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Michael C. Seeborg, *Illinois Wesleyan University*
Risa Kumazawa

Missouri Valley Economic Association
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Risa Kumazawa and Michael C. Seeborg

ABSTRACT. This study uses the National Longitudinal Survey of youth to estimate the effects of teenage motherhood on the educational attainment of young women. The results of an OLS regression with interaction terms demonstrate that the effects of teenage motherhood on education depends on the socio-economic background of the mother. Estimations show that young women from economically advantaged backgrounds sacrifice more than one year of education as a result of teenage motherhood while those from disadvantaged backgrounds sacrifice little, if any, education. Statistically significant interactions are found between teenage motherhood and several background characteristics. (J13, J24)

I. Introduction

The high incidence of teenage motherhood has become a major public issue in recent years, with President Clinton, in his 1995 State of the Union address, calling "...the epidemic of teen pregnancies and births where there is no marriage to be our most serious social problem" (Krauthammer, 1995). The litany of disturbing statistics on the subject, are now commonly presented in policy discussions (Caldas, 1994).

Motherhood has long been regarded as a major cause of economic problems for teenage women. Research shows that women who were teen mothers earn less income and were more likely to quit school, stay single, and experience at least one spell of AFDC dependency (Byrne, et. al. 1991; Hayes, 1987; Hoffman, et. al., 1993; and Murray, 1984). In a review of previous research, the National Research Council concluded that teenage mothers were more likely to have significantly lower educational attainment than other mothers, even after controlling for socioeconomic background, academic ability, and motivational factors (Hayes, 1987, p. 126). But surprisingly little research exists on how teen motherhood interacts with background characteristics in the determination of long-term educational attainment. Do teenage mothers from less advantaged backgrounds sacrifice more or less education when compared to teenage mothers from more favorable backgrounds?

Previous studies often used panel data sets of young women to find large effects of teenage motherhood on educational attainment. For instance, Byrne used the National Longitudinal Survey of Youth (NLSY) to find that teenage motherhood reduces educational attainment by 1.18 years, even after controlling for background characteristics such as ability, family structure, parents' education, and race (Byrne, et. al., 1991). But since many of the women in their sample had not yet completed their education, Byrne's estimate may be biased upward. By using a more recent version of the NLSY data base, we are able to follow the educational choices of the teenage mothers an additional five years.

Recent research using sister pairs to compare a teen mother and a non-teen mother from the same family suggest that the earlier panel studies may have overestimated the negative effect of teen parenthood on educational attainment (Geronimus and Korenman, 1992 and 1993; Hoffman, et. al.,1993). Unlike the earlier panel studies, the paired sister studies found only small negative effects from teenage motherhood on educational attainment.[2] Alan Blinder (1991) summarized the implications of the sister studies as follows:

> New research ... suggests that teenage motherhood may be less harmful than is commonly supposed. Why? Because economic failure might be a cause, rather than an effect, of teen childbearing. Teenage mothers are not selected for motherhood at random; they tend to come from the ranks of the disadvantaged. Compared with other women, teenage mothers are more likely to have come from single-parent families and to have had poor, uneducated parents. Since these attributes are leading indicators of economic failure, some teenage girls may look at their poor prospects in life and opt for early motherhood (Blinder, p. 20).

Proponents of the sister studies argue that an important advantage of this methodology is that focusing on sisters creates a built-in control for

community and family background influences. Since sisters are generally raised under similar conditions in each family, biases in estimates due to unmeasurable background variables are less likely to pose serious statistical problems. Unfortunately, the number of observations of paired sisters were small, opening the possibility that the sample may not have been representative of all teenage mothers. In addition, these studies did not control for heterogeneity within families even though personal characteristics may play a large role in determining outcomes like educational attainment (Geronimus and Korenman, 1992; Hoffman, et. al., 1993; Hayes, 1987).

In summary, research on the effects of teen pregnancy on educational attainment has yielded conflicting results. Our paper attempts to reconcile the divergent results between the early panel studies which estimated large negative effects on educational attainment from teen motherhood and the recent sister studies which estimated much smaller effects. We do this by using the large NLSY panel data set and an OLS regression model with interaction terms. The inclusion of interaction terms allows for a more detailed consideration of family background influences than earlier research since they determine significant joint effects of teen motherhood and background factors on educational attainment. By carefully examining the coefficients of the interaction terms, we show that teen childbearing affects the educational attainment of women with favorable family backgrounds much more adversely than it affects the educational attainment of women with less favorable backgrounds.

Becker's theory of household production provides an appropriate theoretical framework to analyze the educational attainment of teenage mothers (Becker, 1965 and 1981; and Krein and Beller, 1988). The theory posits that households combine inputs of time and resources to produce various types of household commodities. In our paper, the educational attainment of the teenage mother is treated as a household commodity. The inputs used to produce education can be provided by the teenager herself and/or by other family members such as her parents and the father of her baby.

The Becker model leads rather directly to the hypothesis that teen child bearing reduces the educational attainment of the mother. First, various household resources must be directed toward the baby. Money income is essential in purchasing market goods such as the baby's food, clothing, toys and professional child care services. Unless supplementary resources can be provided by her parents or others in the household, the teenage mother will find it more difficult to pursue education, especially education beyond high school. Second, babies require considerable household time inputs. If the teenage mother provides most of the child care herself, she will have less time for her own education. Similarly, if the teenager's parents provide time inputs to care for the baby, they will not have as much time to spend helping with the teen mother's own human capital development, thus, reducing her ability to receive as much formal education as she would without the baby.

In addition to time and resource inputs, innate ability should be considered a determinant of educational attainment. It is well established in the human capital literature that those with higher levels of ability will, all other things equal, pursue more years of education (Becker, 1991).

An implication of the household production theory that has not received much attention in the economic literature is that the effect of teenage childbearing on educational attainment may be influenced by interactions between family background and teen motherhood. Within the framework of the household production theory it can be argued that disadvantaged youth will not have received as much education as more advantaged youth due to resource constraints. Therefore, the opportunity cost of having a baby in terms of foregone schooling may be quite low for the disadvantaged. Teenage mothers from a more affluent background, on the other hand, may end up sacrificing more years of schooling. Therefore, the impact that teen childbearing has on educational attainment is hypothesized to depend on background. The focus of the empirical analysis of this paper is on how background interacts with teenage motherhood to affect educational attainment.

II. Empirical Model and Data

We explore the effects of teen childbearing and other background variables on educational attainment by employing a sample of 3077 women drawn from the National Longitudinal Survey of Youth (NLSY). The NLSY is derived from annual in-person interviews with young persons between 1979 and 1991. We restricted the sample to women aged 14 through 18 in 1979. The NLSY is well suited to our study since it over samples economically disadvantaged youth and

minorities and contains a rich set of socio-economic background measures.

The variables used in the empirical model are defined in Table I. The dependent variable is actual years of educational attainment (EDUCATION) as measured in the 1990 interview. According to the household production model, educational attainment is a function of resource inputs and time inputs. Although classification of the variables into these two categories is not completely unambiguous, it is a useful way to organize our thinking on the determinants of educational attainment.

All of the independent variables in the study, including teenage motherhood, are early background variables. These variables capture economic and demographic conditions which existed during the respondent's teenage years and are treated as exogenous determinants of educational attainment. This is appropriate because our main focus is on the effect of teenage motherhood on educational attainment in 1990 when the respondents were adult females between the ages of 25 and 29. Another reason for this framework is to maintain comparability to previous research.[3]

Three variables are associated with resource inputs: 1) Whether the respondent's family was impoverished in 1978 (POOR78); 2) whether the family had access to library resources as indicated by the possession of a library card (NO_CARD) and 3) whether the respondent's mother had completed at least 12 years of education (MOMDROP).

Since educational attainment has been closely linked to earnings potential in the human capital literature, we include a measure of parents' educational attainment in the "resource inputs" category. It is likely that the mother's educational attainment, as measured by whether the respondent's mother dropped out of school (MOMDROP), is directly related to the educational attainment of her daughter through several mechanisms (see, for example, UpChurch and McCarthy, 1990; Leibowitz, 1977; Datcher-Loury, 1988; Krein and Beller, 1988). Perhaps the most important mechanism is that mothers with higher levels of education are more efficient in developing their daughter's human capital at home, thus preparing them for additional formal education.

Father's educational attainment is not included primarily because many of the respondents were raised in female headed households. For these respondents, the mother's educational attainment is clearly more relevant in determining the intergenerational transmission of human capital.

The lack of availability of library resources, as signalled by the absence of a library card (NO_CARD), may have a negative effect on educational attainment for two primary reasons. First, the availability of physical resources (e.g., books) may be complementary to formal education (UpChurch and McCarthy, 1990; Leibowitz, 1977; Krein and Beller, 1988). Second, the absence or presence of a library card may serve as a proxy for the parents' interest in the literacy of their children and the emphasis on learning in the home (Leibowitz, 1977).

The second set of variables relate to the time inputs available to support the respondent's educational attainment. These time inputs come from other family members, especially parents, and from the respondent herself. Variables that are likely to affect the time resource are teenage motherhood (TEENMOM), early family structure (FEMHEAD), number of siblings (SIBLINGS), and marital status (MARRIED18).

The first of these variables (TEENMOM) is the primary focus of this study. The time requirements of caring for a baby certainly reduces the amount of time available for formal education. Reinforcing this effect is the fact that resource requirements for raising the child often leave the teenage mother with fewer resources for education. Thus, TEENMOM has a negative effect on educational attainment because of its negative effect on both time and resource inputs available for education.[4]

Early family structure and number of siblings could also be important determinants of the time inputs available for formal education. Teenage mothers are often raised in female headed households (FEMHEAD) and in families with many siblings (SIBLINGS) (Furstenberg, et. al., 1987). In such families, the parent(s) find it difficult to devote much time to helping their children achieve high levels of education. Empirical research found that maternal child care time was a significant determinant of the offspring's educational attainment (Krein and Beller, 1988; Datcher-Loury, 1988).

We also expect that the decision to get married as a teenager (MARRIED18) will affect time inputs available for education, but the direction of the effect is uncertain. Marriage often means that the teenager will form her own household, thereby sacrificing time inputs which otherwise would have been provided by her parent(s). But, the husband may offset this loss by providing additional resources and help with child

TABLE 1. Variable Definitions and Mean Values

Sign Variable	Expected*	Definition	Mean Values Teenage Mothers	Mean Values All Others In Sample
Dependent:				
EDUCATION	N/A	Years of Educational Attainment of Respondent (1990 Interview)	11.1	13.0
Resource Inputs:				
POOR78	(-)	Respondent Lived in a Family Classified as Poor in 1978 (1 = Poor, 0 = not poor)	0.49	0.27
NO_CARD	(-)	Whether Any Household Member Had Library Card When Respondent was 14 (1 = no, 0 = yes)	0.43	0.28
MOMDROP	(-)	Whether Respondent's Mother Has Fewer Than 12 Years of Formal Education. (1 = less than 12 years, 0 = 12 or more years)	0.73	0.46
Time Inputs:				
TEENMOM	(-)	Whether the Respondent Was Residing With Her Own Child by the age of 18. (1 = Yes, 0 = No)	1.00	0.00
FEMHEAD	(-)	Lived in a Female Headed Household at Age 14 (1 = female headed, 0 = not female headed)	0.31	0.19
SIBLINGS	(-)	Number of Siblings, 1979 Interview	4.72	3.69
MARRIED18	(?)	Respondent Married at Age 18? (1 = yes, 0 = no)	0.40	0.07
Ability				
ABILITY	(-)	AFQT Percentile Score Minus Predicted Score	-12.17	2.32
Race:				
BLACK	(-)	Race Identified as Black (1 = black, 0 = not black)	0.39	0.25
Sample Size			434	2643

* the sign in parentheses indicates the expected relationship between the indicated variable and educational attainment (EDUCATION)

care. Because of these offsetting effects, the relationship between MARRIED18 and EDUCATION is ambiguous.

The third category is academic ability, which has been shown to be directly related to years of schooling in the human capital literature (Byrne, et. al., 1991). Following Byrne, et. al. (1991), our measure of ability (ABILITY) is the difference between the actual Armed Forces Qualification Test (AFQT) score which was determined in the examination administered to NLSY respondents in 1980 and a predicted score which was determined by regressing actual AFQT scores against years of education completed in 1979. Byrne, et. al. (1991) argue that this procedure more closely proxies innate ability than unadjusted AFQT because it removes the component of AFQT attributable to educational experience.[5]

Finally, a control variable for race (BLACK) is included in the model. One reason for expecting a negative relationship between being black and educational attainment is the well documented concentration of inner-city African-Americans into low quality public schools. These quality differentials between predominantly white and predominantly black

schools could, cetaris paribus, cause black youth to pursue fewer years of education than white youth.

An examination of the mean values in Table 1 shows that there are some substantial differences between the teenage mothers and all other women in the sample. First., there is nearly a two year difference in average educational attainment. Also, on average, the teenage mothers came from more disadvantaged backgrounds. For example, teenage mothers were much more likely than non-teenage mothers to have resided in an impoverished household in 1978, to have a mother who dropped out of high school, to have lived in a female headed household at age fourteen, to be black, and to be married by the age of eighteen.

III. Results

To determine the impact of teenage motherhood on educational attainment (EDUCATION), two OLS regressions were run. The results are reported in Table 2.

The first regression includes all explanatory variables except the interaction terms. The most important result is the significant negative effect that teen motherhood (TEENMOM) has on educational attainment, even after controlling for resource inputs, time inputs, ability and race. This strong negative effect is consistent with cross-sectional research discussed earlier (Byrne, et. al., 1991; Hayes, 1987; Hoffman , et. al., 1993; and Murray, 1984).

It is interesting to note the strong influence that both "resource" and "time" related inputs have on respondents' educational attainment. First, the availability of resources matters; coming from a poor family (POOR78), not having access to library resources (NO_CARD), and having a mother who did not complete high school (MOMDROP) decreases educational attainment significantly. The variables linked to time resources (FEMHEAD, SIBLINGS, and MARRIED18) also have significant effects. Finally, the control variables for ability (ABILITY) and race (BLACK) are significant predictors of educational attainment. The only unexpected sign is for the race variable (BLACK). Being black actually exerts a positive influence on educational attainment in this model.[6]

Next, we address the central question of this paper: Does the effect of teenage motherhood on educational attainment depend on the background characteristics of the youth? We argued earlier in the context of the household production theory that youth from the most

TABLE 2. Regression Results: Educational Attainment Against Selected Variables (Standard Errors in Parentheses)

Variable	Model 1	Model 2 (including interactions)
POOR78	-0.27**	-0.26**
	(0.08)	(0.08)
NO_CARD	-0.24**	-0.15
	(0.07)	(0.08)
MOMDROP	-0.55**	-0.54**
	(0.07)	(0.07)
TEENMOM	-0.88**	-1.23**
	(0.10)	(0.17)
FEMHEAD	-0.25**	-0.32**
	(0.08)	(0.09)
SIBLINGS	-0.06**	-0.06**
	(0.01)	(0.01)
MARRIED18	-0.99**	-1.24**
	(0.11)	(0.14)
BLACK	1.05**	1.07**
	(0.08)	(0.08)
ABILITY	0.041**	0.042**
	(0.0015)	(0.0015)
XFEMHEAD	N/A	0.41*
		(0.21)
XMARRIED18	N/A	0.85**
		(0.23)
XNO_CARD	N/A	-0.49**
		(0.19)
XABILITY	N/A	-0.015**
		(0.005)
CONSTANT	13.42**	13.42**
	(0.07)	(0.07)
Adj. R Squared	0.41	0.41
Sample Size	3077	3077

* Significant at the .05 level
**Significant at the .01 level

disadvantaged backgrounds may not forego much education from teen motherhood since they would be more likely to drop out of school anyway due to limited resource inputs. To address this issue, we estimate interactions between teen motherhood and a number of background variables. Each of the interaction terms is the product of TEENMOM and one of the background variables. For example, XFEMHEAD is the product of FEMHEAD and TEENMOM. Since each of the background variables is a zero-one dummy variable, the interaction term itself is a dummy variable. For example, XFEMHEAD will equal one if the respondent was residing in a female headed family at the age of 14 and was a teenage mother, and zero otherwise.

Although all eight interaction terms were explored in trial runs, the final model reported under Model 2 in Table 2 includes only four (XFEMHEAD, XMARRIED18, XNO_CARD and XABILITY). An F test for omitted variable bias was used to determine which set of interaction terms should be included in the model. This test indicated that the model would suffer from this bias if these four interaction terms were not included. Exclusion of the remaining interaction terms did not produce omitted variable bias.

To determine the effect of teen motherhood and background on educational attainment, we use Model 2 regression results (Table 2) to estimate the educational attainment of two groups of women under eight assumptions regarding background characteristics. The results of these estimations are presented in Table 3. Each of the eight rows presents educational attainment estimates for a given set of assumptions regarding background variables. Row 1 estimates are for women with the most favorable background characteristics in the context of this study (i.e., BLACK=0, POOR78=0, MOMDROP=0, FEMHEAD=0, MARRIED18=0, ABILITY=0, NO_CARD=0 and SIBLINGS=3). Rows 2 through 8 change these assumptions one at a time. The educational attainment estimates in Column A are for the sample of women who were not teenage mothers and the estimates in Column B are for the sample of women who were teenage mothers. The effect of teenage motherhood on educational attainment is estimated by subtracting Column B from A, and is presented in Column C.

When we focus on women with the most favorable background characteristics (Row 1), the effect of teenage motherhood is a substantial 1.23 years. The remaining seven rows in Table 3 change the assumptions regarding background one variable at a time. Column A shows that estimated educational attainment falls sharply for the non-teen-mother sample when their background characteristics are made progressively less favorable.

However, the pattern was quite different when the same estimates were made for the teenage-mother sample in Column B. This is due to the inclusion of interaction terms in the model. Teenage motherhood and background interact in significant ways to determine educational attainment.

Column C shows the estimated effects that teenage motherhood has on the educational attainment for women. An examination of Column C reveals a clear pattern; the cost of teen motherhood in terms of education foregone is much higher for the least disadvantaged respondents. For example, we estimate the number of years of educational attainment lost because of teen motherhood to be 1.23 years for white women with favorable background characteristics (Row 1). At the other extreme, it is estimated that teenage mothers with the most unfavorable background conditions actually receive about the same level of education (Column B, Row 8) as their non-teenage mother counterparts with the same unfavorable background characteristics (Column A, Row 8).

The interactions between background characteristics and teenage motherhood are important determinants of educational attainment. The four interaction terms affect our educational attainment estimates beginning in ROW 5. When we assume that the young woman grows up in a female headed household (Row 5) and marries early (Row 6), the educational attainment gap between the teen-mother and non-teen-mother falls from 1.23 years to -0.04 years.

It is interesting to note that teenage marriage (MARRIED18) has a very strong negative effect on the educational attainment of respondents who were not teenage mothers but very little effect on the educational attainment of teenage mothers. The reason for the differential effects is that the negative coefficient to MARRIED18 is offset by the strong positive coefficient to its interaction term (XMARRIED18). While early marriage may have other favorable influences on a teenage mother and her child, it does not have much influence on her formal educational attainment.

Next, in Row 7, we assume a decrease in the level of ability (ABILITY) of one standard deviation (minus 25 points) from its mean value of zero. This assumption reduces educational attainment for both

TABLE 3. Estimated Effects of Teen Motherhood on Educational Attainment

	Assumptions Regarding Respondent Characteristics							Column A	Column B	Column C
	Black	Poor in 1978	Mother Dropped Out	Female Headed Background	Married at Eighteen	Low AFQT Score	No Card at Fourteen	Estimated Ed. Attainment of All Women Except Teen Moms	Estimated Educational Attainment Teen Moms	Effect of TEENMOM on EDUCATION (Difference)
Row 1	No	No	No	No	No	No	No	13.23	12.00	1.23
Row 2	Yes	No	No	No	No	No	No	14.30	13.07	1.23
Row 3	Yes	Yes	No	No	No	No	No	14.04	12.81	1.23
Row 4	Yes	Yes	Yes	No	No	No	No	13.50	12.27	1.23
Row 5	Yes	Yes	Yes	Yes	No	No	No	13.18	12.36	0.82
Row 6	Yes	Yes	Yes	Yes	Yes	No	No	11.93	11.97	-0.04
Row 7	Yes	Yes	Yes	Yes	Yes	Yes	No	10.89	11.25	-0.36
Row 8	Yes	Yes	Yes	Yes	Yes	Yes	Yes	10.74	10.61	0.13

samples, but the reduction is somewhat less for the sample of former teenage mothers.

Finally, Row 8 assumes the absence of a library card in the home when the respondent was 14 (NO_CARD). The estimated educational attainment decreased more for the teenage mother sample. This result has policy implications. Programs which provide educational resources directly to the home may have larger payoffs for teenage mothers, who by necessity, spend more time at home than other women.

IV. Conclusions

By applying an empirical model based on Becker's theory of household production to a large sample of young women, we explored how teenage motherhood and a number of proxies for "resource" and "time" inputs affect educational attainment. Consistent with previous research, we found a strong relationship between these background inputs and educational attainment.

We also found several significant interactions between teenage motherhood (TEENMOM) and background variables (FEMHEAD, NO_CARD, MARRIED18 and ABILITY). Because of these interactions, estimated differences in the educational attainment between teenage mothers and other women in the NLSY depend on assumptions made concerning background and ability. When favorable background characteristics were assumed, we found that women who were teenage mothers received substantially less education than women who were never teenage mothers. But when unfavorable background characteristics were assumed, we found very small estimated differences in educational attainment between these two groups.

One implication of these results is that policy designed to decrease the amount of teen childbearing may not have the desired effect of increasing the educational attainment of the most disadvantaged youth. The estimations presented in Table 3 suggest that policies which reduce teen motherhood would have a significant positive effect on the educational attainment of those with the most favorable background characteristics but minimal effect on those with the least favorable characteristics. Since the most disadvantaged teenaged mothers would have dropped out of school at about the same time even if they had not borne a child, preventing the birth would have little effect on educational attainment.

Therefore, if society wants to encourage the educational attainment of economically disadvantaged teenage mothers, especially those who marry early and grow up in female headed households, discouraging them from having babies will not help much. What may help, however, is to pursue programs to help them to increase their academic ability and to make educational resources available within the home. Additionally, policies which alleviate the conditions of poverty should have a positive effect on the educational attainment of all young women, including teen-age mothers.

Future research should focus on evaluating the costs and benefits of programs designed to increase the returns to teenage mothers from staying in school. Special attention should be given to the evaluation of: 1) subsidized child care for teenage mothers while they attend school; 2) quality improvements in public schools in poor neighborhoods; and 3) improved linkages between high school and post graduation opportunities.

Finally, our results help to resolve the contradictory findings of earlier research. As pointed out in the introduction, many cross-sectional studies found large negative effects from teenage motherhood on educational attainment while sister studies found much smaller effects. Consistent with the cross-sectional studies, we found large negative effects when we regressed educational attainment against teen motherhood and selected background variables (Model 1, Table 2) without taking interaction effects into account. But when we included interaction terms between background and teen motherhood, we found that the effect of teen motherhood on educational attainment depended on the background characteristics assumed. Since most teenage mothers are from less favorable backgrounds, it is not surprising that the sister studies cited earlier found very small effects from teen pregnancy on educational attainment.

Footnotes

1. Illinois State University and Illinois Wesleyan University. The authors thank Angela Smith for research assistance and are grateful to the editorial staff and referees for helpful comments.

2. In a recent related study, twin births were analyzed to determine the effects of unplanned pregnancy on labor market outcomes. Like the sister studies, there were only small negative effects on the education of the teen mother (Bronars and Grogger, 1994).

3. The purpose of the sister studies, for example, was to compare the educational attainment of sisters who had near

identical family backgrounds but differed only in that one sister in each family was a teenage mother. The panel studies, on the other hand, attempted to control for background by including a set of background variables as independent variables in the education equations (e.g., Byrne, et. al., 1991). To address the conflict in the literature between the sister studies and the panel studies, it is important to concentrate on the effect of background. The panel studies regressed background variables and teen motherhood against educational attainment while the sister studies made use of a natural control for background. By including only background variables in our model, we avoid causation problems which would exist if we were to include variables which were measured in the 1980s and make our results comparable to prior research.

4. One of the anonymous referees suggested that TEENMOM should be treated as an endogenous variable and that there could be problems of sample selectivity bias which should be corrected. After considerable reflection, we determined that it would not be desirable to make this correction. First, one of our principle purposes was to reconcile conflicting results in the literature between the "sister studies" and the "panel studies." To do this, it was necessary to adopt similar methodologies. We followed the basic methodology of Byrne et. al. (1991), except that we added interaction terms which enabled us to control for omitted variable biases that we believe existed in previous literature on the topic. In OLS regressions of educational attainment, Byrnes et. al. (1991) found it unnecessary to correct for either selectivity bias or simultaneous equation bias. They argued that teen motherhood was a predetermined variable since education was measured some time after the birth of the child. In our study, there is even more time separating the birth of the teenage mothers children and the survey year when educational attainment was obtained (1990). Thus, we treat TEENMOM as exogenous.
5. ABILITY = AFQT - 14.76 - 5.35EDUC79, where AFQT is the actual 1980 AFQT score measured on a percentile scale and EDUC79 is years of formal education from the 1979 survey. The regression which produced the last two terms in the above equation had standard errors of 2.79 for the constant and 0.290 for the coefficient. The adjusted R squared was .092 and the sample size is 3348. Our decision to include this proxy for ability was a difficult one in light of some recent exchanges in the literature. For example, Hernnstein and Murray's use of AFQT scores as a proxy for innate ability in *The Bell Curve* (1994) has encountered considerable criticism. Goldberger and Manski (1995), for example, argue that AFQT scores may measure educational attainment itself rather than innate ability because the Armed Forces Qualification Tests were administered to many respondents after they had completed their formal education (Goldberger and Manski, 1995). We feel that our adjustment has overcome part of this difficulty. The dilemma is that the exclusion of ABILITY could result in omitted variable bias. But by including it we run some risk of specification error. A fruitful area for future research would be to employ a data base with a more satisfactory measure of ability.
6. One explanation for this unexpected result is that controlling for background improves the educational attainment of blacks relative to whites. This is probably because white and black respondents come from different backgrounds on average. In the absence of controls for background we find that the educational attainment of blacks in our sample is very close to that of whites. For example, the average educational attainment of the 825 blacks in the sample is 12.78 compared to 12.74 years for the 2525 non blacks.

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