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The Effects of Family, Social, and Background Factors on Children's Educational Attainment

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I. Introduction

In a perfect world, children of all races, socioeconomic backgrounds, and family types would not only have the opportunity to receive a higher education, but they would also take full advantage of these opportunities. The educational level of children in the ghettos of Chicago or St. Louis would be equal to their suburban counterparts. However, it is not a perfect world, and educational attainment of children and young adults from varying backgrounds differ greatly.

Do some children have advantages that are not available to other children with differing backgrounds? In educational and economic studies, it has been found that background variables including family income, family type, family size, and parents' education are determinants of the amount and quality of education children receive over their lifetime (Jones, 1999; Rosetti, 2000). It is evident that familial and parental factors can either benefit or harm the chances of children receiving an education and excelling in a scholastic environment. More importantly to this paper, the disparity in educational levels among children and adults of different racial backgrounds has led scholars to question whether the background variables mentioned above have different effects dependent on specific racial groups.

Education is an extremely important determinant in earnings. This fact is why education has become increasingly important to future generations. The job opportunities once available to less educated individuals are becoming scarce as more employers are raising their employment standards. College graduates are replacing employees with high school degrees. As the job market changes, individuals of all races and backgrounds should have the skills, education, and opportunities to compete at the same levels.

This project examines the effects of background and familial factors on the educational attainment of the respondents. Special attention is paid to the existence of educational gaps among children of different racial groups and the impact of the background variables on the educational attainment of these groups. I find that key background factors give some children educational advantages over other children. Interestingly, the results suggest that the background variables play a larger role in the educational attainment of white respondents than they do in the educational attainment of black or Hispanic respondents. Section II presents the human capital theory and explains the household production unit. Additionally, this section discusses socioeconomic theories relating to race and educational attainment. Section III explains the empirical model and data extracted from the National Longitudinal Survey of Youth (NLSY). Section IV discusses the results of the models, while Section V draws conclusions from the results and suggests policy implications.

II. Background and Review of the Literature

Economic theories relating to educational attainment focus on social and economic factors in the home and in the proximate environment. Gary Becker's household production theory in addition to the human capital theory directly links household resources and investments to the educational attainment of children (Becker, 1993). The resources a family has are often dependent upon how many people the family consists of and how much disposable income the family has to spend on resources, such as computers and books. Although the idea of household production encompasses a broad spectrum of domestic economics, in this paper it is used specifically to look at the

available educational attainment of children based on their parental and familial socioeconomic factors.

The household production theory, which is the basis of my hypotheses, is an outgrowth of two theories, the human capital theory and the theory of allocation of time. Although these two theories view education as an investment rather than consumption, the household theory takes on a narrower viewpoint on investments dealing solely with the household. Household economics considers the family as not only a consuming unit but also as a producing unit. This theory states that a combination of time and resource inputs produce different types of commodities (Becker, 1993). In order to produce what Becker calls “quality children,” parents must spend time at home and devote real resources to foster an environment that promotes and provides formal education (1993). Since families differ, time and money spent on investments will vary, as will attitudes that may be conducive to children’s ability and willingness to learn.

Ermisch and Francesoni (1997 and 2000) completed two papers built on the household production model addressing the association between childhood parental employment, parental education levels, and subsequent education of children. Their findings show that time and money made available to a child affect the child’s educational attainment. Children whose mothers work more during their children’s early stages of life have less educational attainment compared to children whose mothers spend more time at home with them (Ermisch, 2000). It is unclear whether this means that time is more important than money and other resources. However, by working, parents sacrifice time with their children during the developmental years. As more parents proceed to join the work force, hours spent with children have decreased dramatically. In

1965, the average child spent about 30 hours per week interacting with parents, but by the late 1980's this figure had dropped to about 17 hours (Haveman, 1993).

In addition, parents' education is a powerful predictor of their children's educational attainment (Haveman, 1993). This is more the case for mothers' education. Mothers with a higher level of education instill the importance of education in their children. Although fathers' education is important, mothers have a greater impact on the values children later find important (Ermisch, 1997). Therefore, a mother's feelings on education will be portrayed to her children. Through the mother's own decision to attain a higher level of education, her attitude is likely to be accounted for through her actions. Additionally, parents use their educational attainments to teach their children, thus increasing human capital directly.

Many studies have been done on the correlation of family structure and educational attainment. One, in particular, examines the effect of family structure on high school graduation rate. Boggess (1998) finds that living in a mother-headed household or a stepfather-mother family has a negative effect on education levels due to a decreased level of resources. However, once he controlled for economic status, he found that the effect of these types of households on education is not significant. While income and available resources seem to outweigh the family structure variable in this study, living in a single-headed family is likely the cause for the lower economic status. Garasky's (1995) findings also show that family structure impacts children differently depending on the age of the children. The first few years of a child's life are the most important to have a stable family structure. However, as a child ages, the type of family structure becomes less critical to the child's educational attainment. They receive more

of their education outside of the home, in schools. Hence, family structure is less critical in determining the level of education attained by older children. Also, children's age affects how they handle experiences. Consequently, as children mature, they are better equipped to handle divorces, separations, and the experiences of living in single headed households.

Beside the household production theory and the human capital theory, sociological literature must be examined to establish a link between educational attainment and race. William Julius Wilson (1987) discusses the truly disadvantaged in his book on the inner city and the underclass. Although he does not directly make assumptions on the relationship between race and education, he discusses the increasing problems among minorities, especially blacks, in inner cities. Blacks' poverty rates are proportionately higher than whites. With increased poverty, Wilson discusses increases in crime, joblessness, and out-of-wedlock births (1987). As these changes occur in mostly black communities, living conditions become unfavorable. As a result of increasing problems suffered by minorities in areas with concentrated poverty, education is harder to achieve and attainment is lower.

Since blacks who have adverse background characteristics are more likely to end up in a neighborhood with concentrated poverty and very low quality schools, they are likely to have much lower levels of educational attainment than blacks who do not experience unfavorable background characteristics. On the other hand, poor whites are not typically concentrated in poor neighborhoods. They generally live in the same neighborhoods as white middle class thus sharing school systems and other resources. Because of the living environment, poor whites are not exposed to the severity and

quantity of crime, joblessness, and other problems that arise in neighborhoods with concentrated poverty. Following this reasoning, I expect that minorities who have adverse background characteristics will experience greater negative effects on educational attainment than whites.

III. Data and Empirical Model

I explore the effects of parental and socioeconomic variables on children's educational attainment by employing samples of people drawn from the 12,686 people surveyed in the National Longitudinal Survey of Youth (NLSY). The NLSY is based on in-person interviews with people, ages 14 to 21 in 1979, which would make the respondents 37 to 45 now. The panel is interviewed annually starting with the 1979 interview. This database suits my study because it contains a deep set of socioeconomic background variables including questions based on the respondents' childhood. Ordinary least squares are used to test my hypotheses.

Four samples are examined in this paper. Separate regressions that predict educational attainment are run for each of these four samples. The first sample consists of 5,249 people from all racial groups, although dummy variables representing race are included in the model. The racial dummy variables are used to estimate differences in education among different groups. Due to missing values and the exclusion of respondents not living in their family household in the first survey year, the sample was reduced from the original 12,686 respondents to 5,249. The second sample consists of 985 people representing the Hispanic population, while the third and fourth samples consist of 1,594 black and 2,668 non-black/non-Hispanic (white) people, respectively.

The numbers in these last three samples add up to 5,249, which is the sample size of the first sample.

The empirical model is set up using four regressions, one for each of the above samples. By doing this, it is possible to examine the effects of the background variables on the population as a whole as well as the effects of each variable on the three specific racial groups.

The variables used in the empirical model are defined in Table 1. Respondents' education (RESEDUC), the dependent variable, is actual years of educational attainment. The models measure how the respondents' educational attainment was affected by certain socioeconomic conditions present during their childhood. This variable, taken from the 1998 survey, measures the respondents' attainments through May 1998. Educational attainment is a function of the time inputs and available resources according to the household production model. All of the independent variables in the model measure socioeconomic and family background factors. These variables capture economic, demographic, and social conditions within the household, which existed during the respondents' childhood years.

Human capital literature closely links educational attainment of children to the backgrounds of their parents. Accordingly, parents' educational attainment is a resource input in their children's human capital. It is hypothesized that mothers' educational attainment (MOMEDUC) is directly related to the educational attainment of their children for two reasons. First of all, children's actions often reflect their mothers' actions and attitudes. A mother with a higher level of education obviously values education; therefore, her attitude will reflect the importance she places on education.

Table 1: Variables Included in the Empirical Model

Variable Name	Definition	How Measured	Predicted Sign
MOMEDUC	# Years of Education Completed (1979)	Numerical Amount	+
INCOME	Total net family income of household from all sources (1979)	Numerical Amount	+
FAMSIZE	# of siblings (1979)	Numerical Amount	-
MOMHEAD	Is the family mother-headed? (1979)	0=No 1=Yes	-
HISPANIC	Is respondent Hispanic? (1979)	0=No 1=Yes	-
BLACK	Is respondent black? (1979)	0=No 1=Yes	-
WHITE	Is respondent white? (1979)	0=No 1=Yes	+
Dependent Variable			
RESEDUC	# Years of Education Completed (1998)	Numerical Amount	

Children often mimic their parents' actions, which mean that many children will strive for higher education when their parents' educational attainment is also high. Second, educated parents have the resources to teach and help their children outside of the classroom. They act as a resource themselves. Boggess (1998) finds that fathers'

educational attainments have little or no effect on children's educational attainments. Consequently, it is not included in the model.

Family income (INCOME) is another important variable, which can determine what resources are available to a household. It is hypothesized that this factor has a positive effect on children's educational attainment. As income increases, consumer products, which enhance human capital, are more abundant in the household. The opportunities to purchase and use learning devices, such as computers and encyclopedias, are more common. The presence of these resources aid parents in promoting education and enhancing what is already being learned in school. The presence or absence of educational resources due to income may support or discourage children's interest in learning.

Since the respondents were 14 to 21 years of age in 1979, some of the respondents may have been living on their own. This is important because it affects the income variable (INCOME). By asking the respondents what their family income was in 1979, I hoped to examine the effects of their parents' earnings on the respondents' educational attainment. Since some of the respondents were living on their own at the time the question was answered, the net family income was actually their own rather than their parents' or that of another adult. Due to this fact, the respondents living on their own or with spouses and children were not included in any of the samples in order to see the effects that parental earnings had on the respondents' educational attainment.

Another variable associated with income is the number of children in the family (FAMSIZE). This variable affects both time and resource inputs. As a family gets larger, parents have less time to spend individually with each child. Because less time is

available, the amount of time spent reinforcing education and aiding in the learning process decreases. Resource inputs may also decrease as income is divided among more children. The amount of income spent on educational resources may decrease or the time spent using the available resources may decrease as the child to educational resource ratio widens, meaning the number of users of the resources increase as the number of resources stay the same.

Family structure is also an important determinant of time devoted to helping children achieve higher levels of education. Mother-headed households (MOMHEAD) are measured with a dummy variable, where one denotes living in a mother-headed household and zero denotes living in another type of household. Ermisch and Francesoni (1997) find that having spent time in a single-parent family, which are typically mother-headed, reduces the educational attainment of children. Overall, investment in children's human capital is reduced due to less time and resource inputs. Parents of mother-headed households are usually the sole breadwinners for the family. Therefore, more time is spent working and less time is invested in enhancing the children's learning process. As the sole breadwinner, single parents often do not have as much disposable income to spend on household resources, which reinforce education. In dual headed households, income is often greater and two parents may be able to make more time available to spend with their children than single moms.

Table 2 includes the descriptive statistics, excluding the statistics on the dummy variables, describing the collected data.

Table 2: Descriptive Statistics: Means (Standard Deviations) for the Four Samples

Variable Name	Total	Hispanic	Black	White
RESEDUC	13.29 (2.38)	12.68 (2.378)	12.99 (2.07)	13.7 (2.477)
MOMEDUC	10.85 (3.027)	7.96 (4.078)	10.78 (2.61)	11.96 (2.386)
INCOME	18.409 (13.398)	14.366 (10.379)	12.168 (9.927)	23.631 (14.069)
FAMSIZE	3.74 (2.606)	4.39 (2.979)	4.65 (2.998)	2.95 (1.856)
Sample size	5249	985	1594	2668

III. Results

To determine the background and socioeconomic effects on the respondents' educational attainment as a whole and on specific racial groups, four regressions are run. The results are reported in Table 3.

The most important results in this regression are the positive effects that mothers' education (MOMEDUC) and net family income in the household (INCOME) have on educational attainment. This strong positive effect is consistent with the results found in the literature and previous studies. Income is important in determining how much money can be spent on education and resources that will enhance education. This factor can also affect where children attend school and the quality of education they receive. As stated earlier, mother's education is important to the children's educational attainment because educated parents inevitably find education to be important and necessary. In addition,

Table 3: Regression Results: Coefficients (T-Statistics) for the Four Samples

Variable Name	Total	Hispanic	Black	White
MOMEDUC	.255** (19.668)	.09365** (4.576)	.231** (11.340)	.365** (8.631)
INCOME	.03234** (12.296)	.03585** (4.624)	.02759** (5.139)	.02845** (19.091)
FAMSIZE	-.09079** (-7.253)	-.09368** (3.525)	-.06767** (-4.036)	-.165** (-7.094)
MOMHEAD	-.09133 (-1.115)	-.08090 (-.440)	-.194 (-1.838)	-.0345 (-.222)
HISPANIC	.316** (3.475)			
BLACK	.09835 (1.285)			
Constant	10.520** (68.318)	11.843** (46.239)	10.541** (41.366)	9.147** (37.826)
Adjusted R-Square	.191	.105	.170	.219
Sample Size	5249	985	1594	2668

*Significant at the .05 level

**Significant at the .01 level

they have the ability to teach and assist their children with knowledge gained through their schooling.

Mothers' education (MOMEDUC) is significant at the .01 level in all four regressions. Interestingly, the coefficients for this variable are different for each sample. In the first regression, where respondents from all racial groups were accounted for, the

(MOMEDUC) coefficient was .225, which means an increase in mothers' education by one year would result in a .225 overall increase in the respondents' education. For Hispanic respondents alone, a one year increase in mothers' education would result only in a .094 increase in respondents' education or about a tenth of a year increase in educational attainment. A one year increase in mothers' education would result in a .231 and .365 increase in educational attainment for black and white respondents, respectively. Black respondents would gain almost a quarter of a year, while white respondents would gain over a third of a year. These results are evidence that each racial group is affected differently by the background variables.

The (INCOME) variable was also significant at the .01 level. The differences in the coefficients were also seen in this background variable with Hispanics having the highest coefficient. To examine the different effects of the (INCOME) variable on each race, refer to Tables 3. The (INCOME) coefficients will however be discussed in more detail in the policy implication section.

Family size (FAMSIZE) was also found to be significant at the .01 level in each of the regressions. The sign of this variable was negative as predicted earlier. These results show that the educational attainment of the respondents decreased as the number of children in the family increased. As monetary resources and parents' time were spread among more children, the amount of education suffered. Although the (FAMSIZE) variables were significant, the coefficients for the Hispanic and black samples show only a slight decrease in educational attainment as the number of children in the family increased by one person. Yet again, this variable affected each racial group differently. While the effects of the (FamSize) variable for black and Hispanic respondents'

educational attainment were small, the coefficient for white respondents was $-.165$ meaning the addition of one child in the household decreased the respondents' education by one-sixth of a year.

Living in a mother or female-headed household (MomHead) was not significant to the educational attainment of any of the groups. However, it may be possible that family income is picking up the effects of living in a mother-headed household.

The R-squares for the Hispanic, black and white samples were $.102$, $.168$, and $.219$, respectively. This illustrates that the background variables used in the models explained more of the educational attainment of white respondents than of black and Hispanic respondents. This was unexpected since basic socioeconomic theories state that minorities are more often affected by these background factors.

V. Conclusions and Policy Implications

By applying an empirical model based on the household production theory to a sample of men and women, I explore how parental and other socioeconomic factors affect children's educational attainment. Consistent with other research, I find that a strong relationship exists between educational attainments and three background factors: mothers' education, household income, and family size. On the other hand, the relationship between these background variables and race did not work out like the socioeconomic literature suggested.

In this model, only a few parental and familial variables were used, although it can be assumed that many other factors affect children's educational attainment. Due to the unavailability of information in NLSY, immeasurable factors, and time constraints,

many important variables were excluded from the model. For example, mothers' hours at work may have been an important variable; however, this information was not available in the database. This would have explained how the amount of time spent with children affected their educational attainment. The quality and amount of time spent with children is fundamental to their physical and psychological growth. In addition to the parental and household factors excluded from the model, there were other explanatory variables that were left out due to the focus of the paper and the availability of the information. These included the type of school system, the amount of money spent on each child in the school, and the location of the school. Also, parents' attitudes on education and values could play a significant role in children's educational attainment. However, these factors can not be measured.

In regard to the educational disparity between different races, the results suggest that the factors typically thought to have a greater effect minorities' educational attainment actually impact whites' educational attainment more than minorities. This result is the opposite from what was earlier hypothesized on the basis of Wilson's (1987) theory concerning the urban underclass. Therefore, any universal improvement in the background characteristics has a greater effect on the educational attainment of whites than blacks and Hispanics. This is so important because people often think that these effects do not influence whites' educational attainment as much as minorities' educational attainment. An explanation for this may be that a larger percentage of minorities than whites are living in urban neighborhoods with concentrated poverty and low quality schools. As a result, many minorities living in low-income neighborhoods

have adapted to this lifestyle and are not affected by slight changes in background variables.

The regression results suggest that slight changes in the background factors for all respondents will increase education by a larger percentage for whites than minorities because the coefficients in the white sample are larger. Although an educational attainment gap exists among members of different races and whites have higher educational attainment, their educational attainment is more dependent on the background factors. Under these conditions, an important question is whether policies can be designed that will increase the educational attainment of all racial groups while at the same time narrowing educational gaps between groups.

Since the results of this paper show that background factors affect children's educational attainment, the government should explore developing policies to improve background and socioeconomic factors and to lessen the educational gap among different racial groups. Policymakers must examine the background factors by targeting people most prone to living in or growing up in disadvantaged households. Policies could be developed to help low income, mother-headed, and larger households. In addition, policies targeting young women in school could prevent them from dropping out or having out-of-wedlock births. Not only would this increase future mothers' education, but it may prevent single-headed households, thus increasing family incomes. When these background variables are improved, my results show that the educational attainment of future generations will increase. By assisting and improving life chances during childhood, future generations can take advantage of educational opportunities that past generations did not have available to them.

My results also show that the background factors generally had stronger effects on white respondents' educational attainment than blacks' or Hispanics'. This implies that a uniform policy initiative to improve everyone's background variables by one unit would improve the educational attainment of all three racial groups, but the educational attainment of whites would improve more than that of blacks and Hispanics. Thus, this general policy would actually widen the educational gap between whites and minorities.

This result is surprising since people often associate these background factors with the lower educational attainment of minorities. This assumed link may be due to the fact that the number of minority members living with these disadvantages is proportionately higher than whites. The poverty rates for the year 2000 for blacks, Hispanics, and whites were 22.1%, 21.2%, and 7.5%, respectively (U.S. Census Bureau, 2001). Living in poverty does not necessarily imply that the household will be a larger, mother-headed household, nor does it imply that the mother's educational attainment will be lower. However, these characteristics are more often found in impoverished households, which are why a link is usually made between poverty, race, and the effects of background factors on specific races.

The only way to lessen the education gap between whites and minorities is to develop a targeted policy that impacts only particular segments of the population. For example, a policy targeting poor people will increase the educational attainment of blacks and Hispanics relative to whites. The reason for this result is that blacks and Hispanics are much more likely to be poor than whites. Therefore, policies that target the poor will improve the income position of a disproportionately large number of blacks and Hispanics thus increasing their educational attainment. By focusing an income policy on

poverty stricken residents, the educational gap will narrow. Another example would be a policy that focuses on high school drop outs. Like the income policy, this policy would have a more favorable effect on blacks and Hispanics, thus lessening the educational gap.

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