Thus, the economic well-being of the women represents that of their children as well. The analysis is limited to black and white non-Hispanic women because the sample contains too few women from other racial and ethnic groups to analyze separately. The sample includes women who had children by age 25 as well as those who did not, but excludes women who had their first child at age 14 or younger because of their small numbers. The sample size is 2,232, of which 1,240 are white and 992 are black.[2]

The PSID data were supplemented with data on county unemployment rates (U.S. Bureau of the Census 1973, 1982, 1983; U.S. Bureau of Labor Statistics, annual), state AFDC maximum benefit levels (U.S. Department of Health, Education, and Welfare 1969-1976; U.S. Department of Health and Human Services 1977-1988), and average production wages, the number of manufacturing jobs, and the total number of nonagricultural jobs, by metropolitan area (U.S. Bureau of Labor Statistics 1959-1988).

<u>Variables</u>

<u>Dependent Variables</u>. I measure economic well-being in two ways. First, economic
well-being is defined as the total family income divided by the dollar value of the family's basic needs
(income/needs). This measure of economic well-being is useful because it takes into account
fluctuations in family size and composition, whereas family income alone would not. Family income
includes all forms of money income, including earned income, government transfers, interest, and
dividends. It does not include the value of in-kind benefits (such as Food Stamps or Medicaid) or
employment-related noncash benefits (such as health insurance). The measure of families' basic needs
is similar, but not identical, to the federal poverty line. It was calculated by the PSID staff and takes
into consideration the age and sex of family members, as well as changes in family composition
during the course of the year (Economic Behavior Program 1984).[3]

The natural log of economic well-being is used in the analysis, as is generally done with
income, because economic well-being is a positively skewed variable. The log of economic
well-being was truncated at -2, equivalent to an income that is 13 percent of the poverty line. Fewer
than ten cases had values less than -2.

Changes in programs that provide in-kind benefits may have influenced women's economic
well-being during the period covered by this study. The largest in-kind programs include Food
Stamps, Medicaid, and public and subsidized housing. The Panel Study of Income Dynamics
included questions about the value of Food Stamps that families received during each year of the
survey, except for 1972. Questions about the receipt of other in-kind benefits were not asked
consistently over the years.

The second measure of economic well-being includes the face value (market value) of Food
Stamps. Because the amount of Food Stamps available to a family is less than what most poor
families spend on food, the receipt of Food Stamps will free up an amount of money that is close to

the face value of the Food Stamps. Indeed, recipients place a value on Food Stamps that is quite

close to their face value (U.S. Bureau of the Census 1987).

Most of the analyses in this study will be conducted with the measure of economic well-being

that excludes Food Stamps. This decision was made for the following three reasons. First, before

the Food Stamps program was available nationwide in 1975, many communities that did not have a

Food Stamps program had commodity food distribution programs that Food Stamps later replaced.

The value of the benefits of the precursors to Food Stamps was not measured by the PSID. Second,

before 1979, eligible recipients had to buy their Food Stamps. The value of the benefit equalled the

difference between the cost of the Food Stamps to the recipient and the face value of the Food

Stamps. After 1979, recipients did not have to purchase their Food Stamps; instead they received

the amount of Food Stamps for which they were eligible. Therefore, respondents' reports of the

value of the Food Stamp benefits they received during the previous year are likely to contain more

error prior to 1979 than in later years. It is likely that some respondents will overestimate the value

of their Food Stamp benefit before 1979 by confusing the value of the Food Stamp benefit with the

face value of the stamps. The third reason why most of the analyses will use the measure of

economic well-being that excludes Food Stamps is that respondents in the PSID were not asked about

the value of the Foods Stamps they received in 1972; analyses including Food Stamps, therefore, will

be based on nineteen, instead of twenty, years of data.

Independent Variables. Four dummy variables were created to represent age at first birth:

age 15-17, 18-19, 20-24, and no child before age 25. This is the categorization used in government

statistics and in much of the published research, and it allowed me to examine differences in outcomes

for women who had early, as opposed to later, teen births. The variable year ranges from 1 to 20

(where 1968=1 and 1987=20) and represents the year in which the woman was 25 years old--the

year in which her economic well-being was measured. The change in the effect of age at first birth

on economic well-being across time was estimated using interaction terms created by multiplying the age-at-first-birth dummies by year.

Additional variables that will be used to explain the decline in economic well-being over time include dummy variables measuring whether a woman was married at the time of her first birth (wedlock birth), whether she was married at age 25,[4] the number of years of school she had completed by age 25 (educational attainment), the number of children she had borne by age 25, whether the woman was employed at age 25, the number of hours she worked that year and her hourly wage (both coded 0 if she did not work), and the number of hours her husband worked that year and her husband's hourly wage (both coded 0 if she was not married).[5] In addition, there are three measures of local labor market conditions and one measure of state welfare benefit levels. These variables are described below. Table 1 shows the means (or percentages) for all variables for the total sample and by age at first birth.

Measures of Labor Market Conditions for Young Men and Women. It would be desirable to have a measure of the wages available to low-skilled male and female workers in local areas. Such a variable would ideally reflect the changing proportion of higher-wage manufacturing jobs and lower-wage service jobs available to young workers. I use three variables to measure local economic conditions, which together cover several important aspects of economic opportunities for young women and their potential husbands.

1. Production wage: the average wage for nonsupervisory production workers in metropolitan areas (or the state average, if the woman does not live in a metropolitan area). Location of residence is coded in the PSID on the county level. Women were assigned the value of the metropolitan area that included all or part of the county in which they resided.

Information on average production wages is available on an annual basis for the period 1968-1987. Because institutional arrangements, such as union contracts, prevent area wages from

TABLE 1

Descriptive Statistics for the Total Sample and by Age at First
Birth (Weighted), with Unweighted Ns

		Age at First Birth			
	Total (N=2,232)	15-17 (N=287)	18-19 (N=366)	20-24 (N=738)	25+ (N=841)
Economic well-being (w/o Food Stamps) at age 25 (median)	3.30	1.54	2.48	3.15	4.01
Total family income at age 25, in 1988 dollars (median)	$27,711	$18,832	$25,224	$28,212	$29,963
Educational attainment (mean years completed)	13.0	10.7	11.6	12.5	14.0
Number of children (mean)	1.0	2.5	2.1	1.6	0.1
Employed (%)	76.7	50.8	63.8	63.7	93.3
First birth occurred within wedlock (%)	75.8	46.3	71.2	81.8	94.1[a]
Married (%)	62.4	61.5	68.2	85.1	44.7
Employed (number)	1,655	164	240	487	764
Hours worked	1,474	1,210	1,309	1,202	1,658
Hourly wage (in 1988 dollars)	$7.70	$5.46	$6.23	$6.26	$8.93
Married (number)	1,047	114	182	476	275
Hours husband worked	2,173	2,071	2,173	2,250	2,082
Husband's hourly wage (in 1988 dollars)	$11.18	$9.80	$11.33	$11.09	$11.55
Local labor market conditions Production wage (in 1988 dollars)	$10.46	$10.29	$10.37	$10.41	$10.55
Change in manufacturing (%)	2.3	3.3	2.9	2.9	1.5
Unemployment rate (%)	6.5	7.3	6.4	6.3	6.5

(table continues)

TABLE 1 (continued)

	Total (N=2,232)	Age at First Birth			
		15-17 (N=287)	18-19 (N=366)	20-24 (N=738)	25+ (N=841)
Welfare policy and welfare use					
AFDC maximum benefit (per month, in 1988 dollars)	$546	$480	$544	$544	$556
Received AFDC benefits (%)	5.4	23.2	13.2	4.2	1.4
Control variables					
Mother's education (mean)	11.3	8.9	10.1	11.0	12.1
Father's education (mean)	10.8	8.6	9.6	10.3	11.9
Number of siblings (mean)	3.6	5.1	4.1	3.7	3.2
Grew up in a single-parent family (%)	21.1	41.0	27.2	22.0	16.0
Region in which women grew up (%)					
Northeast	25.0	17.7	20.2	20.2	30.8
North Central	33.6	27.1	32.4	33.9	34.6
South	27.5	45.1	34.3	31.4	20.3
West	13.9	10.1	13.1	14.5	14.3
	100.0	100.0	100.0	100.0	100.0
Size of hometown in which women grew up (%)					
Farm	12.6	18.5	16.3	15.7	8.5
Town or suburb	49.4	44.3	46.6	49.2	51.1
City	38.0	37.2	37.1	35.1	40.4
	100.0	100.0	100.0	100.0	100.0
Race (%)					
White	85.8	54.8	80.1	87.6	90.6
Black	14.2	45.2	19.9	12.4	9.4
	100.0	100.0	100.0	100.0	100.0

Source: Panel Study of Income Dynamics.

Note: All variables pertain to sample members at age 25 unless otherwise noted.

*The base for the percentage is women who bore a child when they were 25 years old (n=78).

fluctuating much from year to year, "production wage" is more likely to explain variation in women's economic well-being across metropolitan areas than to explain variation in women's economic well-being across time. However, production wages may have declined during this period to the extent that unions have weakened and to the extent that higher-paying manufacturing firms have downsized or closed down. Thus, "production wage" may explain some of the decline in economic well-being of women who had their first child as a teenager.

2. The change in the relative size of the manufacturing sector in metropolitan areas over the previous decade: The economic well-being of young women who had their first child as a teenager is expected to be lower if they lived in metropolitan areas that experienced a substantial decline in manufacturing over the previous ten years than if they lived in areas that experienced increases in manufacturing jobs. As companies go out of business or move to other states or countries, low-skilled factory workers are displaced and often must accept lower-wage employment. When companies downsize and lay off workers, younger workers are more likely than older workers to lose their jobs (because they have less seniority), and younger workers will find it increasingly difficult to get hired in the first place. The potential impact of the change in manufacturing should depend on the previous importance of manufacturing for the metropolitan area.

The data on manufacturing jobs are available on the metropolitan area level for the 1968-1987 period. Kasarda (1989) argues that young blacks in inner cities have difficulty obtaining and keeping suburban jobs, which suggests that an urban/suburban labor market distinction is necessary. But, according to Jencks (1988), numerous studies have shown that the urban/suburban labor market distinction is not useful in explaining economic outcomes for blacks.

The change in manufacturing is measured here as the change in the number of manufacturing jobs over the past ten years as a percentage of the total number of nonagricultural jobs in the metropolitan area ten years earlier:[6]

$$\% \text{ change} = [(\text{manufact}_t - \text{manufact}_{t\text{-}10})/(\text{total}_{t\text{-}10})] * 100,$$

$$\text{where } t = \text{year woman is age 25}$$

$$t\text{-}10 = \text{ten years earlier.}$$

This variable has a positive value for women who lived in metropolitan areas that experienced increases in the number of manufacturing jobs; it has a negative value if the number of manufacturing jobs declined. Respondents who did not live in a metropolitan area were given the state value. Fifty-one percent of white women and 34 percent of black women were assigned the state value. The assignment of the state value unavoidably adds error to the variable and therefore is expected to weaken its explanatory value.

3. County unemployment rate: The county unemployment rate is the yearly average for the county in which the woman lived when she was age twenty-five. High county unemployment is expected to reduce women's economic well-being by lowering the probability that women and their husbands are employed and by increasing the likelihood that, if employed, they are earning low wages and working less than full-time. A high county unemployment rate may also reduce women's economic well-being by lowering the probability that they are married, because women are unlikely to marry an unemployed man and because unemployment among men can cause family tension which may lead to marital disruption.

Welfare Policy. The generosity of state welfare policy was measured using the amount of AFDC benefits a single-parent family of four could receive each month if it had no other source of income. This variable, state AFDC maximum benefit, varies by state and by year. The AFDC maximum benefit level is also the maximum income a family can have and still be eligible for AFDC benefits. Consequently, AFDC eligibility is highly correlated with the AFDC maximum benefit level, and the one variable will serve as a measure for both concepts.

Women who began childbearing as teenagers are disproportionately represented on the welfare rolls (Moore 1978). As Table 1 shows, 23 percent and 13 percent of the women in this sample who had their first child at age 15-to-17 and 18-19, respectively, lived in households in which AFDC benefits were received when they were 25 years old. In contrast, only 4.2 percent of women who had their first child at age 20 to 24 and 1.4 percent of women who delayed childbearing until they were at least 25 years old lived in households in which AFDC benefits were received. Declining AFDC benefit levels, therefore, are expected to lower the economic well-being of women, especially those who began childbearing as teenagers.

Changing cultural values may have caused increased economic hardship by weakening social disapproval of divorce, separation, and out-of-wedlock births, thus leading to an increase in poor, single-parent families. No measure exists in the PSID dataset that can capture changing cultural values. This study, therefore, cannot evaluate the role of this potentially important explanation for the declining economic well-being of women who began childbearing as teenagers.

Control Variables. Control variables include factors that previous research has shown to be associated with age at first birth and that are likely to influence later economic well-being as well (Michael and Tuma 1985; Upchurch, Astone, and McCarthy 1990). These variables are mother's education; father's education; number of siblings; the region in which the woman grew up (Northeast, North Central, South, West); whether she grew up on a farm, in a town or suburb, or in a city (size of hometown); and whether she spent much of her childhood living in a single-parent family.[7] Race is used as a control variable and in combination with other variables to estimate interaction effects. The means (or percentages) for the variables are shown in Table 1 for the total sample and by age at first birth.

Arline T. Geronimus and Sanders Korenman (1992) examined whether the standard method of controlling for family background is inadequate and results in an exaggeration of the impact of

teenage childbearing on socioeconomic outcomes. They compared the use of control variables (similar to those listed above) with a second approach that compared socioeconomic outcomes for sisters--one of whom had had a teen birth and the other of whom had not. They found that in the PSID sample, the standard approach and the sister comparison were equally good methods of controlling for family background. This conclusion should be viewed with some caution, however, because the sister comparison was the more effective method of controlling for family background in two other datasets. It is unclear why the three datasets produced different findings.

Two other factors that have been found to explain the timing of the first birth and that may also be important predictors of economic well-being in adulthood are a teenager's educational aspirations and academic aptitude (Card and Wise 1978). Measures of these factors are not available in the PSID dataset. Omitting these variables and other relevant controls from the model may result in overestimating the impact of teenage childbearing on later economic well-being. But unless the impact of these factors on teen births has changed over the last several decades, the omission of these variables from the model will not affect the change over time in the effect of teenage childbearing on later economic well-being. This issue (selection bias) will be discussed in a later section.

Analysis Plan

I begin by presenting analyses conducted in Butler (1992) which map the trends in women's economic well-being across time. Ordinary Least Squares (OLS) regression was used to estimate the effect of age at first birth on economic well-being. The analyses were weighted to adjust for oversampling of low-income families.

In order to examine how the economic well-being of 25-year-old women who had their first child as a teenager changed between 1968 and 1987, compared to that of 25-year-old women who delayed childbearing, I tested the statistical significance of interactions between year and age-at-first-birth dummy variables and interactions between polynomials (year^2, year^3) and

age-at-first-birth dummies. Controls for background factors were included to determine the extent to

which the effects were due to age at first birth, net of family background factors.

I tested for race differences by allowing race to interact with age-at-first-birth dummies and

by checking for interaction effects of race with family background variables. Because a number of

race interactions were statistically significant, analyses were run separately for white and black

women.

I recoded the years 1968-1987 into five four-year dummy variables for each of the four

age-at-first-birth groups. I replaced the polynomials with this set of dummy variables in order to see

how well the polynomials had captured the trends in economic well-being over time.

I used two methods to examine the possibility that the observed trends in economic well-being

were due to selection bias. First, I allowed the effect of the family background variables to vary over

time. Second, through visual inspection, I examined the degree of correspondence between declining

birth rates and declining economic well-being.

I added additional variables to see to what extent they could account for the changing effect of

age at first birth on economic well-being. This was determined by observing the decrease in the size

of the interactions between age-at-first-birth dummies and year when the additional variables were

added to the model.

RESULTS

Change in Economic Well-Being over Time

The findings show that between 1968 and 1987, the economic well-being of women who

began childbearing as teenagers declined more steeply than did the economic well-being of women

who delayed childbearing until at least their twenties. As Model 1 in Table 2 shows, the economic

well-being of women who began childbearing at age 20-24 declined over the period (the coefficient

"year" is negative and statistically significant). The declines for women who began childbearing at age 15-17 and 18-19 were significantly steeper (the coefficients for "15-17 by year" and "18-19 by year" are negative and statistically significant). The economic well-being of women who had no child before age 25 did not decline.

Polynomials that allow the slopes to curve were introduced in Model 2 and indicate that the economic well-being of women who had their first child at age 15-17 first increased, reached a maximum in 1975, and then decreased.[8] Higher-order polynomials, which would indicate additional curves in the slopes, were not statistically significant. Figure 1 illustrates the trends in the economic well-being of 25-year-old women from 1968 to 1987, based on the coefficients in Model 2. Notice that the longer women delayed childbearing, the higher their economic well-being at age 25 throughout the twenty-year period. Economic well-being declined for all women except for those who had no child before age 25. This decline is particularly strong for women who had their first child as a teenager.

When the value of Food Stamps was included in the measure of economic well-being, the decline in economic well-being decreased slightly for women who began childbearing as teenagers (see Table 2, Models 3 and 4, and Figure 1). However, the monotonic decline for women who had their first child at age 18-19 (Model 3) and the curvilinear decline for women who had their first child at age 15-17 (Model 4) continued to be statistically significant at the .05 level of significance. Subsequent analyses will use the measure of economic well-being that excludes Food Stamps, but it should be kept in mind that the Food Stamp program has reduced somewhat the impact of the decline in economic well-being experienced by the women who began childbearing as teenagers.

TABLE 2

Regression Coefficients and Their Standard Errors; the Dependent Variables Are the Natural Log of Economic Well-Being Excluding (Models 1 and 2) and Including (Models 3 and 4) the Value of Food Stamps

|	Model 1		Model 2		Model 3		Model 4	
	b	s.e.	b	s.e.	b	s.e.	b	s.e.
Constant	1.189***	.046	1.222***	.075	1.183***	.046	1.216***	.072
Age at first birth								
15-17	-.456***	.010	-1.038***	.204	-.518***	.121	-1.047***	.198
18-19	-.066	.086	-.291*	.145	-.067	.085	-.277*	.139
20-24	---	---	---	---	---	---	---	---
25+	.052	.065	.126	.110	.050	.065	.125	.107
Year	-.011**	.004	-.019	.016	-.009*	.004	-.018	.016
Year^2			.0004	.001			.0004	.0007
Age at first birth by year								
15-17 by year	-.025*	.010	.118**	.042	-.011	.010	.118**	.040
18-19 by year	-.019*	.008	.041	.032	-.016*	.007	.040	.031
20-24 by year	---	---	---	---	---	---	---	---
25+ by year	.019***	.005	.003	.023	.018***	.005	.003	.022
Age at first birth by year^2								
15-17 by year^2			-.0066***	.002			-.0059***	.0018
18-19 by year^2			-.0029	.002			-.0027	.0014
20-24 by year^2			---	---			---	---
25+ by year^2			.0007	.001			.0006	.0010
R^2	.183		.191		.172		.170	
$R^2_{adj.}$	.181		.187		.169		.175	
N	2,232		2,232		2,129		2,129	

Source: Author's calculations based on Panel Study of Income Dynamics.

* p < .05.
** p < .01.
*** p < .001.

Figure 1: Economic well-being (with and without Food Stamps) for women age 25, 1968-87, by age at first birth
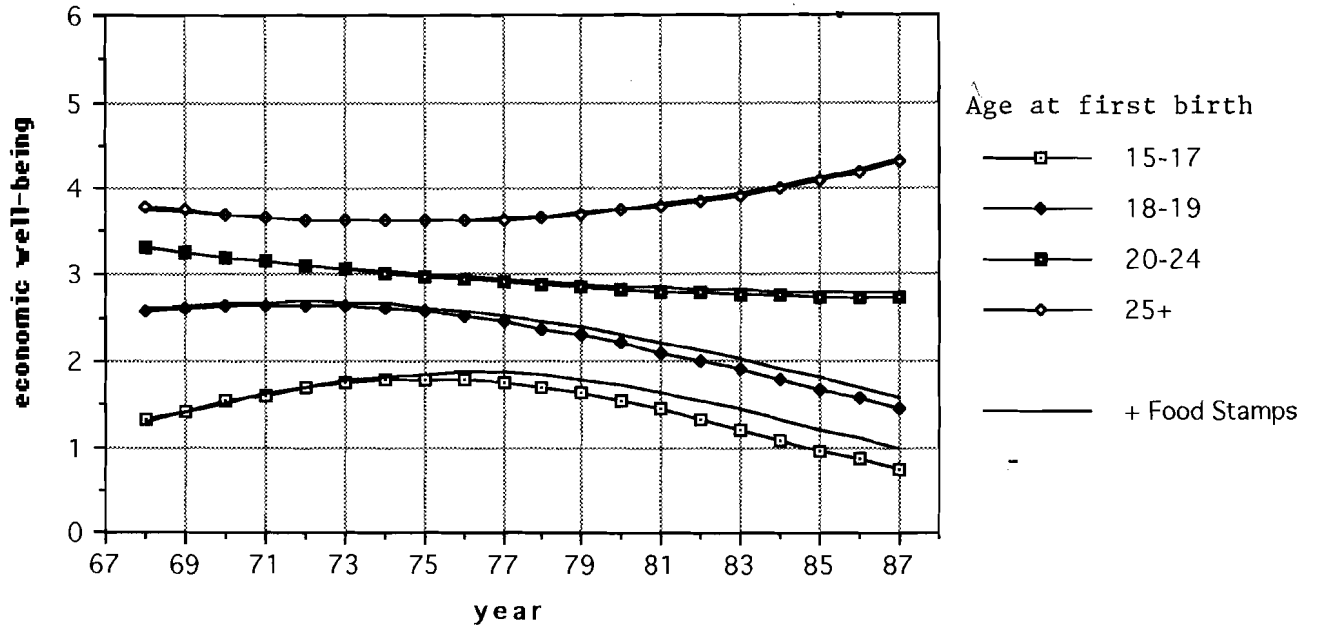
The family background variables were added in order to control for preexisting socioeconomic background differences between women who had children as teenagers and women who delayed childbearing. In addition, race was allowed to interact with "age at first birth by year" and the family background variables. The results of the analyses (not shown) showed that the economic well-being of black women was significantly lower than that of white women, even when age-at-first-birth and family background factors were controlled ($p < .001$). The decline of economic well-being was significantly steeper for black than for white women who began childbearing at age 15-17 ($p < .01$). In addition, the negative effects of having lived with a single parent as a child and of having many siblings and the positive effect of mother's education on economic well-being were all significantly stronger for black than for white women ($p < .05$). Because a number of processes were different, white and black women were analyzed separately.

Model 5 in Table 3 indicates that the only group of white women to experience a statistically significant decline in economic well-being were women who had their first child at age 18-19. (The slope for women who had their first child at age 15-17 should be viewed cautiously because there are relatively few white women in this group [N=60].) None of the polynomials in Model 6 was statistically significant. In other words, the slight curve in the downward trend in the economic well-being of white women who had their first child at age 18-19 is not statistically significant.

Model 7 shows that the only group of black women to experience a statistically significant decline in economic well-being was the group of women who began childbearing at age 15-17. The addition of polynomial terms in Model 8 indicates that this trend in economic well-being is curvilinear, rising slightly at first, reaching its maximum in 1973, and then declining (see endnote 8).

Figures 2 and 3 illustrate the estimated effect of age at first birth on economic well-being at age 25 from 1968 through 1987 for white and black women, respectively. These figures incorporate the coefficients in Models 6 and 8, and the values of the control variables were set at their mean (for

TABLE 3
Regression Coefficients and Their Standard Errors; the
Dependent Variable Is the Natural Log of Economic Well-Being

	White Women				Black Women			
	Model 5		Model 6		Model 7		Model 8	
	b	s.e.	b	s.e.	b	s.e.	b	s.e.
Constant	1.012***	.105	1.020***	.126	.362*	.159	.459*	.230
Age at first birth								
15-17	-.500**	.174	-.742**	.281	.102	.157	-.595*	.291
18-19	.036	.104	-.200	.174	-.220	.157	-.637*	.279
20-24	---	---	---	---	---	---	---	---
25+	.027	.077	.174	.130	-.181	.142	-.399	.255
Year	-.008	.005	-.014	.020	-.008	.008	-.019	.038
Year^2			.0003	.001			.0005	.002
Age at first birth by year								
15-17 by year	.004	.015	.069	.061	-.054***	.012	.096	.054
18-19 by year	-.025**	.009	.040	.040	.008	.013	.103	.059
20-24 by year	---	---	---	---	---	---	---	---
25+ by year	.015*	.006	-.018	.027	.021	.011	.069	.048
Age at first birth by year^2								
15-17 by year^2			-.0032	.003			-.0064**	.002
18-19 by year^2			-.0032	.002			-.0043	.003
20-24 by year^2			---	---			---	---
25+ by year^2			.0014	.001			-.0021	.002
Size of hometown								
Farm	-.085	.055	-.094	.053	-.208**	.079	-.191*	.079
Town or suburb	-.070*	.035	-.075*	.034	-.025	.062	-.016	.061
City	---	---	---	---	---	---	---	---
Region								
Northeast	.075	.040	.075	.040	.084	.077	.087	.077
North Central	---	---	---	---	---	---	---	---
South	.026	.043	.026	.043	.126	.067	.103	.067
West	-.078	.048	-.076	.048	.326***	.097	.314**	.096
Single-parent family	-.062	.041	-.058	.041	-.171***	.045	-.165***	.045
Number of siblings	-.011	.007	-.010	.007	-.028***	.006	-.030***	.006

(table continues)

TABLE 3 (continued)

	White Women				Black Women			
	Model 5		Model 6		Model 7		Model 8	
	b	s.e.	b	s.e.	b	s.e.	b	s.e.
Mother's education	.008	.007	.009	.007	.051***	.009	.047***	.009
Father's education	.021***	.006	.021***	.006	.007	.008	.007	.008
R^2	.167		.173		.297		.311	
$R^2_{adj.}$	.156		.159		.286		.297	
N	1,240		1,240		992		992	

Source: Author's calculations based on Panel Study of Income Dynamics.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

Figure 2: Economic well-being of 25-year-old white women, 1968-87, by age at first birth
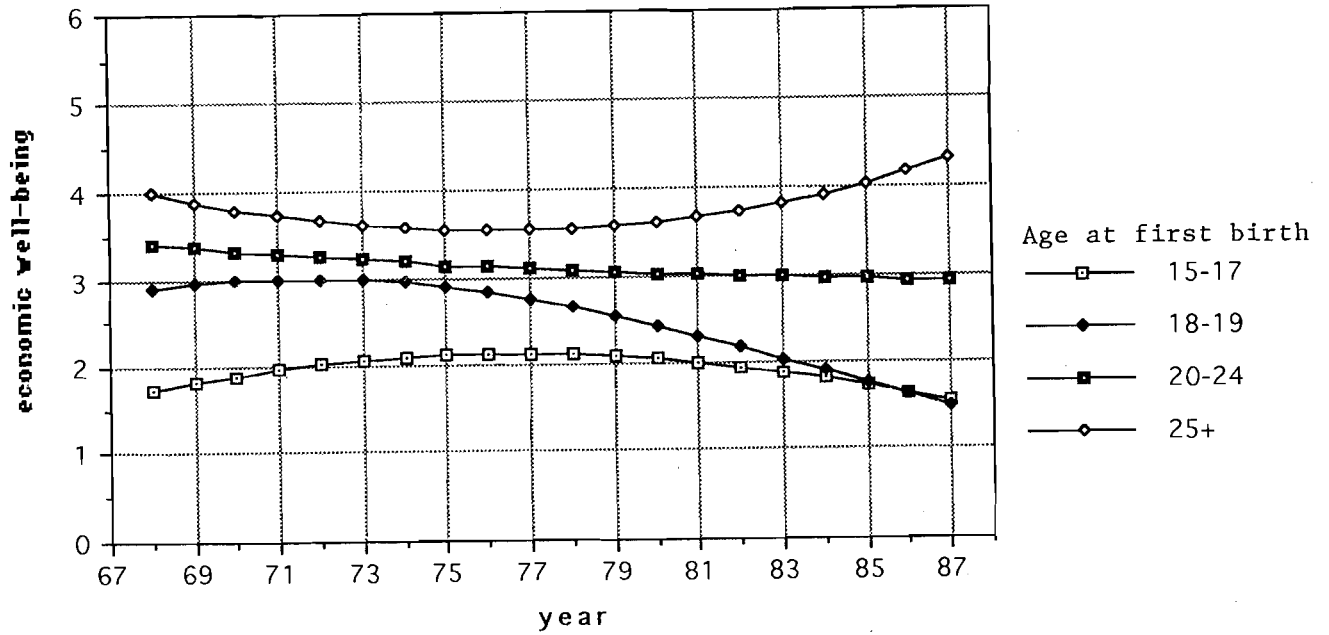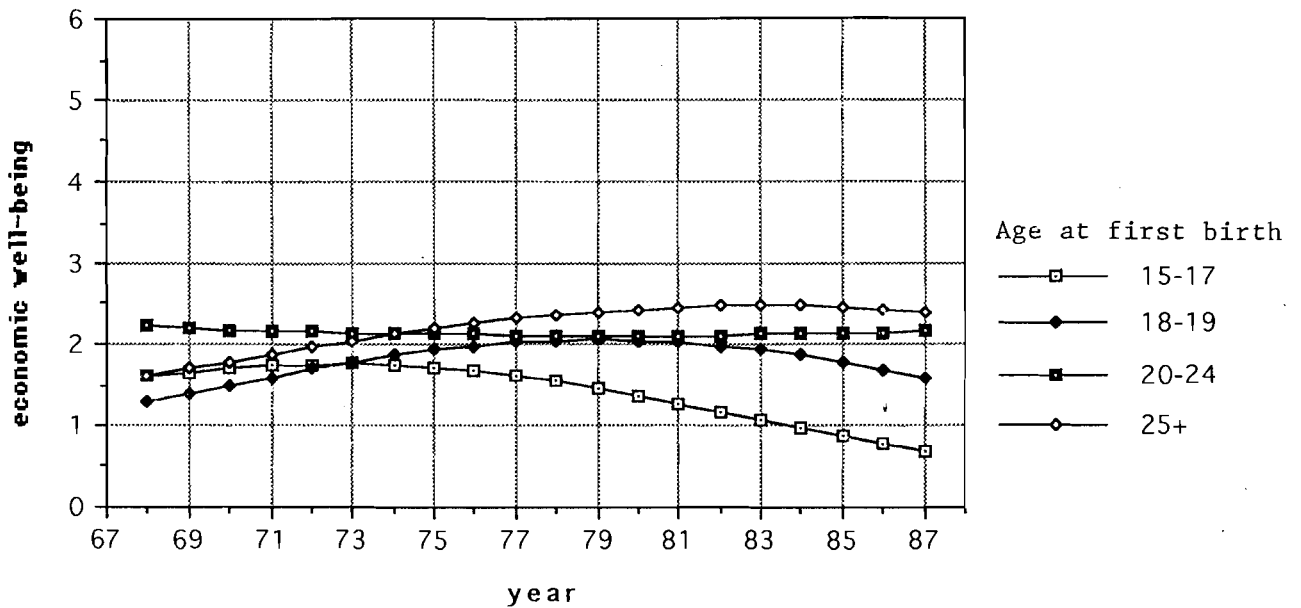

Figure 3: Economic well-being of 25-year-old black women, 1968-87, by age at first birth

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the continuous variables) or modal values (for the categorical variables).[9] Figures 2 and 3 show several noteworthy similarities and differences between white and black women. First, the economic well-being of both black and white women who delayed childbearing until at least their 20s remained about the same throughout the period. White and black women who had their first child at age 15-17 experienced similar trends in their economic well-being: first increasing and then declining after the mid-1970s, although the effect is not statistically significant for white women. White and black women differ in that the economic well-being of white women who began childbearing at age 18-19 declined significantly over the twenty-year period, whereas the decline was not statistically significant for their black counterparts. It is also important to note the greater variation in economic well-being across the four age-at-first-birth groups for white women than for black women. Although black women who delayed childbearing were better off than black women who had a child as a teenager, the difference was not as great for black women as it was for white women, especially during the early 1970s.

In order to check whether the downward trends shown in Figures 2 and 3 represent the actual trends in the data for women who had their first child as a teenager, I created five dummies from "year" (1968-1971, 1972-1975, 1976-1979, 1980-1983, 1984-1987) for each age-at-first-birth group and ran the analyses for white and black women using the dummies instead of the polynomials. Figures 4 and 5 show the curves for white women who had their first child at age 15-17 and 18-19 respectively (from Figure 2), along with the plotted values for the dummies obtained from analyses run both with and without weights. The curve for white women who had their first child at age 15-17 closely approximates the values for the weighted and unweighted dummies. The dummies picked up a trend in economic well-being across time for white women who had their first child at age 18-19 that has a sharper curve than was evident from the analysis using the polynomials. The downward trend in economic well-being since the early 1970s is quite pronounced. Assuming average or modal

Figure 4: Data from Figure 2 and from regressions with dummies, weighted and unweighted, for white women who had their first child at age 15-17
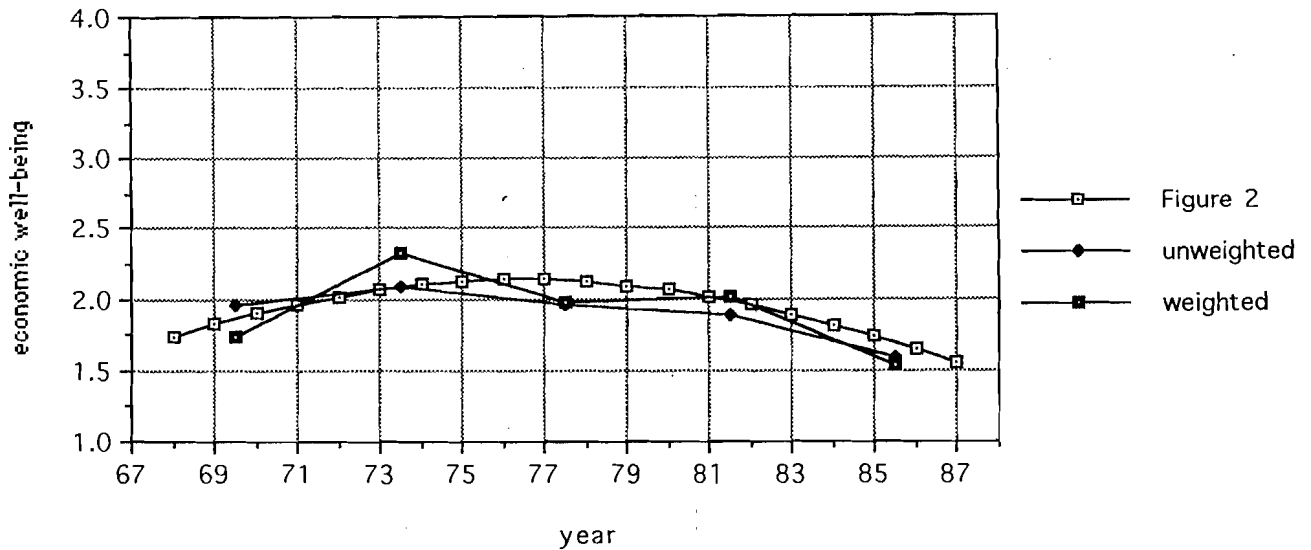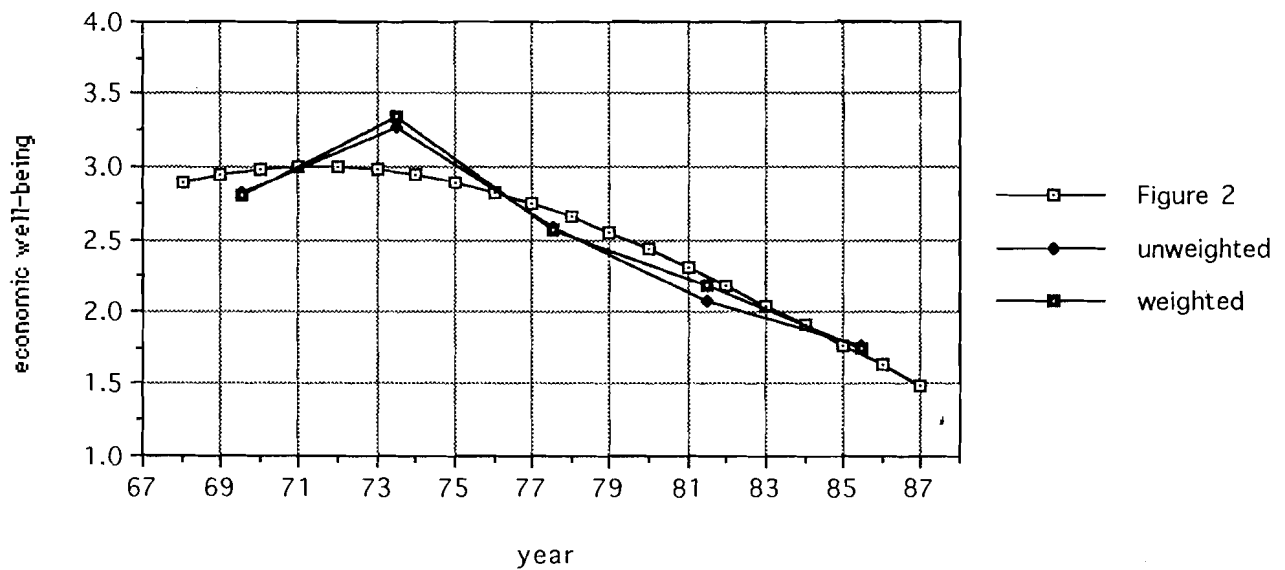

Figure 5: Data from Figure 2 and from regressions with dummies, weighted and unweighted, for white women who had their first child at age 18-19

values on family background variables, the economic well-being of white women who had their first

child at age 18 or 19 was about 275 percent of the poverty line during 1968-1971, increased to about

330 percent of the poverty line in 1972-1975, and then fell to about 175 percent of the poverty line in

1984-1987.

The same procedure was carried out for black women and the trends were plotted for

25-year-old black women who had their first child at age 15-17 and 18-19 (see Figures 6 and 7). The

size of the weights for black women varied considerably, and several cases strongly influenced the

value of the dummy for 1976-1979 for black women who had their first child at age 15-17.

However, when the analysis was run without weighting the data, the trend in economic well-being

closely paralleled that which was picked up by the polynomials in Figure 3 (see Figure 6). Assuming

average or modal values on the family background variables, the economic well-being of black

women who had their first child at age 15-17 was about 175 percent of the poverty line in 1968-1971

and fell to about 75 percent of the poverty line in 1984-1987. Figure 7 also reveals differences

between results when weighted and unweighted data were used for black women who began

childbearing at age 18 or 19. The unweighted data showed a decline in economic well-being

beginning in the late 1970s that is more consistent with the timing of the downward trends for

comparable white women and for black women who began childbearing at age 15-17. Still, the

magnitude of the decline was more moderate--whether using polynomials or dummy variables--than

that which was found for white women who had their first child at age 18-19 or black women who

had their first child at age 15-17.

For both white and black women who had their first child as a teenager, therefore, the trends

in economic well-being picked up by the polynomials are reasonable approximations of the trends

produced by dummy variables.

Figure 6: Data from Figure 3 and from regressions with dummies, weighted and unweighted, for black women who had their first child at age 15-17
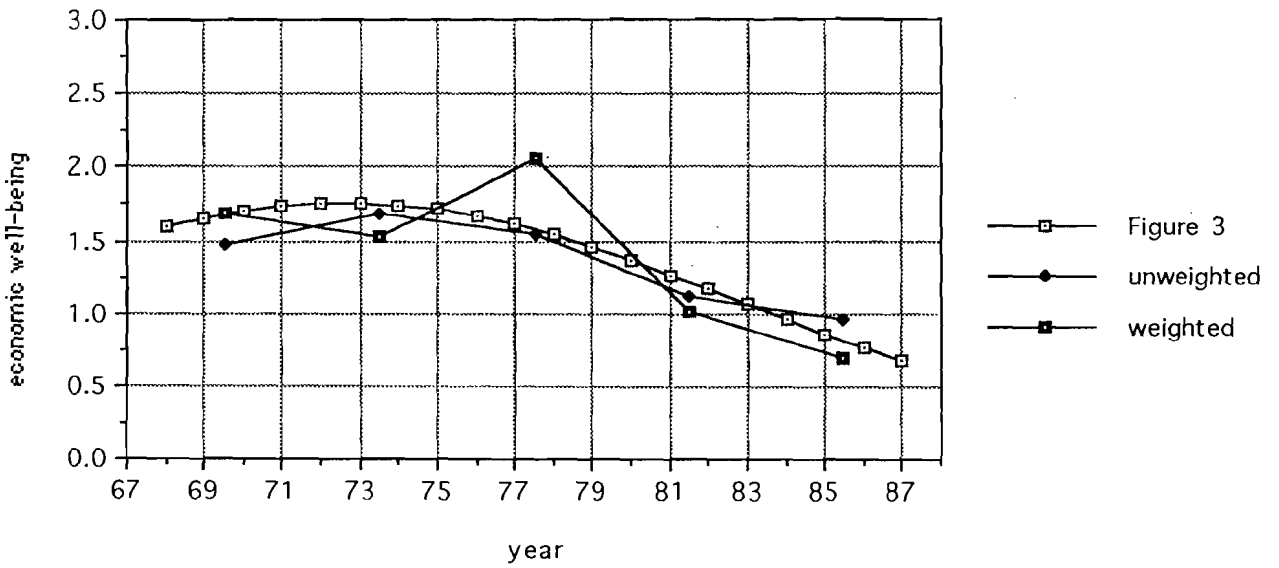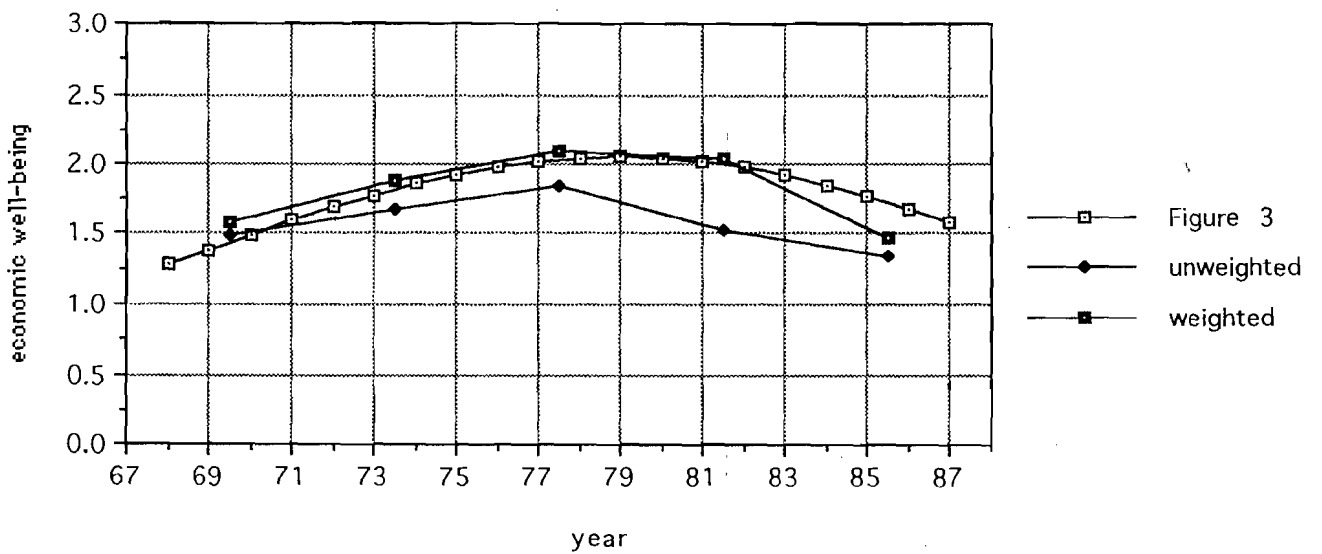

Figure 7: Data from Figure 3 and from regressions with dummies, weighted and unweighted, for black women who had their first child at age 18 or 19

The Case for Increasing Selectivity among Teenage Mothers

It is possible that changes in the economic well-being of 25-year-old women may be due, in part, to changes in the characteristics of the women who had children as teenagers. The economic consequences of teenage childbearing, per se, may not have worsened; instead, the group of women who began childbearing as teenagers may have been increasingly made up of women who had limited life chances and who were, therefore, unlikely to be economically successful later in life even if they had delayed childbearing. In the 1970s, career opportunities increased for women, and birth control and abortion became more widely available. Middle-class women may have become increasingly likely to delay childbearing in order to take advantage of their increased opportunities for higher education and good-paying jobs. Teenage childbearing, therefore, may have become more concentrated among young women from low socioeconomic backgrounds with few educational and occupational opportunities. In other words, socioeconomic background may have been a more important predictor of age at first birth in the 1970s than it had been in earlier decades. To explore this possibility, Upchurch, Astone, and McCarthy (1990) examined whether the effect of family background on teenage childbearing changed over time. They found relatively little change in the importance of family background on the likelihood of teen births to women born between 1944 and 1951 (who would be 25 years old between 1969 and 1976) and women born during the late 1950s and early 1960s (who would be 25 years old during the 1980s). They did, however, find an increase in the negative effect of mother's education on the likelihood that white women would have a child as a teenager.

If, during the 1970s, middle-class women became more likely to delay childbearing in order to take advantage of career opportunities, then we would see not only an increase in the effect of SES on teenage childbearing, but, in addition, an increase in the effect of socioeconomic status (SES) on economic well-being (holding other factors constant). If this has occurred, and if the effect of

mother's education on women's economic well-being in statistical analysis is not allowed to vary over time while the effect of age at first birth is allowed to do so, then the statistical model will be misspecified. As a consequence, an actual increase in the importance of mother's education on economic well-being over time would appear in statistical analysis as an increase in the effect of age at first birth on economic well-being over time. To avoid this potential bias, I included interaction terms in the original analysis (see Butler 1992) that allowed the effect of the family background variables on economic well-being to vary over time (e.g., mother's education*year). These coefficients were not statistically significant for white women at the .05 level of significance, indicating that the effect of socioeconomic background factors on young white women's economic well-being changed little over the twenty-year period. Three of the interaction terms were statistically significant for black women. The negative effects of "number of siblings" and "living with a single parent as a child" increased over time, and the positive effect of "mother's education" decreased. Nevertheless, the negative impact of having a child at age 15-17 on economic well-being at age 25 did not change when these interactions were included in the model, and remained statistically significant at the .01 level of significance. Therefore, the data do not support the hypothesis that a possible increase in the homogeneity of teenage mothers in terms of socioeconomic background accounts for the apparent decline in their economic well-being at age 25.

Nevertheless, changes in the economic well-being of 25-year-old women may be due, in part, to unmeasured changes in the characteristics of women who had children as teenagers. First-birth rates among 15-to-19-year-old women fell from 1957 until the mid-1970s (National Center for Health Statistics 1951-1989). Thus, adolescent girls who bore children during the 1970s may have been a more select group than earlier cohorts in terms of academic ability and aspirations or other factors not measured here. We can examine the timing of the drop in teenage birth rates and the decline in

economic well-being at age 25 to see whether the two trends correspond in the manner one would

expect if the former were causing the latter.

The National Center for Health Statistics (1951-1989, Table 1-6) reports data for birth rates

for 15-to-17- and 18-to-19-year-old women, by race.[10] Although these are not first-birth rates, they

are likely to correlate highly with first-birth rates, and therefore can be useful. As shown in Figure

8, the birth rate for white women, aged 18 and 19, decreased from 148.4 births per 1,000 women in

1961 to 70.2 births per 1,000 women in 1976 (a drop of 53 percent) and then remained fairly

constant over the next decade. Therefore, if the decreasing birth rate had created a more

homogeneous group of 18-to-19-year-old mothers resulting in lower economic well-being at age 25,

we would expect trends in economic well-being to follow trends in birth rates with a six-to-seven-year

lag. Economic well-being of 25-year-old women should decline between 1968 and 1983 and then

stabilize. Instead, Figure 8 shows the decline in economic well-being starting in 1974 and continuing

through the end of the period. This does not correspond well with the pattern that we would expect

to be produced by increasing homogeneity due to decreasing birth rates. However, a portion of the

decline in economic well-being--from 1974 to 1983--is consistent with the selectivity argument.

The birth rate for 15-to-17-year-old black women shown in Figure 9 did not change between

1961 and 1972. It then dropped from 99.5 births per 1,000 women in 1972 to 70.6 births per 1,000

women in 1981, a decrease of 29 percent. This decrease in birth rates that began in 1973 could be

expected to contribute to a decline in the economic well-being of 25-year-old women beginning eight

years later, in 1981. Yet, the decline in economic well-being of 25-year-old black women who had

their first child at age 15-17 began in the mid-1970s. Thus, the decreasing birth rate for black

15-to-17-year-old women does not correspond well to the timing of the decline in the economic

well-being of 25-year-old women, although the decline in economic well-being from 1983 to the end

of the period is consistent with the selectivity thesis.

Figure 8: Changes over time in the birth rate of 18-19-year-old white women and in the economic well-being at age 25 of white women who had their first child at age 18 or 19
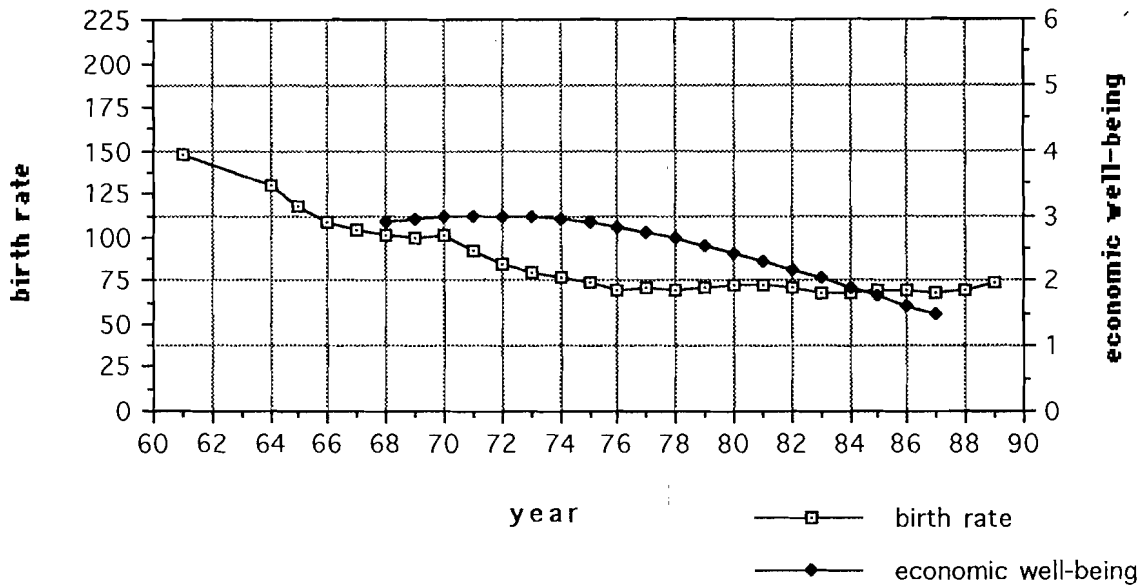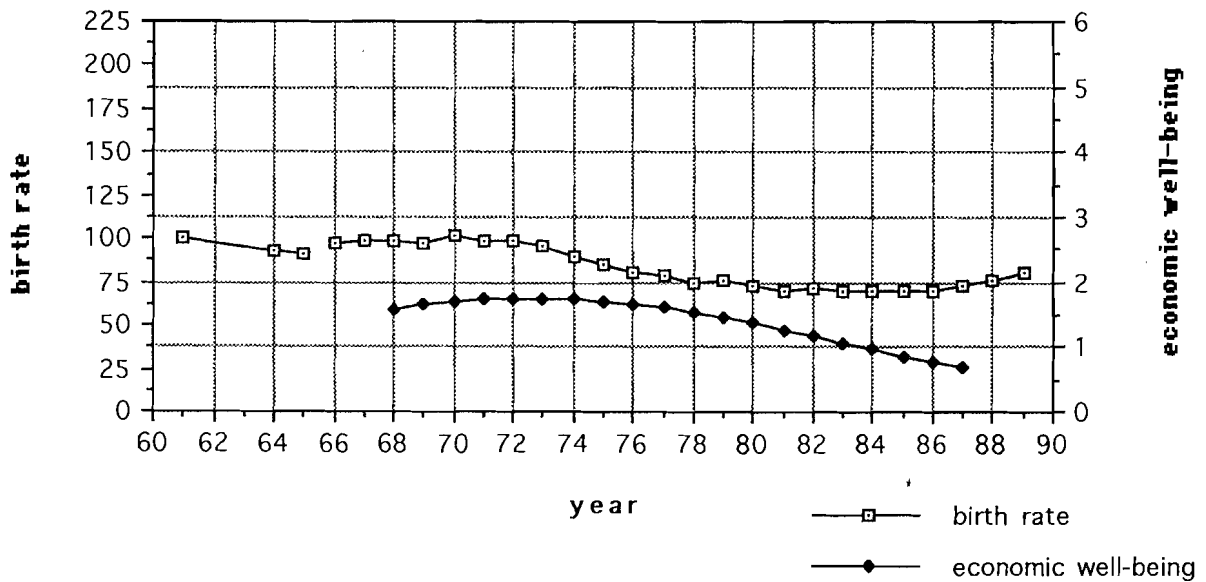

Figure 9: Changes over time in the birth rate of 15-17-year-old black women and in the economic well-being at age 25 of black women who had their first child at age 15-17

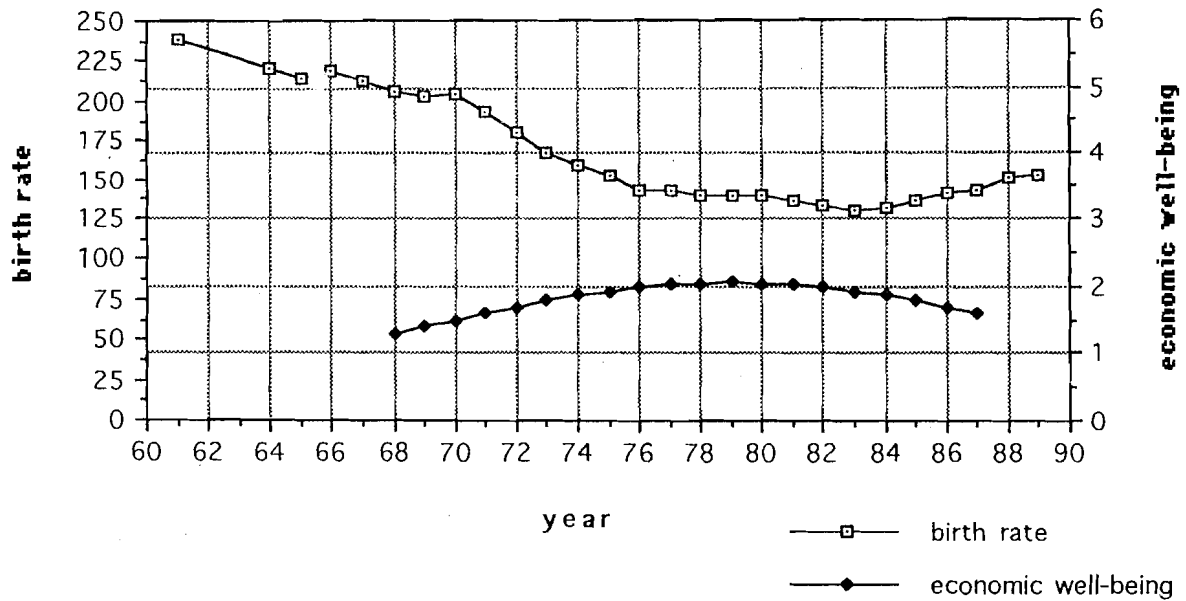Birth rates for 1961-1965 are for all nonwhite women.

The largest decline in birth rates occurred among black 18-to-19-year-old women, dropping precipitously from the beginning of the period until 1976 (see Figure 10). Thus, one might expect that their economic well-being at age 25 would fall until 1982 and then stabilize. Instead, black women who had their first child at age 18 or 19 experienced no decline in economic well-being before 1982. Thus, there is no correspondence between the timing of birth rates and economic well-being for this group of women. White women who began childbearing at age 15-17 experienced neither a decline in birth rate nor a statistically significant decline in economic well-being (see Figure 11). But the estimate of change in economic well-being is based on too few 15-to-17-year-old white women to allow us to draw conclusions from these data with much confidence.

In summary, the hypothesis that increasing selectivity among teenage mothers is responsible for the decline in their economic well-being receives, at best, limited support. Allowing the strength of family background effects to vary over time did not reduce the size of the decline in economic well-being for white women who began childbearing at age 18-19 or for black women who began childbearing at age 15-17. Visual inspection of the correspondence between falling birth rates and declines in economic well-being indicates that increased selectivity may account for some portions of the decline, but it is unlikely to be a major explanation.

Why the Decline in Economic Well-Being?

The decline in economic well-being for white women who began childbearing at age 18-19 and black women who began childbearing at age 15-17 raises two main questions. First, why did economic well-being decline for these two groups? Second, why did economic well-being not decline significantly for the other age-at-first-birth groups? A number of factors, noted in the literature review, have changed over the last two decades that may have affected the economic well-being of women who had their first child as a teenager. I have divided these factors into three overlapping

Figure 10: Changes over time in the birth rate of 18-19-year-old black women and in the economic well-being at age 25 of black women who had their first child at age 18 or 19

Birth rates for 1961-1965 are for all nonwhite women.

Figure 11: Changes over time in the birth rate of 15-17-year-old white women and in the economic well-being at age 25 of white women who had their first child at age 15-17
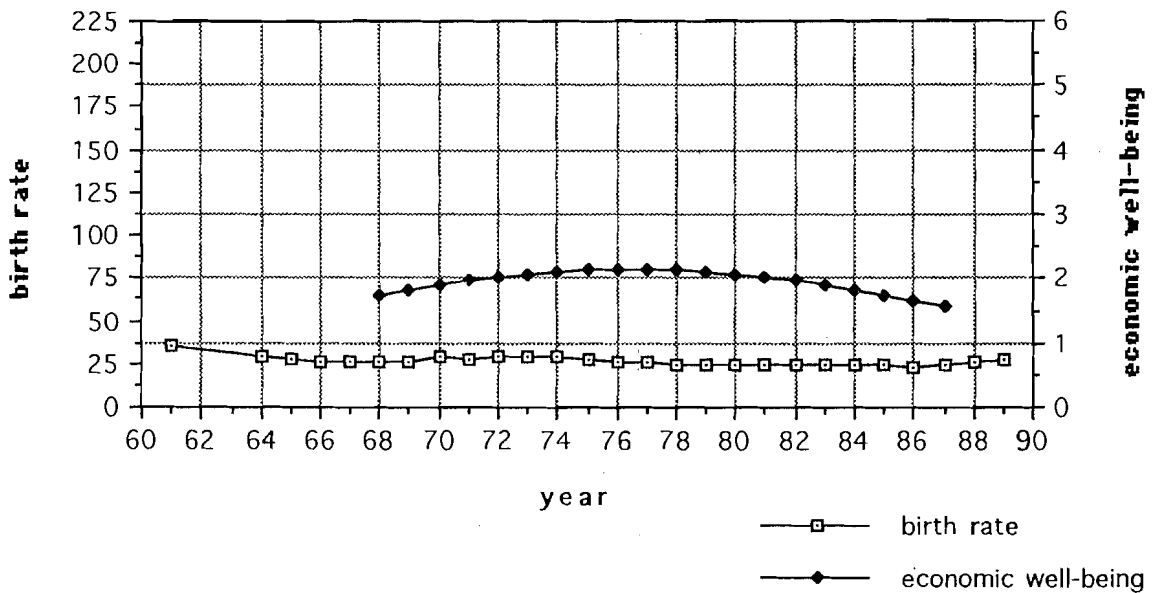
groups of variables that represent different steps in the causal sequence that culminates in women's economic well-being.

The first set of variables represents structural factors that provide the context in which women and their families act to increase their economic well-being. These variables include the average production wage in the metropolitan area, the change in the importance of manufacturing jobs in the metropolitan area, the county unemployment rate, and states' maximum AFDC benefit level, all measured when the woman was 25 years old.

The second set of variables represents women's behaviors that will, in turn, affect their families' income and needs. These variables include a woman's educational attainment, number of children, her employment and marital status, and whether her first birth took place within marriage.

The third set of variables includes the primary sources of income that make up the measure of economic well-being. These variables include the number of hours the woman worked and her hourly wage (which together determine her earned income), along with a dummy variable for whether she was employed, and the number of hours her husband worked and his hourly wage (which together determine his earned income), along with a dummy variable for whether the woman was married.

These three sets of variables were added to Model 5 for white women and Model 7 for black women to see the extent to which they could explain the decline in women's economic well-being. The results are shown in Tables 5 through 10. Although the effect of having a child at age 15-17 on economic well-being was curvilinear for black women, Model 7 was used as the model for comparison (which does not include year^2) instead of Model 8. This was done because the inclusion of interaction terms involving year^2 with age at first birth would have made it difficult to ascertain the impact that the additional variables were having. This should not present much of a problem, because the curve in the slope is not pronounced.

Tables 5 through 10 do not include the effects of the control variables, in order to make the tables easier to read. However, the control variables that appear in Models 5 and 7 in Table 3 were included in the analyses. For the purpose of comparison, the coefficients in the first column of each table represent the baseline model (Model 5 or Model 7) that includes the control variables but no additional variables. The effects of the additional variables were allowed to vary by age at first birth by adding three interaction terms along with the original variable (e.g., education, education*15-17, education*18-19, education*25+). The tables show the combined main and interaction effects for each age-at-first-birth group. Asterisks indicate that the main effect was statistically significant; "+" indicates that the effect for that group was significantly different from the effect for the omitted 20-24 age-at-first-birth group. Interactions are not shown in Tables 5 and 8 (with the exception of "married") because none was statistically significant.

Table 4 shows the correlations between the additional variables and year, by age at first birth. This allows us to see whether certain aspects of life changed to a greater extent for the age-at-first-birth groups that experienced declines in economic well-being than for the age-at-first-birth groups that did not. The statistically significant correlations for white women who had their first child at age 18-19 and for black women who had their first child at age 15-17 indicate that over time there was a decline in the relative number of manufacturing jobs, a decline in the AFDC benefit levels, and an increase in the unemployment rate in the areas in which the women lived. There was also a decline in the likelihood that the women were married at age 25, a decline in the likelihood that their first child had been born within wedlock, and a decline in the number of hours worked by the women's husbands. In addition, the education of black women who had their first child at age 15-17 increased over time, and these women tended to live in areas with higher production wages during the latter part of the time period. In contrast, the likelihood of being married at age 25 did not decline as

TABLE 4

Correlations for Selected Variables with Year, by Age at First Birth, for White and Black Women

	White Women				Black Women			
	15-17 (n=60)	18-19 (n=155)	20-24 (n=426)	25+ (n=599)	15-17 (n=227)	18-19 (n=211)	20-24 (n=312)	25+ (n=242)
Economic well-being	.02	-.28**	-.08	.07	-.40**	-.02	.01	.18**
Production wage	.14	-.02	.06	-.07	.19**	.00	.10	-.05
Change in manufact.	-.28*	-.49**	-.39**	-.25**	-.47**	-.43**	-.48**	-.40**
Unemployment rate	.34*	.42**	.38**	.16**	.37**	.48**	.24**	.10
AFDC maximum benefit	-.24	-.51**	-.42**	-.45**	-.29**	-.41**	-.10	-.33**
Educational attainment	.10	.01	-.06	-.10*	.24**	-.02	.03	.09
Number of children	-.37**	-.11	-.14**	---	-.04	-.28**	-.16**	---
Employed	.30	.22	.22**	.03	-.01	-.06	-.01	-.07
Wedlock birth	-.39**	-.36**	-.08	---	-.25**	-.16*	-.21**	---
Married	-.32*	-.31**	-.09	-.08	-.30**	-.07	-.06	-.13*
Employed (number)	24	95	216	515	138	141	215	198
Hours	.29	.08	.21**	.14**	-.24	-.13	.13	.22*
Wage	.20	-.09	-.14**	-.14*	-.09	.01	-.08	.05
Married (number)	39	111	340	231	75	71	136	44
Husband's hours	.41**	-.17*	-.20**	.09	-.44**	-.22	-.11	-.05
Husband's wage	.11	-.12	-.09*	-.16**	-.19	.01	-.07	-.11

Source: Author's calculations based on Panel Study of Income Dynamics.

*p < .05.
**p < .01.

much for white women who delayed childbearing until at least their 20s or for black women who delayed childbearing until at least age 18.

White Women. As shown in Model 5, Table 3, economic well-being for white women who had their first child at age 18 or 19 declined between 1968 and 1987. The total effect of year on the log of economic well-being for this group was -.033 (-.008+(-.025)). Let us first examine the extent to which local economic factors and welfare policy may have contributed to the decline in economic well-being. The average wage of production workers in the metropolitan area did not change for white women who had their first child at age 18-19 (r=-.02; see Table 4), and, therefore, the inclusion of production wage in the analysis did not explain any of the decline in their economic well-being over time (the coefficient changed from -.033 to -.034; see Table 5, columns 1 and 2). The average county unemployment rate increased and manufacturing jobs declined during the period (r=.42 and r=-.49, Table 4) and accounted for some of the decline in economic well-being (from -.033 to -.028 and -.029, respectively, Table 5).

State AFDC maximum benefits decreased over the 1968-1987 period for white women who had their first child at age 18-19 (r=-.51). When AFDC maximum benefit was included in the model, the negative effect of year on economic well-being for white women who had their first child at age 18-19 decreased by 33 percent, from -.033 to -.022 (Table 5). Declines in AFDC benefit levels and changes in local economic conditions together explained two-thirds of the decline in the women's economic well-being over time (-.033 to -.011).

Several factors kept the decline in economic well-being from being larger than it might have been for white women who had their first child at age 18-19. The number of children they had borne by age 25 decreased slightly over the years (r=-.11). Fewer children meant that the family income did not have to support as many people. Thus, controlling for number of children increased the size of the coefficient (-.033 to -.037, Table 6)--the decline in economic well-being would have been

TABLE 5
Impact of Local Economic Conditions, AFDC Benefit Levels, and Year on Economic Well-Being among 25-year-old White Women, by Age at First Birth

	1	2	3	4	5	6
Production wage						
15-17		.015				.058
18-19		.061++				.053+
20-24		-.038*				-.042*
25+		.035++				.041++
Change in manufacturing						
15-17			.037++			.036++
18-19			.009			.010
20-24			.007			.002
25+			-.001			-.003
Unemployment rate						
15-17				-.086+		-.050
18-19				-.024		-.026
20-24				-.020*		-.017
25+				-.020		-.026
AFDC maximum benefit						
15-17					.066	.066
18-19					.065	.058
20-24					.014	.032
25+					.026	.013
Year						
15-17	-.011	-.005	.010	.011	.004	.025
18-19	**-.033++**	**-.034++**	**-.029+**	**-.028+**	**-.022**	**-.011**
20-24	-.008	-.008	-.006	-.005	-.007	.002
25+	.006+	.007+	.005	.008	.011+	.010
R^2	.167	.180	.183	.185	.177	.211
Adjusted R^2	.156	.166	.170	.172	.164	.189
N	1,240	1,230	1,215	1,231	1,231	1,214

Source: Author's calculations based on Panel Study of Income Dynamics.

*, **, ***: The coefficient is significantly different from zero at the .05, .01, and .001 level of statistical significance, respectively.

+, ++, +++: The coefficient for the dummy is significantly different at the .05, .01, and .001 level of statistical significance, respectively, from the excluded category (women who had their first child at age 20-24).

TABLE 6
Impact of Women's Behaviors and Year on Economic Well-Being among 25-year-old White Women, by Age at First Birth

	1	2	3	4	5	6	7	8
Educational attainment								
15-17		.215+++						.010
18-19		.078						.078
20-24		.063						.045**
25+		.034						.029
Number of children								
15-17			-.225					-.025
18-19			-.230					-.249+
20-24			-.131*					-.115**
25+			-.199					-.193
Employed								
15-17				.572+				.311
18-19				.249				.150
20-24				.174**				.158**
25+				.277				.266
Wedlock birth								
15-17					.553	.553		.413
18-19					.291	.062		-.098+
20-24					.348***	.248**		.266**
25+					.022+++	-.077+++		-.035++
Married								
15-17						1.226+++	1.230+++	1.031++
18-19						.605	.578	.729+
20-24						.452***	.356***	.397***
25+						.213+	.249	.279
Year								
15-17	-.011	-.011	-.020	-.022	.014	.025+	.044++	.031
18-19	-.033++	-.034++	-.037++	-.039++	-.028+	-.018	-.018	-.025
20-24	-.008	-.007	-.010*	-.011*	-.006	-.006	-.006	-.010*
25+	.006+	.008+	.006+	.006++	.008+	.008+	.005	.007++
R²	.167	.203	.196	.194	.190	.248	.264	.330
Adjusted R²	.156	.190	.183	.180	.177	.236	.249	.310
N	1,240	1,239	1,240	1,240	1,240	1,240	1,233	1,232

Source: Author's calculations based on Panel Study of Income Dynamics.

*, **, ***: The coefficient is significantly different from zero at the .05, .01, and .001 level of statistical significance, respectively.

+, ++, +++: The coefficient for the dummy is significantly different at the .05, .01, and .001 level of statistical significance, respectively, from the excluded category (women who had their first child at age 20-24).

steeper had not the women reduced the number of children they bore. White women who had their first child at age 18 or 19 were increasingly likely to be _employed_ (r=.22); had they not been, their families' economic well-being would have declined more steeply than it did (-.033 to -.039). _Educational attainment_ did not change over the period (r=.01), and so controlling for years of education had virtually no effect on the decline in economic well-being (-.033 to -.034).

Over the twenty-year period, white women who began childbearing at age 18 or 19 were increasingly less likely to be _married_ at age 25 (r=-.31), which accounts for 45 percent of the decline in their economic well-being between 1968 and 1987 (-.033 [column 1] to -.018 [column 6], Table 6). In addition, white women who had their first child at age 18 or 19 were increasingly less likely to have been married at the time their first child was born (r=-.36). Whether the first birth occurred within wedlock (wedlock birth) accounted for 15 percent of the decline in the women's economic well-being (-.033 [column 1] to -.028 [column 5]). However, this effect disappeared when the women's current marital status was included in the model, which suggests that having a child within wedlock affected a woman's later economic well-being by making it more likely that she was married at the later date.

The results in the last column in Table 6 indicate that if white women who had their first child at age 18 or 19 had not changed their behavior in terms of marriage, out-of-wedlock childbearing, fertility, education, and employment, then the decline in their economic well-being would have been 24 percent less than it was (-.033 [column 1] to -.025 [column 8]). This leaves most of the decline unaccounted for.

Table 7 shows the results when the primary sources of income are included in the analysis--the wages and hours worked by the women and their husbands. The _wages_ and _hours_ of white women who worked did not change much over time (r=-.09 and r=.08, respectively) and had little effect on the change in economic well-being over time, once employment status was controlled.

TABLE 7

Impact of Wages and Hours of Women and Their Husbands on the
Economic Well-Being among 25-year-old White Women, by Age at First Birth

	1	2	3	4	5	6	7
Employed		.236***	-.008	-.113*			-.307***
Hours			.020***				.024***
Wage				.050***			.049***
Married							
15-17					1.226+++	.400+++	.186++
18-19					.605	-.216	-.197
20-24					.452***	-.378***	-.280**
25+					.213+	-.518+	-.583+++
Husband's hours						.025***	.026***
Husband's wage						.030***	.035***
Year							
15-17	-.011	-.012	-.015	-.009	.025+	.021	.004
18-19	-.033++	-.038++	-.039++	-.036++	-.018	-.008	-.009
20-24	-.008	-.013**	-.016***	-.009	-.006	.007	.003
25+	.006+	.006++	.003++	.009++	.008+	.015	.015+
R²	.167	.190	.227	.268	.248	.347	.533
Adjusted R²	.156	.178	.215	.256	.236	.335	.522
N	1,240	1,240	1,240	1,186	1,240	1,240	1,186

Source: Author's calculations based on Panel Study of Income Dynamics.

*, **, ***: The coefficient is significantly different from zero at the .05, .01, and .001 level of statistical significance, respectively.

+, ++, +++: The coefficient for the dummy is significantly different at the .05, .01, and .001 level of statistical significance, respectively, from the excluded category (women who had their first child at age 20-24).

The husbands of women who were married earned lower wages and worked fewer hours over the time period ($r=-.12$ and $r=-.17$, respectively), which contributed to the decline in economic well-being for the group as a whole (-.018, after marriage was controlled [column 5], to -.008 [column 6]). Changes in marriage rates and husbands' wages and hours together explained 76 percent of the decline in the economic well-being for white women who had their first child at age 18 or 19 (-.033 to -.008). The primary reasons for the decline in economic well-being, therefore, are a decline in the likelihood that women were married and lower earnings of husbands.

Black Women. Black women who had their first child at age 15-17 also experienced a statistically significant decline in economic well-being. As shown in Model 7 (Table 3), the combined effect of this decline was -.062 (-.008 + (-.054)).

The county unemployment rate increased over the 1968-1987 period for black women who had their first child at age 15-17 ($r=.37$). Including unemployment rate in the analysis reduced the size of the coefficient from -.062 to -.044 (Table 8). Metropolitan production wage increased ($r=.19$), and manufacturing and state AFDC maximum benefit levels decreased over the period ($r=-.47$ and $r=-.29$ respectively), but did not contribute much to explaining the decline in economic well-being, once unemployment rates were included. Together, production wages, the change in manufacturing, unemployment rates, and AFDC benefit levels explained 32 percent of the decline in economic well-being across time for black women who began their childbearing at age 15-17 (-.062 to -.042).

Educational attainment increased for black women who had their first child at age 15-17 ($r=.24$). The number of children they had by age 25 and the likelihood of being employed changed little ($r=-.04$ and $r=-.01$ respectively). If neither educational attainment, number of children, nor employment had changed over the twenty-year period, the decline in economic well-being would have been somewhat steeper than it was (see Table 9).

TABLE 8

Impact of Local Economic Conditions, AFDC Benefit Levels, and Year on Economic Well-Being among 25-year-old Black Women, by Age at First Birth

	1	2	3	4	5	6
Production wage						
15-17		-.061+				-.120++
18-19		-.091++				-.126+++
20-24		.004				-.031
25+		.097++				.109+
Change in manufacturing						
15-17			.002			-.028
18-19			.005			-.018
20-24			-.001			-.006
25+			-.015			-.009
Unemployment rate						
15-17				-.059		-.056
18-19				-.028		-.018
20-24				-.041*		-.054***
25+				-.020		-.035
AFDC maximum benefit						
15-17					.014	.055
18-19					-.042+	.026
20-24					.032	.023
25+					.071	.034
Year						
15-17	-.062+++	-.057+++	-.060+++	-.044+++	-.057+++	-.042++
18-19	-.001	-.001	.005	.006	-.008	-.003
20-24	-.008	-.008	-.008	-.001	-.004	.001
25+	.012	.015+	.003	.015	.024++	.019
R^2	.297	.309	.291	.309	.294	.352
Adjusted R^2	.286	.295	.276	.295	.280	.331
N	992	987	978	987	987	978

Source: Author's calculations based on Panel Study of Income Dynamics.

*, **, ***: The coefficient is significantly different from zero at the .05, .01, and .001 level of statistical significance, respectively.

+, ++, +++: The coefficient for the dummy is significantly different at the .05, .01, and .001 level of statistical significance, respectively, from the excluded category (women who had their first child at age 20-24).

TABLE 9
Impact of Women's Behaviors and Year on Economic Well-Being among 25-year-old Black Women, by Age at First Birth

	1	2	3	4	5	6	7	8
Educational attainment								
15-17		.070						.015
18-19		.051						.014
20-24		.104***						.045*
25+		.135						.112++
Number of children								
15-17			-.090+					-.122+
18-19			-.256					-.250
20-24			-.238***					-.254***
25+			.185+++					.143+++
Employed								
15-17				.665				.440
18-19				.582				.427
20-24				.657***				.567***
25+				.874				.662
Wedlock birth								
15-17					.142		.007	-.098
18-19					.096+		.068	.082
20-24					.411***		.225*	.065
25+					.255		.071	-.119
Married								
15-17						.965+++	.968+++	.906++
18-19						.383	.372	.481
20-24						.470***	.331***	.529***
25+						.466	.443	.406
Year								
15-17	-.062+++	-.065+++	-.066+++	-.062+++	-.059+++	-.036++	-.035++	-.042++
18-19	-.001	-.001	-.015	.002	.000	.001	.003	-.010
20-24	-.008	-.007	-.015	-.007	.000	-.007	-.003	-.010
25+	.012	.011	.014++	.014+	.019	.016+	.018	.014++
R^2	.297	.360	.330	.420	.322	.416	.421	.585
Adjusted R^2	.286	.347	.316	.408	.308	.404	.406	.569
N	992	990	992	992	988	992	988	987

Source: Author's calculations based on Panel Study of Income Dynamics.

*, **, ***: The coefficient is significantly different from zero at the .05, .01, and .001 level of statistical significance, respectively.

+, ++, +++: The coefficient for the dummy is significantly different at the .05, .01, and .001 level of statistical significance, respectively, from the excluded category (women who had their first child at age 20-24).

Black women who had their first child at age 15-17 were increasingly less likely to be married at age 25 (r=-.30), which explained 42 percent of the decline in their economic well-being (-.062 to -.036). The women were also increasingly less likely to have been married when their first child was born (r=-.25). But, as was found with white women, the increase in out-of-wedlock first births did not explain much of the decline in economic well-being over time (-.062 to -.059). The results in the last column in Table 9 indicate that if black women who had their first child at age 15-17 had not changed their behavior in terms of marriage, out-of-wedlock childbearing, fertility, education, and employment status, then the decline in their economic well-being would have been 32 percent less than it was (-.042 compared to -.062). As was found with white women, this leaves much to explain.

Although the likelihood that black women who began their childbearing at age 15-17 were employed did not change over the time period, their wages and hours declined (r=-.09 and r=-.24, respectively), accounting for 10 percent of the decline in their economic well-being (-.062 to -.056, Table 10). The wages and hours of the husbands of married women also declined (r=-.19 and r=-.44, respectively), which explained an additional fraction of the decline in the women's economic well-being (-.036, after controlling for marriage, to -.030). If black women who had their first child at age 15-17 had maintained their marital status over the period and if the wages and hours of the husbands of the married women had not declined, then the decline in the women's economic well-being would have been 52 percent smaller than it was.

DISCUSSION

The results showed that white women who had their first child at age 18-19 and black women who had their first child at age 15-17 were increasingly worse off economically at age 25 over the 1968-1987 period. In contrast, the economic well-being of black women who had their first child at

TABLE 10

Impact of Wages and Hours for Women and Their Husbands and Year on Economic Well-Being among 25-year-old Black Women, by Age at First Birth

	1	2	3	4	5	6	7
Employed		.672***	.168**	.287***			-.134*
Hours			.037***				.033***
Wage				.064***			.054***
Married							
15-17					.965+++	.027+++	-.154++
18-19					.383	-.583	-.540
20-24					.470***	-.454***	-.377***
25+					.466	-.515	-.532
Husband's hours						.029***	.029***
Husband's wage						.052***	.046***
Year							
15-17	-.062+++	-.062+++	-.056+++	-.056+++	-.036++	-.030++	-.026++
18-19	-.001	.002	.008	.003	.001	.003	.012
20-24	-.008	-.007	-.012	-.002	-.007	-.002	.000
25+	.012	.014+	.008+	.016	.016	.021+	.017+
R^2	.297	.418	.493	.479	.416	.475	.681
Adjusted R^2	.286	.407	.484	.469	.404	.465	.683
N	992	992	989	972	992	992	972

Source: Author's calculations based on Panel Study of Income Dynamics.

*, **, ***: The coefficient is significantly different from zero at the .05, .01, and .001 level of statistical significance, respectively.

+, ++, +++: The coefficient for the dummy is significantly different at the .05, .01, and .001 level of statistical significance, respectively, from the excluded category (women who had their first child at age 20-24).

age 18-19 changed little. Although economic well-being did not change significantly for white women who had their first child at age 15-17, we should view the absence of a trend cautiously because this finding is based on a small number of cases. Additional research using a larger dataset is needed to determine whether these trends can be replicated.

The decline in marriage was the single most important factor in explaining the decline in economic well-being. Women who had their first child as a teenager (with the exception of black women who had their first child at age 18-19) were increasingly less likely to be married at age 25 over the 1968-1987 period. This explained 45 percent of the decline in economic well-being for white women who had their first child at age 18-19 and 42 percent of the decline for black women who had their first child at age 15-17, and is consistent with the findings of other researchers (Eggebeen and Lichter 1991).[11]

In contrast, white women who delayed childbearing until at least their 20s and black women who delayed childbearing until at least age 18 experienced smaller declines in marriage. This, in part, explained why teen mothers experienced a decline in economic well-being, whereas women who delayed childbearing did not. This finding raises the question of whether women who began childbearing as teenagers were increasingly more likely than other women to become single parents later in life, as these data suggest, or whether this finding is an artifact of a research design that focuses on 25-year-old women. Perhaps if we observed women at age 30, when women who had their first child in their early 20s had had more time to experience marital disruption, we might find that the differential increase in single parenthood is not as great as it appears here.

It is important to emphasize the limitations of the finding that changes in the likelihood of being married explain 42 to 45 percent of the decline in women's economic well-being. By holding the marriage rate constant, we are assuming that if more women were married, they would be married to men with earning power equal to that of the husbands of married women in their race and

age-at-first-birth group. This is not likely, given evidence that variation in marriage rates is partly due to decreasing male employment and wage rates (Lichter et al. 1991). In other words, if one of the reasons why more women are not marrying (or not staying married) is because their potential marriage partners are increasingly poor providers, then even if the women were to get married (or stay married), we would continue to see a decline in their economic well-being over time. Thus, it would be premature to conclude that changes in family structure per se are a major cause of the decline in economic well-being for women who had their first child as a teenager.

The proportion of births to teenagers that were out of wedlock increased dramatically during the 1960s and 1970s. Data reported by the National Center for Health Statistics (1951-1989) indicate that the percentage of births to 18-to-19-year-old white women that were out of wedlock increased from 6 percent in 1961 to 27 percent in 1980. The percentage of births to 15-to-17-year-old black women that were out of wedlock increased from 56 percent in 1961 to 93 percent in 1980. The large increase in out-of-wedlock childbearing, however, had a comparatively minor impact on the decline in women's economic well-being found in this study. It accounted for 15 percent of the decline in economic well-being among white women who had their first child at age 18 or 19 and for only 5 percent of the decline among black women who had their first child at age 15-17. Thus, a woman's current marital status was far more important than her marital status at the time her first child was born in determining her current economic well-being. And to the extent that marital status at the time of first birth played a role in later economic well-being, it did so primarily by influencing whether the woman was married at the later date.

Macroeconomic and welfare policy changes, by themselves, accounted for a large portion of the decline in economic well-being. This should serve as a reminder, lest we become too individualistic in our explanations, that although economic well-being can be traced directly to individual behavior, that behavior, in turn, has been influenced by structural conditions. The decline

in AFDC benefit levels and the increase in county unemployment rates were the most important of these structural factors.

In conclusion, the economic consequences of teenage childbearing appear to have been influenced by a number of factors which changed over the last several decades. These factors include the number of children women bear, their educational attainment, the employment of women outside the home, husband's wages and hours, employment opportunities, and welfare policy. The single most important factor contributing to the declining economic well-being of teenage mothers was the decreasing likelihood that teenage mothers were married later in life. The relative importance of changing cultural attitudes towards marriage in accounting for this trend, as opposed to the decreasing ability of young men to take on the economic role of husband, remains unknown. However, understanding the roles these two factors play in increasing the proportion of poor, single-parent families will be important for developing sound public policy that will effectively address the needs of teenage mothers and their families.

Notes

[1]A number of changes during the early years of the Food Stamp program led to an increase in the availability of Food Stamps and higher Food Stamp benefits. In 1972, the rules of the Food Stamp program were standardized and benefits were indexed to inflation (although there was no adjustment for inflation in 1982). In 1975, Food Stamps became available nationwide. Average monthly benefits per recipient increased from $39.79 in 1972 (in constant 1989 dollars) to $53.30 in 1983, and have remained fairly stable since (Committee on Ways and Means 1990, p. 1275). However, Food Stamp policy changes have periodically increased and reduced participation rates among poor people. Participation in the Food Stamp program fluctuated between a high of 65.6 percent of poor people in 1976 and a low of 58.7 percent of poor people in 1987 (Committee on Ways and Means 1990, p. 1269).

[2]The sample consists of 60 white women and 227 black women who had their first child between the ages of 15 and 17, 155 white women and 211 black women who had their first child at age 18 or 19, 426 white women and 312 black women who had their first child between the ages of 20 and 24, and 599 white women and 242 black women who did not have a child until at least age 25.

[3]The PSID's measure of needs is equivalent to approximately 125 percent of the poverty level. The variable was divided by 1.25 in order to make it equivalent to the poverty level for the purposes of this study.

The values in the original PSID dataset for women's economic well-being are incorrect for cases in which two or more families moved in together and for cases in which certain kinds of changes in family composition took place. However, the PSID dataset includes the information necessary to recalculate economic well-being for such cases, which was done for this study.

[4]A man and woman who had been living together as a couple for two consecutive years were considered by the PSID staff to be married.

[5]Hourly wage was coded "0" if the individual did not work during the year. The dummy variable "employed" was included when women's hourly wage was in the model. Only nine men did not work during the year. Because there were so few, no dummy was added to indicate whether the husbands were employed. This may not be problematic because hourly wage is used to represent how much men and women earned per hour that year, and not their potential wage.

[6]The value for "manufact t-10" and "total t-10" are three-year averages (i.e., nine to eleven years earlier).

[7]The wording of the question is as follows: "Were you living with both your natural parents most of the time until you were age 16?" "No" responses were coded as having lived in a single-parent family.

[8]An initial increase in economic well-being followed by a decline is indicated by the positive value of the coefficient "15-17 by year" combined with the negative value of the coefficient "15-17 by year^2." I calculated the year in which economic well-being began to decline for women who had their first child at age 15-17 by taking the first derivative of the equation

$$f(x)=(-.019x + .118x) + (.0004x^2 - .0066x^2),$$

setting it equal to zero and solving for x.

[9]The values used were as follows: single-parent family: white 0, black 0; number of siblings: white 3.3, black 5.7; mother's education: white 11.5, black 9.9; father's education: white 11.2, black 8.7; region: white, North Central; black, South; size of hometown: white, town or suburb; black, city.

[10]The birth rates from 1966 to 1989 came from the National Center for Health Statistics (1989, Table 1-6). Birth rates for 1961, 1964, and 1965 were calculated for white and black teenagers using

the number of live births (National Center for Health Statistics, 1968, Table 1-26) per 1,000 women

in that age and race group. The population bases for these three years were interpolated using

weighted averages from 1960 and 1970 Census data.

[11]The effect of marital status on economic well-being is probably underestimated because it is

measured at a point in time (at the time of the interview), whereas economic well-being is measured

for the entire year. The economic well-being of women who were married at the time of the

interview but who were single for some fraction of the year will be, on the average, lower than if

they had been married throughout the year. Similarly, the economic well-being of women who were

single at the time of the interview but who were married for some fraction of the year will be, on the

average, higher than if they had been single for the entire year. Thus, the association between

marriage and economic well-being will be underestimated. Moreover, the ability of the decline in the

likelihood of being married to explain the decline in economic well-being will also be underestimated.

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