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Original Paper

College Graduation and Wealth Accumulation: Blacks' Diminished Returns

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Abstract

Background: *Based on the Minorities' Diminished Returns (MDRs) framework, indicators of high Socioeconomic Status (SES), such as high maternal educational attainment, show weaker protective effects on various developmental, behavioral, and health outcomes for Black than White families. As a result of these MDRs, families and individuals with high educational attainment still report high levels of depression, smoking, obesity, and chronic disease. Limited knowledge exists on MDRs of maternal education on indicators of wealth such as home ownership and home value.* ***Aims:*** *Built on the MDRs framework, we tested the hypothesis of whether the effects of maternal educational attainment at birth on home ownership and home value, as proxies of wealth, vary between Black and White families. We hypothesized that: 1) high maternal education would be associated with more wealth 15 years later, and 2) compared to Whites, Blacks would be less likely to accumulate wealth (own a house) across all educational levels, given a weaker boosting effect of maternal educational attainment on wealth for Black than White families.* ***Methods:*** *The Fragile Families and Child Well-being Study, is a 15-year follow up study of a random sample of births in cities larger than 200,000 population in the US. A total number of 2004 White or Black youth were included and were followed from birth to the age of 15. The* [boilerplate] *orical variable (college graduation). The outcomes were home ownership and home value (worth-owed) 15 years later, as proxies of wealth. Logistic and linear regression were used for data analysis.* ***Results:*** *High maternal education at birth was associated with home ownership and higher value of owned home at age 15. We also found that maternal educational attainment at birth and race interact with each other, suggesting that the effects of high maternal educational attainment at birth on home ownership/value at age 15 were weaker for Black than White families.* ***Conclusions:*** *Diminished returns of maternal educational*

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attainment at birth on wealth accumulation in Black families may be a mechanism that contributes to racial health disparities in high socioeconomic status and also poor outcomes of high SES Black families. That is, a smaller effect of maternal educational attainment on changing the real lives of Black than White youth may be one of the mechanisms by which health remains worse than expected in high SES Black families. Not all of the health, behavioral, and developmental disparities are due to the racial gap in SES but also diminishing returns of socioeconomic status indicators such as maternal educational attainment for racial minorities. Research should study how social stratification, discriminatory mortgage and banking, residential segregation, family formation, employment, and occupational prestige reduce Black families' ability to mobilize their human capital and secure tangible economic and non-economic outcomes.

Keywords

African Americans, Blacks, socioeconomic status, socioeconomic position

1. Introduction

Maternal educational attainment, is one of the Strongest social Seterminants of Health (SDOH) and Socioeconomic Status (SES) indicators ("Poverty, low birth weight and brain size", 2017). Individuals with higher maternal educational attainment show better health (Blumenshine, Egerter, Barclay, Cubbin, & Braveman, 2010). Individuals with low maternal educational attainment remain at risk of a wide range of risk behaviors and undesired outcomes (Silvestrin et al., 2013). There are, however, variations in the effects of SES and SDOH indicators such as maternal education, a the effect of maternal education may not be the same across contexts and settings (Campbell et al., 2018).

One of the mechanisms by which maternal educational attainment improves population health is through generating economic resources such as income, wealth and employment (Boardman, 2004; Buckner, Beardslee, & Bassuk, 2004; Franzini, Caughy, Spears, & Esquer, 2005; Hu, Wagle, Goldman, Weinstein, & Seeman, 2007; Kim & Kawachi, 2007; Ross & Mirowsky, 2001; Wen, Browning, & Cagney, 2003). Individuals with high maternal educational attainment live in better neighborhoods (Jaffe, Eisenbach, Neumark, & Manor, 2005; Narla et al., 2015), work in better jobs (Sewell, Haller, & Portes, 1969), have better mating options (Lewis & Oppenheimer, 2000), and have higher income and wealth (Ostrove & Feldman, 1999). In fact, income and wealth may be one of the operant mechanism by which maternal educational attainment is linked to various desired outcomes (Boardman, 2004; Chuang, Ennett, Bauman, & Foshee, 2005; Kruger, Reischl, & Gee, 2007; Schulz et al., 2012). High maternal education means living in neighborhoods which are safer and have lower stress, provide better access to healthy choices, and shield the individual against social and economic disorder such as financial stress and crime (Diez Roux, 2001; Finch et al., 2010; Root, 2012; Roux, 2003). These are very important given social stress and financial difficulty are risk factors for poor health outcomes across domains (S. Assari, 2016; S. Assari & Caldwell, 2017; S. Assari, Caldwell, & Zimmerman, 2015; S. Assari, Moghani Lankarani, Caldwell, & Zimmerman, 2016).

The health effects of SES and SDOH indicators such as maternal educational attainment depends on race, as education is shown complex interplays with race on shaping populations' and individuals' health outcomes (Kothari et al., 2016). Most of the past research has shown that family SES indicators may have stronger effects on changing the living conditions of Whites than Blacks (Shervin Assari, 2018c; S. Assari, Preiser, & Kelly, 2018). Similarly, educational attainment may have a larger effect on reducing exposure to stress in the daily lives of White than Black families (Shervin Assari, 2020a). As such, maternal educational attainment may lose some of its protection on reducing environmental risk in the neighborhoods (Shervin Assari, 2020a; Shervin Assari, Boyce, Bazargan, Caldwell, & Zimmerman, 2020), schools (Boyce, Bazargan, Caldwell, Zimmerman, & Assari, 2020; Shanika Boyce, 2020), and families (Shervin Assari, Cleopatra Caldwell, & Mohsen Bazargan, 2020) for Black than White youth.

Almost every SES and SDOH indicators including but not limited to maternal educational attainment have shown weaker protective for Black than White youth (S. Assari, 2017; Shervin Assari, 2018b). For example, maternal educational attainment at birth better reduces risk of obesity (Shervin Assari, Boyce, Bazargan, Mincy, & Caldwell, 2019), poor school function (S. Assari, 2019b), ADHD (S. Assari & Caldwell, 2019), impulsivity (S. Assari, C. H. Caldwell, & R. Mincy, 2018a), and perceived health (S. Assari, C. H. Caldwell, & R. B. Mincy, 2018b) at age 15 for White than Black youth. Although historically neglected, attention has been recently given to the contributions of Minorities' Diminished Returns (MDRs) as a source of racial health disparities and inequalities in middle-class Black families, particularly in urban settings (S. Assari, 2017; Shervin Assari, 2018b). According to the MDRs framework, SES and SDOH indicators, particularly maternal educational attainment at birth, show weaker effects and generate fewer outcomes for Black than White families (S. Assari, 2017, 2018a, 2018c; Shervin Assari, 2018b; S. Assari, 2018d, 2018g; Shervin Assari, 2019a, 2019c, 2020b; S. Assari & Caldwell, 2019; S. Assari, Caldwell, & Mincy, 2018a; S. Assari & Hani, 2018; S. Assari, Lapeyrouse, & Neighbors, 2018). As a result of these MDRs, we observe worse than expected health outcomes for Black youth from high SES and high income families; a pattern not seen for White families (B. M. Assari S; S. Assari & Mistry, 2018; S. Assari, H. T. Schatten, et al., 2019).

While family SES generates fewer health outcomes across domains for Black than White individuals (S. Assari, 2018e; Assari S, 2019), we are unaware of any longitudinal studies that explore differential effects of maternal educational attainment (e.g., MDRs) on wealth several years later. In some studies, maternal educational attainment has shown weaker effects on income and poverty status for Black relative to White families and adults (Shervin Assari, 2018a, 2018c). However, these studies were mainly cross-sectional, focused on income or poverty status rather than wealth, and did not include any data on home ownership or home value (S. Assari, 2020; Shervin Assari, 2020a; S. Assari, C. Caldwell, & M. Bazargan, 2020; Boyce et al., 2020; Shanika Boyce, 2020). Thus, there is still a need for additional longitudinal studies on MDRs of maternal educational attainment at birth on future generation and accumulation of wealth when youth are in their adolescent phase.

1. Aims

Built on the MDRs literature (S. Assari, 2017; Shervin Assari, 2018b), this study was performed with two aims: 1) to investigate the effect of maternal educational attainment at birth on future home ownership and home value at age 15, and 2), to compare the effects of maternal educational attainment at birth on future home ownership and home value at age 15 between Black and White families. We hypothesized a positive effect of maternal educational attainment at birth and future home ownership and home value at age 15 (hypothesis 1), meaning that highly educated mothers would be able to generate and accumulate wealth in terms of home. We also hypothesized weaker boosting effect of maternal educational attainment at birth on future home ownership and home value at age 15 for Black than White families (hypothesis 2). If our hypothesis 2 gets supported, then Black families would have low level of wealth across all levels of maternal educational attainment. This would introduce wealth, an economic asset, for why highly educated middle-class Black families still suffer poor health to a level which is disproportionate to their education, class, and SES.

2. Methods

2.1 Design and Setting

This longitudinal study used 15 years of follow up of a national urban sample of newborns. The Fragile Families and Child Wellbeing Study (FFCWS) was conducted from 1998 to 2016. The FFCWS is an ongoing longitudinal study. However, the most current wave of data collection occurred in the year 2016. The FFCWS has followed racially diverse and economically fragile families from the birth of their newborns for 15 years when the child is 15 years old. A full description of the FFCW sampling, design, and methodology of the study are available elsewhere (Waldfogel, Craigie, & Brooks-Gunn, 2010). Here we provide a brief description of the FFCWS sample, sampling, and methods.

2.2 FFCWS Sample and Sampling

The FFCWS recruited newborns that were from economically challenged families. These births were selected from 20 US cities in which the population was 200,000+ people. The FFCWS has used a random sample of urban families. This, however, included an oversampling of non-married and Black and Hispanic couples (Waldfogel et al., 2010). Most births in the FFCWS were non-marital, low SES, and racial minorities. As a result, the sample overall reflects the economically challenged and fragile families. Despite a random sample, this national sample is non-representative of the U.S. general population. The baseline sample size of the FFCWS was composed of 4,898 families. In the current analysis, we only included 2004 individuals who were followed from birth to age 15 and had complete data on all our variables including race, maternal educational attainment at birth, maternal education, family structure at birth, child gender, maternal age at birth, and home ownership at age 15.

2.3 Study Variables

2.3.3 Dependent Variable

This study had two proxies of wealth: home ownership, and home value owned. Home value owned was calculated based on the difference of the home value and the amount the family owed to the bank. All these variables were measured at age 15.Parents or the guardians reported their housing conditions. We coded this variable as a dichotomous variable with 1 for living in own home, and 0 for any other condition. Parents or the guardians who reported living in their own home were asked to give an estimate of their home value. Parents or the guardians who reported living in their own home also asked to give an estimate of how much they owe from their home value.

2.3.2 Independent Variable

Maternal educational attainment at birth (wave 1) was a dichotomous variable: 1) "less than college education" including some high school, high school completed, and some college education, versus 2) "college completed". This variable was coded as 0 and 1 with 1 for high and 0 for low education (reference category)

2.3.3 Covariate

Youth gender, family marital status, and household income, all measured at baseline were the study covariates. Youth gender was a dichotomous variable: 1 for female, and 0 for male. Family structure at birth was a dichotomous variable: married=1, non-married=0.Household income level at birth was measured as a continuous measure (annual income divided by US dollars). This variable was self-reported by the mother of the child. We used this variable as a continuous variable.

2.3.4 Moderator

Race, the moderator, was self-identified by the mother. This variable was a dichotomous variable: Blacks=1, Whites=0.All participants were non-Hispanic.

2.4 Statistical Analysis

SPSS 22.0 (SPSS Inc., Chicago, IL, USA) was used or the data analysis. To describe the sample, we applied univariate analyses and reported frequency (%) and mean (standard deviation) for categorical and continuous measures. For the multivariable analysis, we used a series of logistic and linear regression models. We only ran models in the overall sample. *Model 1* only included the main effects. *Model 2* included an interaction term between race and maternal educational attainment at birth. In these models, home ownership or home value at age 15 were the dependent variables (outcomes) and high maternal educational attainment at birth (>$22,500 per year) was the independent variable. From our linear regression models, regression coefficient, Standard Error (SE), their 95% confidence intervals (95% CI), and their p-values were reported. From our logistic regression models, odds ratio (OR), 95% CI, and their p-values were reported.

2.6 Ethics

The FFCWS study protocol and ethics were approved by the Institutional Review Board (IRB) of Princeton University. Mothers (and fathers, if present) provided written informed consent. Youth

provided assent at age 15. All the FFCWS data were collected, stored, and analyzed anonymously. Respondents received some financial compensation for their participation.

3. Results

3.1 Descriptive Data

This study included 2004 families who were either Black (n = 1491) or White (n = 1513).All these families were followed from birth to the time that their child was 15 years old. Thus, all home ownership at age 15.

Table 1 shows a summary of the descriptive statistics of the sample overall and by race. Most White and Black families were composed of married and unmarried couples, respectively. Maternal age, maternal educational attainment at birth, home ownership at age 15, and home value at age 15, were all significantly lower in Black than White families.

Table 1. Descriptive Overall and by Race (n = 2004)

	All		White		Black	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**
Mother's age at birth (years) * [b]	25.31	6.17	28.16	6.64	24.33	5.68
House value total at age 15 (USD)* [b]	240124.26	287129.67	314432.60	300058.61	160207.74	249345.22
House value owed at age 15 (USD)* [b]	117992.08	122892.41	151462.38	144091.52	83770.83	83904.44
House value - owed at age 15(USD) * [b]	115473.13	210249.18	159184.13	229964.56	67282.90	174199.69
	n	**%**	**N**	**%**	**n**	**%**
Race						
White	513	25.6	513	100.0		
Black	1491	74.4			1491	100.0
Child Gender						
Male	1038	51.8	271	52.8	767	51.4
Female	966	48.2	242	47.2	724	48.6
Family Married at Birth* [a]						
Not	1521	75.9	205	40.0	1316	88.3
Yes	483	24.1	308	60.0	175	11.7
Maternal Education at						

birth* [a]						
Less than college	1231	61.4	182	35.5	1049	70.4
College graduate	773	38.6	331	64.5	442	29.6
Own a house* [a]						
Not	1328	66.3	170	33.1	1158	77.7
Yes	676	33.7	343	66.9	333	22.3

* $p < 0.05$ (Blacks compared to Whites); [a] Pearson Chi-square test; [b] Independent sample t-test.

3.2. Home Ownership

Table 2presents the statistics for logistic regressions that were performed with home ownership at age 15 as the outcome. *Model 1*, which did not include any interaction term, showed that high maternal education at birth was associated with home ownership at age 15 in the overall sample. *Model 2*, which included an interaction term between race and maternal educational attainment at birth, showed an interaction between maternal educational attainment at birth and race. This model suggested a larger effect of high maternal educational attainment at birth on home ownership at age 15 for Whites than Blacks.

Table 2. Logistic Regression Models with Home Ownership at Age 15 as the Outcome Across Races

	Model 1 (Main Effects)				Model 2 (M1 + Interaction)			
	OR	95% CI		p	OR	95% CI		p
Race (Black)	0.28	0.22	0.36	0.000	0.36	0.25	0.51	0.000
Child Gender (Female)	0.94	0.75	1.16	0.542	0.94	0.76	1.16	0.565
Family married at baseline	3.38	2.59	4.41	0.000	3.26	2.49	4.26	0.000
Maternal Education at birth (College)	2.19	1.75	2.75	0.000	3.19	2.09	4.87	0.000
Maternal Education at birth (College) x Race	-	-	-	-	0.60	0.37	0.98	0.040
Constant	0.67			0.004	0.55			0.000

Overall models are statistically significant; Outcome**:** home ownership at age 15; Confidence Interval (CI).

3.3 Home Value

Table 3 shows the main results of two linear regressions that were estimated in the overall sample to test the effect of maternal educational attainment at birth on home values at age 15. *Model 1*, which did not include any interaction term, showed that high maternal education at birth was associated with home

value at age 15 in the overall sample. *Model 2*, which included an interaction term between race and maternal educational attainment at birth, showed an interaction between maternal educational attainment at birth and race. This model suggested a larger effect of high maternal educational attainment at birth on home values at age 15 for Whites than Blacks.

Table 3. Linear Regression Models with Home Value at Age 15 as the Outcome in the Overall Sample

	Model 1 (Main Effects)						Model 2 (M1 + Interaction)					
	B	SE	95% CI		t	P	B	SE	95% CI		t	P
Race (Black)	-41630.22	19222.08	-79382.38	-3878.05	-2.17	0.031	98296.94	49435.85	1204.61	195389.28	1.99	0.047
Child Gender (Female)	-8578.02	16523.79	-41030.73	23874.69	-0.52	0.604	-7028.83	16414.77	-39267.54	25209.87	-0.43	0.669
Household income at birth (1000USD)	759.93	273.87	222.05	1297.81	2.77	0.006	733.69	272.07	199.34	1268.03	2.70	0.007
Family Married at Birth	3595.73	21235.46	-38110.71	45302.17	0.17	0.866	-2093.03	21166.72	-43664.61	39478.56	-0.10	0.921
Maternal Education at birth (College)	28314.00	10123.95	8430.56	48197.44	2.80	0.005	52843.87	12843.71	27618.73	78069.00	4.11	0.000
Maternal Education at birth (College)	19424.74	30284.63	-40054.26	78903.74	0.64	0.522	-53116.86	17311.00	-87115.78	-19117.93	-3.07	0.002
x Race (Constant)	19424.74	30284.63	-40054.26	78903.74	0.64	0.522	-51408.07	37909.67	-125862.92	23046.78	-1.36	0.176

Overall models are statistically significant; Outcome**:** home value at age 15; Confidence Interval (CI).

4. Discussion

Two findings were observed: (a) overall, high maternal educational attainment at birth increased home ownership and home value at age 15, however, (b) high maternal educational attainment at birth was more strongly associated with home ownership and home value for Whites than Blacks. This was supported by a statistical interaction between race and maternal educational attainment at birth showing that the boosting effect of maternal educational attainment at birth on wealth is larger for White than Black families.

Previously, MDRs of family SES indicators such as income, maternal education, and household income is reported for impulsivity (S. Assari, Caldwell, & Mincy, 2018a), school achievement (Assari S, 2019), and school bonding (S. Assari, 2019b). Similarly, Black kids from high SES families remain at high risk of obesity (S. Assari, Thomas, Caldwell, & Mincy, 2018), anxiety (S. Assari, Caldwell, & Zimmerman, 2018), depression (S. Assari, 2018d), as well as chronic diseases (S. Assari, 2018a) such as ADHD (S. Assari & Caldwell, 2019), and asthma (S. Assari & Moghani Lankarani, 2018). That is, Black children and youth are not much protected from their family SES, which is in line with the MDRs.

The patterns reported here may propose a behavioral explanation for why MDRs exist for both youth and adults. Our study suggests that MDRs that are commonly observed in adults can be traced back to childhood (S. Assari & Moghani Lankarani, 2018), adolescence (S. Assari, Caldwell, & Mincy, 2018a; S. Assari, Caldwell, & Mincy, 2018b; S. Assari, Thomas et al., 2018), and even at birth. As a result of such an unequal start of the life-course, family SES, maternal educational attainment, and parental education do not equally translate to health outcomes for Blacks and Whites over the life-course.

The results reported here, and those shown by other studies propose that MDRs are not specific to any specific health outcomes. This observation suggests that upstream socialization processes that accompany race, also called racism, are responsible for a systemic difference between Whites and Blacks in their ability to gain health and well-being from maternal educational attainment and other resources (S. Assari, 2017; Shervin Assari, 2018b). These patterns may not even be specific to race, as they are also shown for ethnicity (Shervin Assari, 2019c; S. Assari, Farokhnia, & Mistry, 2019; Shervin & Ritesh, 2019), sexual orientation (S. Assari, 2019a; Shervin Assari & Bazargan, 2019), nativity (Shervin Assari, 2020b), and place (Shervin Assari, Shanika Boyce, et al., 2020). Thus, it is not just racism, but any form of marginalization that reduces health gain that follows SES.

MDRs are commonly reported by other scholars. For example, Farmer and Ferraro published on MDRs of education on self-rated health (Farmer & Ferraro, 2005). Shapiro and Oliver have published on the inequalities in wealth distribution as a consequence of unfair social policies such as Jim Crow and redlining (Oliver & Shapiro, 2013; Oliver & Shapiro, 1999). In the same line, Hamilton and Darity have conducted several studies documenting the enormous wealth gap in the United States (Hamilton & Darity, 2009). Other scholars have also published on MDRs (Fuller-Rowell, Curtis, Doan, & Coe, 2015). Hudson et al. showed a reduced gain of SES in the lives of Blacks (Hudson, Bullard et al., 2012; Hudson, Neighbors, Geronimus, & Jackson, 2012, 2016). Wilson, Thorpe, and LaVeist, showed that income may

differently reduce discrimination for White but not Black people (Wilson, Thorpe, & LaVeist, 2017). Navarro's argued that living conditions and health are not a function of race or class (SES) but their intersection and interaction (Navarro, 1989, 1990, 1991).

MDRs are attributed to several mechanisms and social processes (Assari, 2017; Shervin Assari, 2018b). First, they are due to structural and environmental factors (S. Assari, 2017; Shervin Assari, 2018b). High SES Black people have a higher tendency than their White counterparts to be exposed to environmental hazards (B. M. Assari S). High SES Black children, youth, and adults are more likely to eat a worse diet (S Assari & Lankarani, 2018), have a sedentary life style (Shervin Assari, 2019b), smoke cigarettes (Assari & Mistry, 2018), drink alcohol (Assari et al., 2019), or be depressed (Assari, 2018d), suicidal (S. Assari et al., 2019), anxious (Assari, Caldwell, & Zimmerman, 2018), or obese (Assari, 2018c; S. Assari et al., 2018), and have chronic diseases (Assari & Moghani Lankarani, 2018).

Another mechanism behind MDRs is the higher psychosocial tax that Blacks pay for upward social mobility (Assari, 2018f). Blacks report high levels of stress at all mobility statuses. Simultaneously, Black youth and adults from high SES families, including those with high incomes, report more stress associated with race and discrimination (Assari, 2018b). Blacks and Whites with the same level of family SES do not have similar wealth, which would have operated as a buffer and protected Blacks if life conditions became out of hand (Assari, 2018a; M. Oliver & Shapiro, 2013; Oliver & Shapiro, 1999). As Blacks are newer to their class, a single SES measure such as income or education may not have less effects on enhancing Black families living conditions (Shervin Assari, 2018c).

4.1 Implications

Our findings propose policy solutions that can help reduce health disparities in the United States. Previous policies have mainly tried to reduce inequalities in outcomes to inequalities in access to resources and have assumed that the elimination of inequalities in access would result in the elimination of inequalities in outcomes. Our findings, however, suggest that given the MDRs, some of the racial inequalities are not because of unequal access but the systemic disadvantage of Blacks and other racial groups in the society. Without addressing MDRs, solely enhancing access to SES resources would not be enough for the elimination of health disparities. Thus, MDRs may contribute to the advancement of policies to reduce health disparities (Bailey et al., 2017; Butler & Rodgers, 2019; Gee & Ford, 2011; Louis, Menard, & Gee, 2015; Rodriguez, Bound, & Geronimus, 2014).

4.2 Limitations

Every study has some limitations. In this study, we did not have balanced samples of Blacks and Whites. The sample was not random. Other risk factors of poor diet such as health literacy and availability of healthy choices and schedule of work and occupation of the parents were not measured. The results are not generalizable to the total population of White and Black families. FFCWS has predominantly recruited economically fragile participants from large cities. Another limitation was that we used self-reported data on home value and home ownership at age 15. There was also no information on neighborhood quality, median income at neighborhood, and other sources of wealth. In addition, in this

study, Black and White participants were not matched for SES. Whites with the same education would work in better jobs and will have a higher income compared to Blacks. The results could be validated by various sources of data.

5. Conclusions

In a national sample of U.S urban areas, Black and White families differ in how their maternal educational attainment at birth in creases their wealth 15 years later. This finding introduces differential accumulation and generation of wealth as a mechanism for explaining differential effects of parental education on health of Black and White families.

Author Contributions

S.A. conceptualized this paper, analyzed the data, wrote the first draft, and revised the paper. He also approved the final draft.

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