

**Perceptions of Educational Opportunity and Early Childbearing:
An Empirical Assessment of the Opportunity Cost Hypothesis***

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Abstract

This paper explores the relationship between perceived educational opportunities and the likelihood of first birth among young women using the first five waves (1979-1983) of the National Longitudinal Survey of Youth. A cohort of 1,747 females, 14 to 16 years of age at first interview, who had not experienced a birth prior to first interview or within 7 months of first interview, and who had complete fertility histories at the 1983 panel, comprise the study sample. The discrepancy between young women's educational desires (aspirations) and expected educational achievements (expectations) is used to operationalize perceptions of opportunity and to predict the probability of a first birth among race/ethnicity subgroups of young women.

Findings show that all women express high educational ambitions, although non-whites perceive greater barriers to educational achievement than whites ($p < 0.01$). Perceptions of opportunity, net of background characteristics, are associated with the likelihood of a first birth of among young white women, but have no substantial impact on the likelihood of a first birth among either young black or Hispanic women. White women who perceive barriers to educational attainment demonstrate twice the risk of first birth as whites who perceive few or no barriers to completing their desired education ($p < 0.01$). These data suggest that perceptions of opportunity affect the risk of first birth for white women, but do not support the "nothing to lose" hypothesis of early childbearing for non-whites. Implications for refining the opportunity cost model, particularly the importance of addressing race/ethnic differences in how opportunity costs are operationalized, and the diversity roles for women of differing subgroups, are discussed. Implications for future research, policy and programs are presented.

INTRODUCTION

The influence of economic opportunities and adolescent childbearing has been a topic of intense debate for several years, and more recently has entered the political and scientific discourse on teenage childbearing with renewed fervor. Much of this discussion focusses on the premise that social programs such as Aid to Families with Dependent Children (AFDC) contribute to non-marital births among disadvantaged youth (Murray, 1984). Others presume that structural inequality limits the number of alternatives for minority youth, leading to behaviors like early sex and parenthood (Ogbu, 1978; Wilson, 1987).

Although a reasonable explanation for racial disparities in non-marital adolescent childbearing, the empirical evidence supporting the "Opportunity Cost Hypothesis" is limited and inconclusive. Studies primarily have been based on economic models of socioeconomic achievement using future wages of non-childbearing minority women, or AFDC benefits relative to non-welfare wages (Lundberg and Plotnik, 1993; Plotnick, 1990; Duncan and Hoffman, 1990). Additional work has examined the impact of contextual factors, including neighborhood characteristics (e.g., proportion of women employed full time, proportion of adults relative to teens, median housing value, level of youth alienation) on the likelihood of premarital sexual involvement (Brewster, 1994; Brewster et al., 1993; Billy et al., 1994). While community-level factors have to been shown to significantly influence early sexual behavior among teens, racial differences in the level of impact, and in which type of community factors influence sexual activity have been observed (Billy, et al., 1994).

Reasons for limited empirical evidence in support of the opportunity cost hypothesis may be a result of at least two primary flaws in existing research on the topic. First, despite using the

opportunity cost model as an underlying premise, few studies attempt to empirically test the basic assumptions of the opportunity cost hypothesis. That is, studies rarely document that disadvantaged or minority youth actually perceive fewer opportunities than their white or more advantaged counterparts, or that individual perceptions of opportunity affect fertility-related behavior. Studies that have looked at racial or socioeconomic disparities in perceptions of opportunity have assessed them primarily as mediating factors of status attainment (Sewell and Shah, 1968a, 1968b; Kerckhoff, 1976), as predictors of underachievement (Mickelson, 1984, 1990) or as unrealized educational ambitions (Hanson, 1994). Work addressing the link between perceptions of opportunity and fertility have examined these associations as individual characteristics associated with fertility-related behavior or fertility intentions (Haggstrom, et al 1981; Devaney and Hubley, 1981; Crowley and Shapiro, 1982). In these latter studies, no specific theoretical context, such as the opportunity cost model, is employed.

Second, a specific framework to explain the main suppositions of the opportunity cost hypothesis or to understand the mechanisms through which blocked opportunities contribute to fertility behavior remains virtually unformulated. Work by Moore, Simms and Betsey (1986) implies a theoretical framework within which to explore the link between limited opportunities and early childbearing. Specifically, they report that educational ambitions (e.g., educational aspirations) have a significantly greater effect on delaying childbearing than educational expectations. However, they note that one would need to examine ambitions and expectations simultaneously in order to operationalize the concept of block opportunities and impacts on fertility behavior. Although Moore and colleagues did not empirically examine the discrepancy between ambitions and expectations in their work, studies by Lauritsen (1994) and Sugland (1992) indicate this may be a fruitful approach

to exploring the opportunity cost hypothesis. Both use the discrepancy between youth's aspired and expected achievements to capture perceived obstacles to educational goals. This discrepancy is then used to explore racial and gender differences in adolescent sexual and fertility behavior respectively. Both studies find significant, but conflicting impacts on adolescent fertility behavior. Lauritsen reports perceived inability to achieve goals explains variations in sexual behavior of black females, not whites; Sugland shows significant impacts on transition to first birth for whites, but not non-whites.

Finally, there has been little examination of the racial, cultural, or gender differences in either the appropriateness of the opportunity cost framework, or the mechanisms through which opportunities influence fertility behavior. While most studies control for racial/ethnic and gender differences by conducting separate analytic models, few speculate on ways to refine the opportunity cost framework such that new facets are added to the conceptual framework, or that certain aspects of the existing model become more salient and predictive of fertility behavior for various population subgroups.

In this paper I address three important gaps in research addressing the Opportunity Cost Hypothesis and early childbearing. First, I offer a specific theoretical context in which to place the opportunity cost model. Second, I quantify young women's individual perceptions of educational opportunity and assess the extent to which there are racial or socioeconomic differences in those perceptions. Third, I examine whether young women's perceptions of opportunity contribute to fertility outcomes and whether perceptions are more predictive of childbearing among non-white female adolescents than their white peers. Implications for refining the opportunity cost framework such that the model may be more predictive of fertility behavior among subgroups of young women

are discussed.

BACKGROUND

While a great deal is known about the factors associated with early childbearing, recent reviews of the literature suggest there is a need for further theoretical development if the underlying causes of early sexual and fertility-related behavior are to be completely and accurately understood (Moore, Miller, Morrison, and Gleib, 1995; Miller and Moore, 1990; Hayes, 1987). Many of the factors shown to significantly predict early childbearing and its proximate determinants require further investigation as some studies show conflicting results and other findings have yet to be replicated. Furthermore, some findings remain inconclusive because of differences across studies in scientific methodology, including which variables are used, the way variables are measured or operationalized, the statistical techniques employed, and the characteristics of the study sample. Other studies differ in the underlying theoretical perspectives used to guide the scientific inquiry.

Current theories in the area of adolescent fertility behavior are based on a variety of perspectives, including problem behavior theory (Jessor, Jessor and Donovan, 1983), sociosexual development models (DeLamater and MacCorquodale, 1979), social control theory (Udry and Billy, 1987; Udry, 1988), social and cultural support models (Reiss, 1970), opportunity cost approaches (Moore, Simms and Betsey, 1986), and cultural deviance models (Lauritsen, 1994). The common thread across these diverse perspectives is that while sexual intercourse and childbearing is a normal human activity, such behavior among adolescents, particularly younger adolescents, is viewed as non-normative. That is, the appropriateness of early sexual behavior is determined by the context of established norms regarding the appropriate age for specific behaviors (Elder, 1991). Therefore, it seems logical that one's understanding of the behavior of adolescents that are in conflict with those

norms may be enhanced by using cultural deviance models which specifically address normative differences and dissimilarities in behavior across population subgroups. Using cultural deviance theories to develop a framework for the opportunity cost hypothesis seems an appropriate place to begin a theoretical discussion on early childbearing.

Theoretical Perspectives on Deviance

Two analytic frameworks are generally used to study deviant behavior -- cultural deviance models and social disorganization models. Cultural deviance assumes there are distinct subcultures in society, and that differences in particular behaviors are a result of differences in norms about those behaviors across subcultural groups (Marini, 1984). For example, work by Furstenberg, Morgan, Moore and Peterson (1987) suggests that the earlier initiation of first sex among black adolescents may reflect differences in subgroup norms regarding the appropriateness of early sexual behavior. Further, when teens are exposed to environments where the predominant subgroup norm about teenage sex is different from the norms guiding the cultural subgroup to which they belong (i.e., black teens living in predominantly white areas; black teens going to school in predominately white schools), adolescent behavior tends to be more in line with the norms of the dominant subgroup.

In contrast, social disorganization theory assumes a consensus about norms for specific behaviors across all subgroups. Thus, society generally regards the use of violence, robbery, or the occurrence of childbearing among youth, for example, as unacceptable behaviors. Group differences in rates of early childbearing or sexual activity are viewed as the result of structural deficiencies or disparities in opportunities to avoid such behaviors across community subgroups, rather than differences in normative prescriptions (Kornhauser, 1978; Marini, 1984).

Within social disorganization theory, there are two prominent schools of thought. Social

control theories (Hirschi, 1969), which posit that deviance results from the lack of bonds to conventional society, and strain theory (Merton, 1938, 1957) which argues that deviance is the result of varying pressures (or strains) to conform to social norms when there is insufficient means available to achieve such normative behavior. This paper employs Merton's strain theory as a framework for exploring the opportunity cost hypothesis and early childbearing. Specifically, strain theory assumes that all members of society share the common desire for success and achievement. Furthermore, society is characterized by a wide spread consensus that achievement and success are important social outcomes. The means for achieving success, however, is not equally accessible to all members of society; there is a disjuncture (strain) between culturally accepted values and the structurally available means for achieving those values. Thus, according to strain theory, individuals who lack legitimate opportunities for achieving culturally determined goals for success are hypothesized to be more motivated to commit deviant acts, because the discrepancy between goals and the means for achieving those goals is greater than among individuals with legitimate opportunities for achieving success. Subgroup differences in deviant behavior are not related to different cultural goals, as all goals are assumed to be shared. Rather discrepancies are a result of the level of frustration experienced when trying to attain societal goals. When an individual violates the law, or opts for alternative adult behaviors, it is out of frustration over the inability of fulfilling aspirations due to blocked or limited opportunities (Empey, 1982).

In this study, the concept of "strain" is presumed to parallel the frustrations many disadvantaged youth feel with respect to their life dreams and the limited opportunities available to reach their ambitions. This frustration compels young people to actively select (or passively avoid) behaviors leading to alternative life outcomes symbolic of the transition to adulthood, such as

parenthood. Figure 1 shows the relationship between perceptions of educational opportunity and early childbearing, taking into consideration family background and personal attributes, fertility-related characteristics, and other factors known to influence early childbearing, such as educational progress.

Insert Figure 1 About Here

The deviation between educational aspirations and educational expectations (strain) represents perceptions of opportunity, or the extent to which a young woman believes that the means for achieving her educational goals are available. It is presumed that aspirations are like dreams in that they typically represent the highest educational goal a young woman desires. Aspirations do not necessarily take into consideration tangible resources or the feasibility of reaching desired goals. Expectations, unlike aspirations, take into consideration the feasibility of educational desires and represent a modified or "do-able" version of a young woman's stated aspirations. The wider the gap between aspirations and expectations (e.g., the lower expectations are relative to aspirations), the greater the perception of limited means to achieving goals or limited life options.

Theoretically speaking, strain theory presumes no racial disparities, in terms of the manner in which strain contributes to deviant behavior, once background or other relevant factors are considered. In fact, racial differences in social class position and opportunity structures account for differences in deviant behavior across race groups. Despite the "race-neutral" aspect of strain theory, studies of adolescent sexual and fertility behavior indicate race/ethnic differences even after

controlling for background, socioeconomic, and community-level factors. As a result, this study employs analytic models separate by race/ethnicity.

DATA AND METHODOLOGY

Data and Study Sample

Data in this study are taken from the National Longitudinal Survey of Youth (NLSY) (Center for Human Resource Research, 1994). The NLSY is a nationally representative, longitudinal study designed to assess the labor market and life experiences of 12,686 young men and women 14 to 21 years of age in 1979. Respondents were interviewed initially in 1979 and continue to be interviewed annually. Data pertaining to a wide range of topics were collected including: background and personal characteristics; educational and employment activities; fertility and fertility-related characteristics; and physical and mental health.

The NLSY consists of a multistage, probability sample of non-institutionalized youth 14 to 21 years of age, with an oversample of civilian black, Hispanic, and low-income white youths. Overall response rates, depending upon methods used, range from 75 to over 80 percent (Frankel et al., 1983), with a retention rate of 90 percent (Center for Human Resource Research, 1994).

The study sample consists of a subset of the total youth cohort: 1,747 females, 14-16 years of age at first interview (1979), who had not experienced a first birth prior to or within seven months of the first interview. Women are followed from 1979 through 1983, or until they are between 18 and 20 years of age.¹ Measures of background characteristics, perceptions of opportunity, and other

¹Although data permit identification of first births that occur after age 20, this study focuses only on the transition to first birth during the teen years. This is due to the fact that the underlying premise of the opportunity cost hypothesis is the transition to early childbearing which, in this study, is taken to mean childbearing during adolescence.

factors associated with fertility outcomes are taken from the base year (1979) and used to predict the transition to first birth through 1983 (wave five).

Variables

In this study the primary outcome of interest is age at first birth in months. Fertility as of 1983 is determined through retrospective fertility histories obtained in the 1986 panel. Independent variables are taken from the first wave of the NLSY (1979) and are categorized into four groups: 1) background and personal characteristics; 2) perceptions of educational opportunity; 3) educational progress, and; 4) related fertility characteristics.

Background and Personal Characteristics

Measures of background characteristics include: *Mother's education* (1= \geq 12 years, 0 = < 12 years), *adult male and female labor force participation* (1= adult teen R lived with at 14 was employed full-time or part-time, 0 = not employed; measured for male and female adult members respectively), *family income* (ordinal measure capturing net 1979 income by percent quartiles), *number of siblings* (1= \Rightarrow 4+ siblings, 0= \leq 3 siblings), *family structure* (1= R lived with two biological parents at 14, 0=all other family living arrangements). Also included are *geographic location* (1=south, 0=all other locations -- northeast, north central, southwest and west) and *area of residence* (1=urban, metropolitan, 0=rural).

Personal characteristics include *age at first interview* (continuous measure -- 14, 15, and 16 years), *race/ethnicity* (1=Hispanic, 2=black, non-Hispanic, 3=white, non-Hispanic). Models are conducted separately by race/ethnicity.

One other measure of the context of family life is included -- *reading material index* -- which captures the availability of reading materials in the respondent's home at age 14. The variable is a

summary measure constructed from three items: a) receipt of newspapers in the home; b) subscription to magazines by someone in the home; 3) access to a library card. For each item, a value of “1” was given if the respective type of reading material was present; a value of “0” was given if the material was absent. The index is a sum of the value of each of the three items with a range from 0 to 3. Multivariate models assess the impact of access to 3 reading items (value = 1) relative to less than all three reading items (value=0).

Perceptions of Educational Opportunity

Educational aspirations captured teens responses to the question, “How much education would you like to complete?” (continuous measure from 0 to 18 years), while *educational expectations* were taken from the question, “How much education do you expect to complete?” (continuous measure from 0 to 18 years). These measures are considered separately and then combined to capture perceptions of educational opportunity (*strain*). Previous studies measure “strain” as a discrepancy score based on the mathematical difference between ordinal responses to questions pertaining to aspirations and expectations (Hirschi, 1969; Kornhauser, 1978). However, using this continuous summary measure in a multivariate model simultaneously with aspirations and expectations could create problems of collinearity. Thus, a categorical measure was created to capture *educational disparity* as follows: 0 = no disparity between aspirations and expectations, 1= aspirations < expectations, 2=aspirations 1 to 2 years greater than expectations, 3 = aspirations 3 to four years greater than expectations, 4= aspirations 5 or more years greater than expectations. Multivariate models examine the impact of wide educational disparity (1=aspirations 5+ years in excess of expectation, 0=all other values of disparity) on the transition to first birth.

Educational Progress

Given the link between school achievement and early childbearing, I included two measures to capture educational involvement. *Appropriate grade for age* captures the extent to which female respondents are enrolled in a grade at the base year which seems suitable for her age. A series of age ranges for grades 8 through 12 were computed.² A respondent whose age was greater than the upper age limit of the range was considered below grade for age (value = 0), while a respondent whose age fell within the range or whose age was less than the lower age limit of the range was considered to be at age for grade (value = 1).³ *Positive educational achievement* is a summary measure that represents an average score for enrollment and movement into the next grade level, until school completion, for each wave from the base year to the end of the study period, first birth, or high school completion, which ever came first.⁴ A maximum score of “2” for each year (e.g., “1” for enrollment in regular school up through grade 12 or first birth and a score of “1” for passing into a grade that was at least one grade beyond the previous year). Average scores were divided by the

²Standards concerning an “absolute” appropriate grade for age are not defined at the national level. Rather, each state sets its own guidelines concerning school entrance age requirements. Communication with J. Epstein at the Center for Social Organization of Schools, Johns Hopkins University (1991) provided guidance for the following rationale: Assuming a starting point of grade three for a student of 8 years of age, and using an exact age as the midpoint of the range with an additional half year around the midpoint, one can identify a “normal” age range for a specific grade as follows: grade 8 (12.5 to 14.5 years), grade 9 (13.5 to 15.5 years), grade 10 (14.5 to 16.5 years), grade 11 (15.5 to 17.5 years), grade 12 (16.5 to 18.5 years).

³Respondents not enrolled in school at baseline were considered not to be at appropriate grade for age, unless they had received their high school diploma or a GED. Data under these circumstances were coded as at appropriate grade for age (value = 1).

⁴An average score rather than a total score is used to control for varying lengths of observation for each respondent up to high school completion. For instance, 14 year olds, by nature of age, will potentially have a longer period of observation up to high school completion than 15 or 16 year olds. Their total score would automatically be higher, but would reflect the longer observation period, not necessarily a greater amount of educational advancement. The average measure controls for this variation in time by weighting each measure by the number of years observed from the first interview to high school completion.

number of years observed from first interview up to high school completion, first birth, or the 1983 panel. Scores were coded as (1=average score < 2, 0=average score =2).

Related Fertility Characteristics

Two other measures significantly related to the transition to first birth are included as independent variables in all analytic models. *Age at first intercourse* was coded to distinguish between early first sex (1=sex at < 16 years, 0=sex at age 16 or older). *Age at marriage* was used to distinguish childbearing within marriage from births outside of marriage, as well as to control for the independent impact of marriage on the perception of educational opportunity and transition to first birth. The number of respondents who had ever married by the end of the study period was small; multivariate models conducted separately for the transition to first birth according to marital status at the time of the birth showed no significant difference in the impact of independent variables on the transition to first birth. All multivariate models, therefore, examine the impact of independent measures of the transition to out-of-wedlock births. While the exclusion of births occurring within marriage reduces the generalizability of this work to all teen births, addressing the theoretical importance of marriage, both as a factor in the transition to first birth and as an additional life option for young women goes beyond the scope of this paper. Furthermore, early, out-of-wedlock childbearing is consistent with the underlying premise of the opportunity cost hypothesis and most appropriate for the current discussion.

A series of multivariate models assessing the effect of educational disparity and other independent variables on the age at first birth are generated. As previously mentioned, because racial differences in fertility are anticipated, net of background and other factors, all analyses are conducted separately by race/ethnicity. Cox proportional hazards models (Allison, 1984; Cox, 1972)

are used to determine the impact of educational disparity on the risk of first birth during adolescence, net of background, educational progress, and related fertility characteristics.

FINDINGS

Background Characteristics

Table 1 summarizes the background characteristics of the young women in the sample by race/ethnicity. Of the total 1,747 young women, 972 (56 percent) are white, 452 (26 percent) are black, and 323 (19 percent) are Hispanic. Overall, blacks and Hispanics are more likely to come from disadvantaged backgrounds than whites as demonstrated by racial differences in maternal education, family income, family structure, and family size. More than half of blacks and more than three

Insert Table 1 About Here

quarters of Hispanics state that their mother had less than a high school education, compared with only 28 percent of whites. More than 50 percent of blacks and Hispanics come from families with an income of or below \$16,000. In contrast, more than half of whites come from families with incomes above \$16,000, with the majority of whites coming from families with incomes of \$25,000 or more.

Racial disparities in family structure are also evident. Whites are most likely to state they live with both biological parents at age 14 (76 percent) compared with 45 percent of blacks and 69 percent of Hispanics.

Descriptive results also show that the relatively limited family income among non-whites may be further strained by a larger family size. More than half of blacks and half of Hispanics state

they have at least four brothers or sisters, while less than one-third of whites come from families of this size.

Family income and family size, however, do not provide an indication of the variability across families in how limited resources may be used. Families can still use their resources, limited or otherwise, for certain items given the family's priorities and values. The reading material index is used as a proxy to identify the extent to which reading or education may be a family priority. The data suggest that whites are twice as likely as non-whites to have access to all three reading items at age 14. Nearly 60 percent of whites compared with one-quarter of non-whites had newspapers, magazines, and a library card available to them at age 14.

Finally, racial differences in geographic location and community residence are also evident. Blacks are most likely to live in the south (58 percent), with Hispanics disproportionately coming from the south (32 percent) and west (42 percent). There are racial differences in community residence as well. Although most respondents live in an urban setting, a greater proportion of non-whites than whites come from urban areas. However, the urban residence variable does not distinguish inner-city from suburban environments. One would anticipate even larger racial differences if inner-city and suburban distinctions could be determined.

Educational Measures

The findings in Table 2 present the distribution of intervening educational variables, appropriate grade for age, mean scores for yearly enrollment, attainment, and educational progress.

Insert Table 2 About Here

The data show no racial variations in the proportion of girls who are in the appropriate grade for age at first interview, with nearly 81 percent of all respondents are enrolled in a grade that is deemed suitable for their age at the base year. In contrast, there are racial differences in how consistently girls progress through school. Findings suggest that non-whites, particularly Hispanics, have greater difficulty in making consistent educational progress relative to whites. Twenty-nine percent of Hispanics have a mean score for yearly enrollment that is less than 1.0, meaning that Hispanic respondents, on average, were not enrolled each year over the study period relative to whites (17 percent) or blacks (14 percent). Hispanics are also less likely than whites or blacks to move into the next grade each year. A little more than one-third of Hispanics compared with one-fifth of whites and approximately one-fourth of blacks have a mean score for yearly attainment that is less than 1.0.

Given lower rates of yearly enrollment and less than consistent educational progress, Hispanics, primarily as a result of inconsistent enrollment, tend to have a lower mean score for educational progress than their white or black peers. While 80 percent of whites and 77 percent of blacks have a mean score of 2.0 for educational progress, only 65 percent of Hispanics have a similar mean score. Inconsistent educational progress may have influenced the likelihood of high school completion among Hispanics. Data show that more than 80 percent of whites and 73 percent of blacks complete high school with a diploma/GED by the 1983. Only 58 percent of Hispanics report they finished high school by the end of the study period.

Fertility-Related Characteristics

Table 3 summarizes the distribution of fertility-related characteristics by race/ethnicity including first birth, age at first birth, first sex, and marriage. Racial disparities in fertility-related characteristics are evident. Specifically, non-whites are more likely to experience a first birth than

Insert Table 3 About Here

whites by the end of the study period. Roughly twice as many Blacks (27 percent) and Hispanics (26 percent) as whites (13 percent) had their first child by the end of the study (1983). The age at which respondent first gave birth, however, is not significantly different by race. This is not surprising given the selection criteria of the study, and the relatively brief observation period.⁵ Nearly 82 percent of all girls have had first sex by the end of the study period, with 70 percent having experienced first sex at age 16 or later (data not shown). The pattern of sexual onset is different for whites and non-whites. Virtually all black girls have initiated sex by 1983 (93 percent), compared with whites (81 percent) and Hispanics (75 percent). However, there do not appear to be any differences in the age at first sex by race/ethnicity. Among those who have had sex, roughly 85 percent of whites, blacks, and Hispanics experience their first sex at or beyond age 16. The lack of racial variation in age at first sex may be due to a selection bias; the earliest births, and thus the girls most likely to have first sex at earlier ages, are not included in the study.

A sizeable proportion of respondents (19 percent), do not marry by the end of the study (data not shown). However, blacks are the least likely of all respondents to marry. While close to 20 percent of whites and 26 percent of Hispanics make the transition to first marriage, only 7 percent

⁵Women who had given birth prior to or within seven months of first interview (the earliest births) are excluded in order to control for effects of birth or knowledge of a birth on educational disparity. In addition, women are followed for a total of four years, or only until they are between 18 and 20 years of age. First births that occur after the study (e.g., first births to girls at a later age) are not included.

of blacks do so. Blacks have the greatest risk of a non-marital birth by the end of the study as they are most likely to have had sex (90 percent) and least likely to have married (7 percent).

A review of Tables 1-3 indicate racial disparities in background factors, intervening educational measures and early childbearing. Non-whites are more likely to come from disadvantaged backgrounds, more likely to demonstrate less consistent educational progress, and more likely to have a first birth than whites. According to the logic of the opportunity cost hypothesis, non-whites should then perceive fewer opportunities than their white counterparts.

Perceptions of Educational Opportunity

Figure 2 shows there are virtually no differences by race in the amount of education girls would like to complete. Roughly two-thirds of all respondents, irrespective of race/ethnicity want more than a high school education. Very few respondents (0.7 percent to 2.7 percent) want less than twelve years of school. However, Hispanics are four times as likely as either whites or blacks to state that they do not want to finish high school.

Insert Figure 2 About Here

Distributions of educational expectations (Figure 3) show that a sizeable proportion of all women, irrespective of race, indicate they do not expect to achieve their desired education. About 57 percent of whites, 52 percent of blacks, and 51 percent of Hispanics expect to actually complete more than 12 years of school, compared with the 64 to 66 percent who aspired to do so.

Insert Figure 3 About Here

When making relative comparisons of aspirations and expectations (Figure 4), I find that the majority of teens (roughly 77 percent of whites, 71 percent of blacks, and 69 percent of Hispanics) show no educational disparity at all, meaning that most girls expect to achieve their educational ambitions. However, those who do show an educational disparity are somewhat more likely to be non-white. Close to 29 percent of blacks and 31 percent of Hispanics show an educational disparity, compared with 23 percent of whites. The magnitude of educational disparity, however, is significant different by race. Most girls with educational disparity, regard less of race/ethnicity, tend to have aspirations that are, one average, one to two years greater than their expectations (14 percent of whites and blacks, 16 percent of Hispanics); few have aspirations that are less than their expectations, meaning that few girls expect to achieve more education than they desire (e.g., aspire to complete high school, but expect to go to college). This includes about 1 percent of whites and blacks, and 3 percent of Hispanics.

Insert Figure 4 About Here

However, nearly twice as many non-whites as whites have a wide magnitude of disparity, (e.g., aspirations that are three or more years greater than expectations); 12.6 percent of blacks, 12.4

percent of Hispanics compared with 6.7 percent of whites show this wide a magnitude of disparity. Thus, among teens who perceive barriers to educational achievement, non-whites perceive greater obstacles to their educational ambitions than their white counterparts.

Findings thus far are in the direction consistent with the "rational choice" theory. Specifically, non-whites are more likely to come from disadvantaged backgrounds, are more likely to perceive barriers to educational opportunity than whites, are more likely to experience a non-marital birth. The remaining question is whether perceptions of limited opportunity among non-whites significantly influence rates of non-marital childbearing, net of background, fertility-related and intervening educational characteristics.

Multivariate Results

Table 4 presents a description of the variables contained in the four final multivariate models. Model 1 assesses the effect of all background, fertility-related characteristics, and intervening educational variables on age at first birth. Models 2 and 3 assess the additional independent effect of educational aspirations and expectations on first birth. Model 4 assesses the effect of educational disparity on first birth. All final models are presented separately by race/ethnicity.

Insert Table 4 About Here

Tables 5, 6, and 7 contain the results of the hazards models for age at first birth for whites, blacks, and Hispanics respectively. For each variable, the adjusted relative risk and the p-value are shown to identify whether the relative risk is significantly different from 1.0, and whether that

particular variable has a significant effect on age of first birth.

White Non-Hispanic

Table 5 presents the proportional hazards Models 1 through 4 for age at first birth for whites. Several background characteristics, as expected, increase the risk of first birth among whites. In particular, mother's education, family income, and the reading materials index influence the likelihood of a birth. White girls who state their mother completed high school are half as likely to have a first birth as girls whose mother did not complete high school; white girls from families with incomes at or below \$25,000 are 1.8 times as likely to become young mothers as girls from families with incomes greater than \$25,000; girls from families that had access to magazines, newspapers, and a library card are half as likely to experience teen motherhood as girls who did not have access to all three reading materials. Neither parental employment, family structure, family size, geographic location, nor residence influence the likelihood of first birth for white girls.

Insert Table 5 About Here

Age at first sex has a strong negative effect on the likelihood of first birth for whites. Whites who initiate sex before age 16 are three times as likely to have a first birth than whites who postpone sex beyond age 16. This finding supports other studies which show that teens who initiate sex at young ages (under 15) are less likely to use contraception effectively (Zelnik and Kantner, 1977; Zelnik and Shah, 1983), and more likely to carry their pregnancies to term (Zelnik, Kantner, and Ford, 1981).

Table 5 also suggests that chronological age reduces the likelihood of birth, (e.g. older girls are less likely to have a first birth). This is contrary to previous studies, and to conventional logic, as older girls would have a greater likelihood for having had first sex, having a partner or being married. All would increase a young woman's risk of having a birth. This finding, however, is most likely an artifact of sample selection. The youngest mothers, those who experienced a birth prior to the first interview, have been excluded.

Appropriate grade for age does not significantly influence the likelihood of first birth among white girls. On the other hand, inconsistent educational progress, hastens the transition to motherhood. Whites who are not making consistent progress in school are nearly twice as likely to have a baby as girls who are enrolled and move ahead in school each year.

Models 2 and 3 investigate the additional contribution of educational aspirations and expectations on age at first birth. It is anticipated that both will significantly and negatively influence the likelihood of a birth as previous studies have shown them to influence the behavioral precursors of early childbearing (Devaney and Hubley, 1981; Hogan and Kitagawa, 1983; Mott, 1986)

According to Model 2, higher aspirations do reduce the risk of first birth for whites. White girls who aspire to go to college have 4/5 the risk of birth as girls who do not want to go to college; neither increasing nor decreasing aspirations, at least early in the study, affects the likelihood of a birth. However, girls who are able to postpone childbearing until the latter period of the study, and who subsequently increase their aspirations, have slightly less than half the risk of becoming mothers, as girls who postpone childbearing, but subsequently desire the same amount of education.

Model 3 shows that the amount education white girls expect to get also influences the risk

of first birth. Whites who expect to go to college have 3/4 the risk of a first birth as girls who do not expect to go to college. Furthermore, if girls diminish their educational expectations, especially early in the study, they are 1.7 times as likely subsequently to have a birth as girls whose expectations remain stable. Thus, regardless of how high or how low initial expectations may be, reducing them appears to hasten the transition to motherhood. Increasing expectations, among delayed childbearers, has an additional protective effect. Girls who postpone their first birth to at least the second phase of the study, and who subsequently increase their expectations, are about half as likely to experience a birth as white girls who postpone childbearing, but do not change their expectations.

Model 4 shows that educational disparity does influence the risk of first birth for white girls. White girls with aspirations that are three or more years greater than their expectations are nearly twice as likely to become young mothers as whites with a smaller magnitude of disparity. Increasing the magnitude of disparity does not increase the risk of first birth. However, diminishing the magnitude of disparity does not decrease the risk of first birth either. Thus, changing a young white girl's perceptions about opportunities does not appear to affect likelihood of her having a first birth.

Black Non-Hispanics

Table 6 presents the four multivariate models for black girls. While several background characteristics influenced the risk of first birth for whites, only mother's education and the reading materials index influence the risk of first birth for blacks. Black girls with mothers that have at least a high school education have 1/5 the risk of a first birth as blacks whose mothers did not complete high school. Blacks that have access to all three reading materials have 1/3 the risk of a first birth as blacks that do not have newspapers, magazines, and a library card available in their homes.

Insert Table 6 About Here

No other background factors significantly influence the likelihood of birth for black women. Family income demonstrates a negative but statistically insignificant effect on first birth. However, it may be that since so few blacks came from families with incomes above \$25,000, that the sample size is too small to generate a significant effect on first birth.

Consistent with Model 1 for whites, age at first sex and age in 1979 influence the risk of first birth. Age at first sex has the greatest influence on first birth for blacks. Black girls who initiate sex before age 16 are more than three times as likely of having a first birth as blacks who delay sex beyond age 16. Age at first interview reduces the risk of first birth, but these findings should be interpreted with caution in light of the caveats for sample selection previously given.

Interestingly, the effect of educational progress on first birth for black girls is opposite of that observed among whites. Limited educational progress appears to reduce the risk of first birth among black women. Blacks who are less consistent in their educational progress have 2/3 the risk of becoming mothers as blacks making consistent educational progress. This is contrary to the childbearing literature that indicates limited educational attainment increases the risk of first birth (Hayes, 1987). However, most of the studies reviewed explored the association of completed years of school and first birth and not yearly educational progress. However, this finding may indicate an indirect effect on birth due to the cultural/peer conflict experienced by African American youth with respect to educational desires and educational attainment. For example, some researchers suggest that the lower educational attainment of blacks is due to the fact that the opportunity structure does

not reward educational achievements of blacks the same as it does for whites. Black youth are aware of this and shape their academic behavior accordingly, although they do not lower their overall educational ambitions. (Ogbu, 1978; Leiberson, 1980; Mickelson, 1990). In addition, black youth who do well in school are often described by their peers as "acting white", and thus experience a conflict with peers with respect to educational ambitions and attainment. They too alter their behavior, or do less well in school to conform to peer norms. Thus, in this study, black girls doing poorly in school may represent, to some extent, girls with both high ambitions and the potential to do well, who deliberately choose not to do well in order to save face with their peers. Therefore, they should be less likely to experience a first birth than blacks who are having genuine academic difficulties.

Both educational aspirations and expectations influence the risk of first birth among blacks. Black girls who aspire or expect to go to college have 4/5 the risk of becoming mothers as black girls who do not aspire or expect to go to college. The influence of shifts in aspirations and expectations on the risk of first birth is consistent with that observed among whites. With the exception that decreasing expectations early in the study period does not significantly increase the risk of first birth. The effect, however, is in the direction of increasing the risk of first birth.

While both aspired and expected education individually influence the risk of first birth for black girls, Model 4 shows that educational disparity does not affect the risk of first birth for blacks. Changes in the magnitude of disparity do not influence the risk of first birth among blacks either.

Hispanics

Similar patterns are observed in the final models for Hispanics (Table 7), although these models were least predictive for childbearing of any group of girls in the study sample. Although

all background characteristics demonstrate associations in a direction similar to those found in the final models for blacks and whites, no background factors show a statistically significant influence on age at first birth among Hispanics.

Insert Table 7 About Here

Age at first sex, as seen in final models for whites and blacks, also significantly affects the likelihood of first birth for Hispanic girls. Hispanics who initiate sex before age 16 have four times the risk of a first birth as Hispanics who delay their sexual debut until at least age 16.

Hispanic girls who show inconsistent educational progress are 1.5 times more likely to experience a first birth as Hispanics who make consistent educational progress. Appropriate grade for age does not affect the risk of birth among Hispanic girls.

Educational aspirations also influence the risk of first birth for Hispanics. Hispanic girls who aspire to go to college have 3/4 the risk of becoming mothers as Hispanics who do not want or expect to go to college. Increasing aspirations appears to reduce the risk of birth, if changes in the amount of desired education occur in the early stages of the study.

Levels of expected education affect the likelihood of a birth for Hispanic girls. Hispanics who expect to secure more than twelve years of school have 3/4 the risk of a first birth as Hispanics who do not expect to go to college. Changing one's expected level of education also affects the risk of first birth among Hispanic girls. Hispanics who postpone childbearing until the later period of the study and decrease their expectations, are twice as likely to have a birth as girls who delay

childbearing and do not change their educational expectations. Thus, at least among Hispanics who are able to postpone childbearing, a downward shift in educational expectations can still increase the transition to motherhood. Such an effect was not observed in the final models for black or white girls.

Consistent with the results in Model 4 for blacks, the likelihood of first birth among Hispanics is affected neither by educational disparity nor by shifts in the magnitude of educational disparity.

Review of Final Models

It is apparent from the analyses presented that several factors contribute to early childbearing among young women. However, even after taking into consideration background characteristics, educational measures, and fertility-related characteristics, educational disparity, as a proxy for perceptions of opportunity, influences the likelihood of birth only for white females. Educational disparity has no substantial impact on the risk of first birth among non-whites, even though non-whites are more likely than whites to perceive greater barriers to educational attainment. The data, therefore, show limited empirical support the "opportunity cost hypothesis" of early child-bearing for non-whites. These findings do suggest, however, that cultural differences do exist with respect to how notions of economic opportunities affect fertility behavior. These findings have important implications for programs, policies, and future research.

DISCUSSION

Implications for future research

The findings from this study lead naturally to several areas for additional research. First, the underlying premise of the opportunity cost hypothesis requires continued examination and

modification. Although these data provide inconclusive evidence for non-whites, the "rational choice" theory is nonetheless plausible. Specifically, the majority of young women in this study, irrespective of race/ethnicity, had educational ambitions beyond high school, however, 23 percent of whites, 29 percent of blacks, and 31 percent of Hispanics did not expect to achieve their educational goals. Non-whites, however, show a wider disparity (perceive greater barriers to goal achievement) than whites. This clearly suggests subgroup differences in perceptions of educational opportunity. The inability of these perceptions to predict patterns of childbearing for non-whites, however, suggests several areas for further research.

First, the inability to show a significant impact on educational disparity fertility of non-whites may reflect theoretical as well as methodological limitations of the study. For instance, this study is guided by the theoretical assumptions of strain theory, which presumes no cultural or racial differences in values about important life outcomes, such as early childbearing. While such an assumption may be relevant for behaviors more common in the deviance literature (e.g., violence or crime), personal behaviors such as fertility may and do have strong cultural distinctions that cannot be accounted for within the framework of strain theory.

Other basic assumptions of strain theory may be inappropriate in the context of the opportunity cost hypothesis as well. For instance, while there may be few differences across subgroups about the desire for success, what is deemed to be a measure of personal success, and how one gauges one's progress towards achievement, may indeed be culturally specific. That is, the more isolated a person is from mainstream America, the more culturally specific their measures of success and their comparisons become. In fact, Ogbu (1978) notes that society does not equally reward the educational achievements of women and minorities. These differences in return on

educational investments can lead to increase doubts about success and the ability to achieve goals that young women have set for themselves, leading to a validation of the self from within one's own cultural subgroup. Few studies have empirically examined the influence of cultural differences in one's definition of success or one's progress towards success. However, without such cultural distinctions, the explanatory power of the opportunity cost hypothesis, specifically to explain racial disparities in early childbearing will remain limited.

Culture may also influence the range of roles (personal and professional) that are deemed acceptable for women. Although in recent times, the likelihood of women to engage in multiple roles simultaneously (e.g, mother, wife, working women), this pattern historically has been much more prevalent in the lives of non-white women than white women. Thus, perhaps for most non-white females, work and family are not mutually exclusive. Thus, non-whites who perceive more obstacles to educational achievement (as well as non-whites who perceive few barriers to achievement) are choosing motherhood and other life outcomes (e.g., school completion) at roughly equal rates or simultaneously. Research will need to determine the timing of fertility relative to other life outcomes across subgroups in order to determine the range of roles that are dominant among various groups of women.

Finally, our measure of educational disparity may not be the most appropriate measure to capture perceptions of opportunity among young women. However, this work is constrained by the limited range of contextual and psychosocial measures needed to explore various options for quantifying perceptions of opportunity. Such limitations are not uncommon among large scale surveys as most are fielded for purposes other than to assess cultural differences within the population of interest. Nonetheless, existing national-level data will need to augment traditional

measures of socioeconomic and psychosocial attributes to include questions that capture issues of opportunity and the cultural context of young women's lives.

Strain theory provides a useful beginning for the development of a conceptual framework for the opportunity cost hypothesis. As a proxy for strain, educational disparity has a significantly positive impact on the likelihood of childbearing among whites, but has not significant impact on the likelihood of first birth among non-whites. Results presented here suggest future research should explore the relevance of cultural differences in attitudes about fertility and the range of roles for women, as well as different ways to operationalize perceptions of opportunity which take into consideration the cultural context of opportunity across population subgroups.

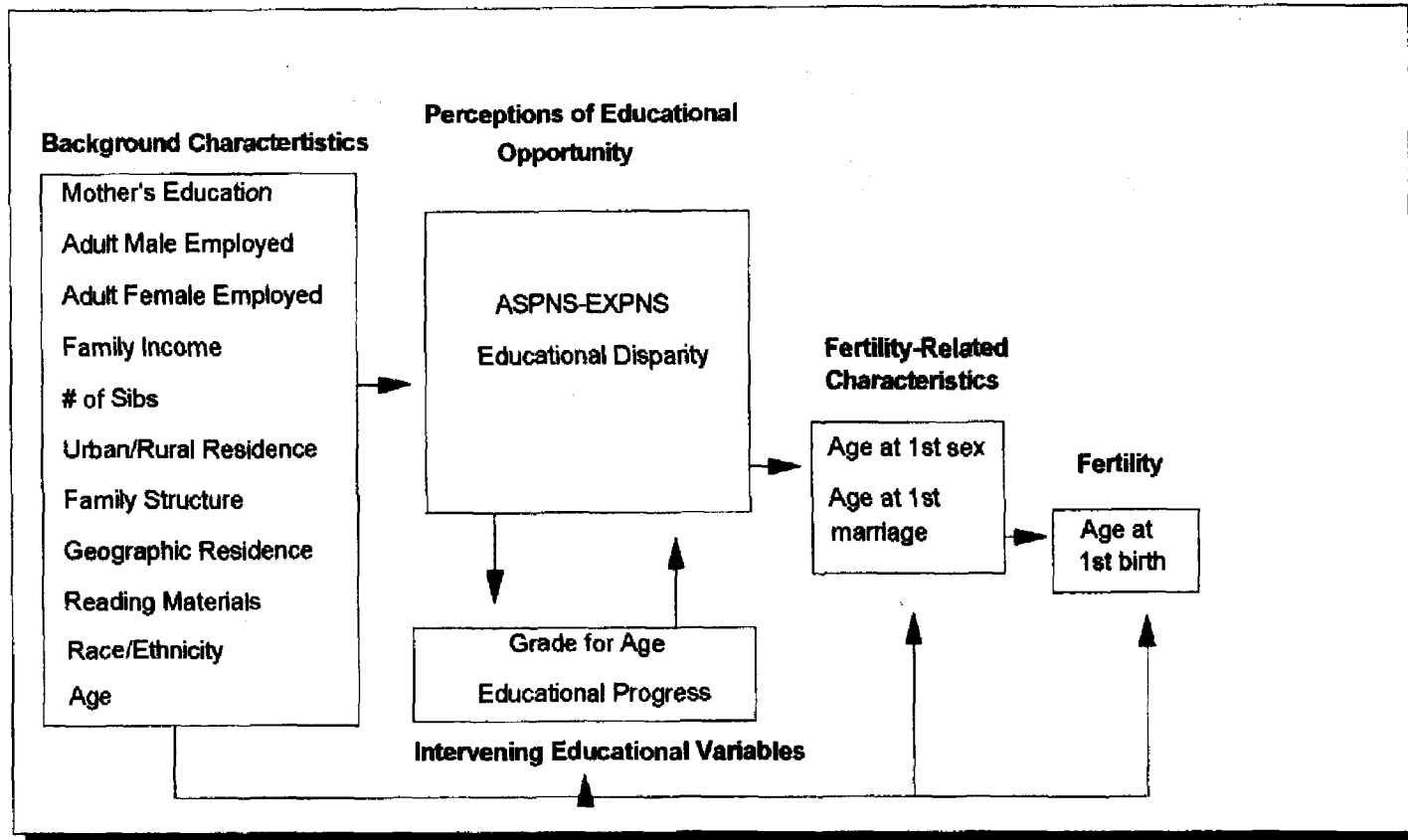
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Figure 1: Conceptual Framework



Key: ASPNS = Educational Aspirations
 EXPNS = Educational Expectations
 ASPNS - EXPNS = Mathematical difference between aspirations and expectations (educational disparity)

Table 1: Distribution of Background Characteristics by Race/Ethnicity

Background Characteristics	Whites (N=972) (%)	Blacks (N=452) (%)	Hispanics (N=323) (%)
% of Total Respondents	55.6	25.9	18.5
Mother's Education ^{***}			
< HS	28.4	51.6	76.9
HS	50.1	35.8	7.5
> HS	21.5	12.6	5.6
Adult Female Employed	60.3	56.8	52.8
Adult Male Employed	94.2	86.3	91.8
1979 Net Family Income ^{***}			
<= \$8,100	9.2	39.9	25.9
\$8,101 - \$16,000	19.7	28.5	32.1
\$16,001 - \$25,000	29.5	18.5	21.0
\$25,000+	41.6	12.9	21.0
Family Structure ^{***}			
Real Mom & Dad	75.6	45.0	69.0
Two Adults M/F	12.2	15.2	10.8
Single Parent	12.1	39.6	20.0
Other	0.1	0.2	0.2
No. of Siblings ^{***}			
0 - 1	21.6	12.8	15.4
2 - 3	47.7	31.0	34.6
4+	30.7	56.2	50.0
Reading Material Index ^{***}			
0	3.2	15.2	19.8
1	11.4	26.2	31.0
2	27.8	32.3	23.3
3	57.6	26.4	26.0
Geographic Region ^{***}			
Northeast	20.5	17.3	16.5
North Central	32.5	20.2	9.1
South	30.3	57.6	32.1
West	16.7	5.0	42.3
Residence ^{***}			
Urban	75.2	83.4	88.4
Rural	24.8	16.6	11.6

^{*}p<0.05, ^{**}p<0.01, ^{***}p<0.001

¹ Includes step parent families and adult male/female combinations relative and non-relative.

² Includes both male and female headed households. Female headed households constitute 90% of all single parent families.

Sample: 14-16 year old females from the National Longitudinal Survey of Youth (NLSY), 1979-1983 data.

Table 2: Percent Distribution of Intervening Educational Measures by Race/Ethnicity

Educational Measures	Whites (%)	Blacks (%)	Hispanics (%)
Appropriate Grade for Age	80.8	80.8	80.4
Mean Score for Yearly Enrollment**			
0.00 - 0.99	17.3	13.6	28.6
1.00	82.6	86.4	71.4
Mean Score for Yearly Attainment**			
0.00 - 0.99	20.3	23.1	34.7
1.00	79.7	76.9	65.3
Mean Score for Educational Progress***			
0.00 - 0.99	6.5	3.4	9.9
1.00 - 1.99	13.8	19.8	28.8
2.00	79.7	76.9	65.3
Diploma/GED by 1983***	82.2	73.3	57.7

*p < 0.05, **p < 0.01, ***p < 0.001

Sample: 14-16 year old females from the National Longitudinal Survey of Youth (NLSY), 1979-1983 data.

Note: A mean score of 1.0 for yearly enrollment or yearly attainment denotes that on average a girl was enrolled each year, or moved ahead each year over the study period. The mean score for educational progress is the sum of the mean scores for yearly enrollment and yearly attainment. A mean score of 2.0 means that on average a girl was enrolled each year and passed into the next grade each year (e.g. consistent educational progress).

Table 3: Percent Distribution of First Birth and Fertility Related Characteristics by Race/Ethnicity

Fertility Characteristics	Whites (N=972) (%)	Blacks (n=452) (%)	Hispanics (N=323) (%)
Birth by 1983***	13.1	27.1	25.6
Age at 1st birth ¹			
14-17	44.1	45.0	39.3
18-19	50.3	50.0	53.9
20+	5.6	5.0	6.7
Age at 1st sex***			
<16	11.2	13.6	11.6
≥16	69.6	76.7	63.6
Never Had Sex by 1983	19.2	9.7	24.8
Age at 1st marriage***			
<18	6.0	1.0	10.0
≥18	14.4	6.3	15.8
Never Married by 1983	79.6	92.7	74.2
Age in 1979			
14	26.6	24.9	30.7
15	37.5	41.9	35.5
16	35.9	33.2	33.8

*p<0.05, **p<0.01, ***p<0.001

¹ Age at first birth for those who gave birth by 1983.

Sample: 14-16 year old females from the National Longitudinal Survey of Youth (NLSY), 1979-1983 data.

Table 4: Description of Four Final Multivariate Proportional Hazards Models

Covariates	Model 1	Model 2	Model 3	Model 4
Background Characteristics	✓	✓	✓	✓
Fertility-Related Characteristics	✓	✓	✓	✓
Related Educational Measures	✓	✓	✓	✓
Educational Aspirations		✓		
Change in Aspirations		✓		
Educational Expectations			✓	
Change in Expectations			✓	
Educational Disparity				✓
Change in Educational Disparity				✓

Key: ✓ represents inclusion in the model.

Table 5: Selected Proportional Hazard Models for Age at First Birth, Whites

Covariates	Model 1 e^{β}	Model 2 e^{β}	Model 3 e^{β}	Model 4 e^{β}
Mom's Education ≥ 12	0.552**	0.657	0.790	0.497*
Adult Male Employed	0.758			
Adult Female Employed	0.757			
Adult Male Employed Missing	0.624			
Family Income \leq \$25K	1.836**	1.793**	1.606**	1.550
Two Bio Mom & Dad	0.669*	0.793	0.794	0.757
# Siblings > 3	0.908			
Reading Material Indx > 2	0.549***	0.629**	0.696**	0.583***
South	1.138			
Urban Residence	1.156			
Sexual Onset < 16	3.411***	3.186***	3.092***	2.989***
Age in 1979	0.737**	0.712***	0.694***	0.662***
At Grade for Age	0.931			
Score for Ednl Prog < 2	1.931***	1.621**	1.319	1.857***
1979 Aspirations > 12		0.843***		
Aspns Increased 79-81		0.867		
Aspns Decreased 79-81		1.495		
Aspns Increased 79-82		0.539**		
Aspns Decreased 79-82		1.071		
1979 Expectations > 12			0.779***	
Expns Increased 79-81			0.689	
Expns Decreased 79-81			1.703**	
Expns Increased 79-82			0.484***	
Expns Decreased 79-82			1.023	
Aspns 3 + yrs $>$ Expns				1.990**
Disparity Increased 79-81				1.363
Disparity Decreased 79-81				1.193
Disparity Increased 79-82				1.366
Disparity Decreased 79-82				0.937
-2LL	1584.78	1724.32	1702.40	1731.0
X ²	163.2***	183.9***	209.4***	182.6***
d.f.	14	12	12	12
N	886	919	919	919
No. of Events	132	144	144	144
No. Censored	754	775	775	775

0.05 < p < 0.10, * 0.01 < p < 0.05, * 0.001 < p < 0.01, **** p < 0.001

Table 6: Selected Proportional Hazards Models for Age at First Birth, Blacks

Covariates	Model 1 e^{β}	Model 2 e^{β}	Model 3 e^{β}	Model 4 e^{β}
Mom's Education ≥ 12	0.229**	0.234**	0.210**	0.213**
Adult Male Employed	1.540			
Adult Female Employed	0.959			
Adult Male Employed Missing	0.976			
Family Income \leq \$25K	2.260			
Two Bio Mom & Dad	0.966			
# Siblings > 3	0.908			
Reading Material Indx > 2	0.308***	0.405***	0.424**	0.334**
South	0.871			
Urban Residence	1.113			
Sexual Onset < 16	3.270***	2.580***	2.640***	2.630***
Age in 1979	0.662**	0.718***	0.702**	0.683**
At Grade for Age	0.660			
Score for Ednl Prog < 2	0.619*	0.596*	0.496**	0.672
1979 Aspirations > 12		0.846***		
Aspns Increased 79-81		0.844		
Aspns Decreased 79-81		1.693		
Aspns Increased 79-82		0.519*		
Aspns Decreased 79-82		1.299		
1979 Expectations > 12			0.823**	
Expns Increased 79-81			1.131	
Expns Decreased 79-81			1.869**	
Expns Increased 79-82			0.402***	
Expns Decreased 79-82			1.085	
Aspns 3+ yrs $>$ Expns				1.039
Disparity Increased 79-81				1.179
Disparity Decreased 79-81				1.289
Disparity Increased 79-82				0.835
Disparity Decreased 79-82				0.601
-2LL	1144.00	1215.10	1227.12	1227.20
χ^2	66.4***	72.2***	60.8***	60.8***
d.f.	14	10	10	10
N	397	416	416	416
No. of Events	108	114	114	114
No. Censored	289	302	302	302

** 0.05 $< p < 0.10$, * 0.01 $< p < 0.05$, ** 0.001 $< p < 0.01$, *** $p < 0.001$

Table 7: Selected Proportional Hazards Models for Age at First Birth, Hispanics

Covariates	Model 1 e^{β}	Model 2 e^{β}	Model 3 e^{β}	Model 4 e^{β}
Mom's Education ≥ 12	0.314	0.292	0.236	0.178
Adult Male Employed	1.294			
Adult Female Employed	0.850			
Adult Male Employed Missing	1.853			
Family Income \leq \$25K	1.898			
Two Bio Mom & Dad	1.623			
# Siblings > 3	1.396			
Reading Material Indx > 2	0.767			
South	1.378			
Urban Residence	1.651			
Sexual Onset < 16	4.190***	3.752***	3.507***	4.030***
Age in 1979	0.721*	0.729*	0.725*	0.735*
At Grade for Age	1.077			
Score for Ednl Prog < 2	1.559**	1.315	1.117	1.920**
1979 Aspirations > 12		0.756***		
Aspns Increased 79-81		0.886		
Aspns Decreased 79-81		0.964		
Aspns Increased 79-82		0.329***		
Aspns Decreased 79-82		1.051		
1979 Expectations > 12			0.743***	
Expns Increased 79-81			0.659	
Expns Decreased 79-81			1.132	
Expns Increased 79-82			0.675	
Expns Decreased 79-82			1.949*	
Aspns 3 + yrs $>$ Expns				1.130
Disparity Increased 79-81				0.960
Disparity Decreased 79-81				0.959
Disparity Increased 79-82				1.379
Disparity Decreased 79-82				0.838
-2LL	812.24	818.70	821.70	845.3
X ²	71.1***	91.7***	87.8***	66.5***
d.f.	14	9	9	9
N	296	306	306	306
No. of Events	82	84	84	84
No. Censored	214	222	222	222

** 0.05 < p < 0.10, * 0.01 < p < 0.05, ** 0.001 < p < 0.01, *** p < 0.001

Figure 2
1979 Educational Aspirations By Race/Ethnicity

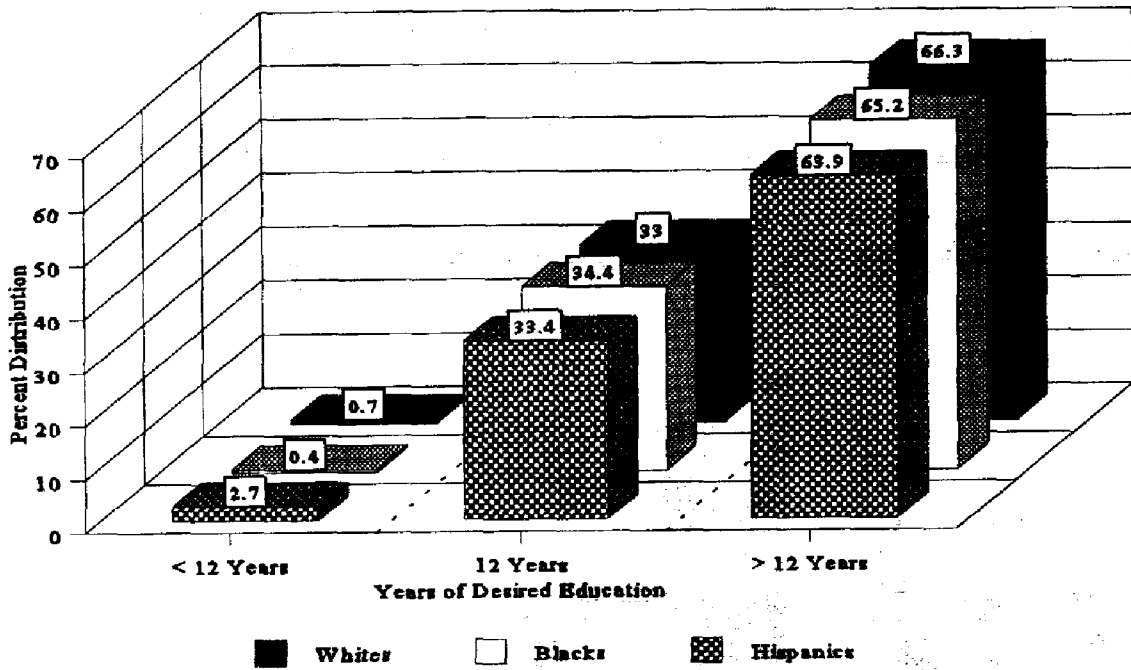


Figure 3
1979 Educational Expectations By Race/Ethnicity

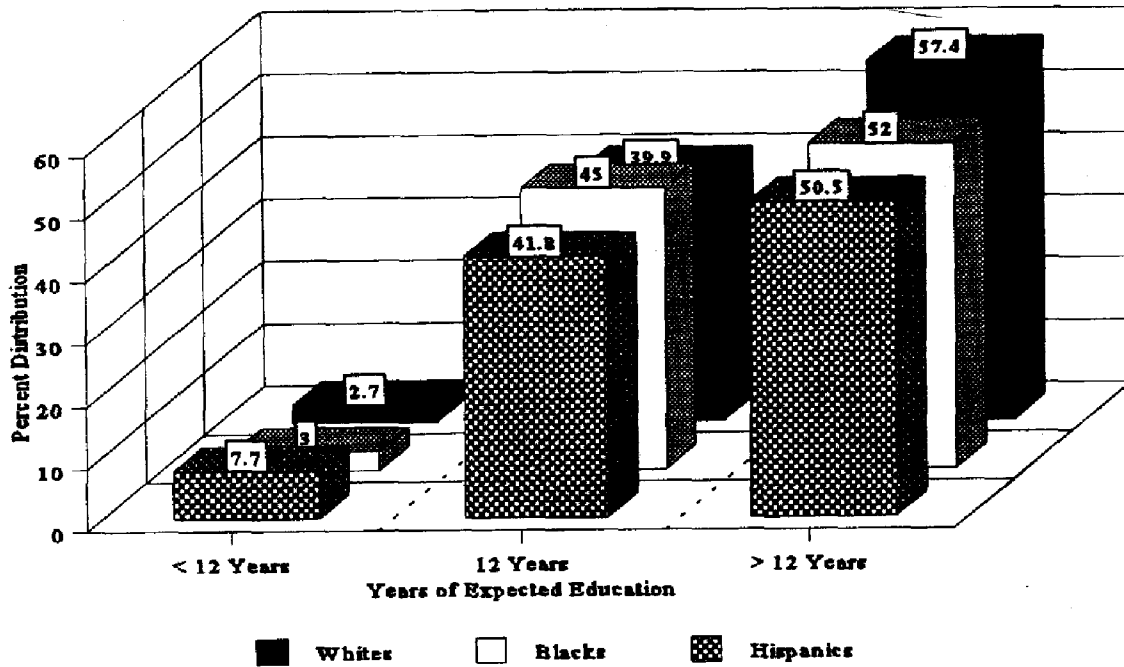


Figure 4
 1979 Educational Disparity By Race/Ethnicity

