Why Did The Black-White Dropout Gap Widen in the 2000s?

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This research investigates causes of the widening Black-White gap in dropout rates during the 2000s using two cohorts of National Longitudinal Surveys of Youth, NLSY79 and NLSY97. The authors found four factors which contributed to the widening of the Black-White gap: school suspension policies, peer impact, fatherless households, and the student-teacher relationship. Logistic regression and decomposition analysis suggests that the gap would have been narrowed by 2.62% if all conditions had remained the same. This implies that factors that have been considered to impact the Black-White gap in the past do not fully explain the current racial gap. Ongoing and potential societal changes demand a new research model to understand the racial gap.

Introduction

Graduation from high school marks the completion of the first big obstacle in a young person's life. Though the nation's high school graduation rate reached a historic high recently (Brenchley, 2013), there are still many youths who do not get high school diplomas or General Educational Developments (GEDs) until the age of 24. For those students who do not complete their high school education, there may be many consequences later in life. Students who drop out suffer from reduced lifetime earnings and lost opportunities in labor markets. According to the U.S. Census Bureau, there are also significant social and economic costs to the rest of the nation (as cited in Chapman, Laird, & KewalRamani, 2010).

It is widely acknowledged in the literature that Black students have a higher probability of dropping out than their White counterparts, and the gap is as old as the nation itself (Dalton, Glennie, & Ingels. 2009). Numerous studies have examined factors contributing to dropout, which cover diverse domains of person, family, school, and community (e.g., Lee, Cornell, Gregory, & Fan, 2011; Rumberger, 1983; Suh, Suh, & Houston, 2007). More specifically, some authors (Capenter & Ramirez, 2007) have examined the sources of the dropout gap between and within student racial groups and have identified variables contributing to dropout gaps. They identified being held back, number of suspensions, time spent on homework, gender, family composition, and parental involvement as discriminating factors between different racial groups. Among the variables, suspensions, being held back, and parental involvement most accounted for creating a gap between White and Black student groups.

US students have made considerable educational attainments and the overall event dropout rate declined substantially over the past few decades. The downward trend in event dropout rates was evident in the change from 6.1% in 1972 to 3.5% in 2008 (Chapman, Laird, & KewalRamani, 2010). However, according to these authors, the decreases happened at different times over this 36-year period for Black and White students. White youth showed a decrease in event rates from 1972 (5.3%) through 1990 (3.3%), an increase from 1990 (3.3%) through 1995 (4.5%), and another decrease from 1995 (4.5%) through 2008 (2.3%). Black youths also experienced a decline from 1972 (9.5%) through 1990 (5.0%), and an increase from 1990 (5.0%) through 1995 (6.4%), but their event dropout rates fluctuated and no improvement was noted between 1995 (6.4%) and 2008 (6.4%). The Black-White gap in event dropout rates over the decades was inconsistent: The rates decreased till early 1990s and then went back up in 2000s.

Overall status dropout rate showed a similar trend. A status dropout rate, in general, refers to the proportion of 16-

through 24-year-olds who are not enrolled in school and have not earned a high school credential (National Center for Education Statistics [NCES], 2013). The status dropout rate substantially decreased from 1972 to 2008, changing from 14.6% to 8.0%. The rate for White students fell from 12.3% to 4.8% and the rate for Black students declined from 21.3% to 9.9% over the same period. This statistic suggests that the difference between the status dropout rates of White youth and Black youth narrowed with a dramatic decrease from an average of 9.28% in the 1970s to 5.54% in the 1980s with no additional measurable change occurring until 2008 (Chapman, Laird, & KewalRamani, 2010). However, according to another statistic, the Black-White gap in dropout rates increased from 4.2% in early 1980s to 6.2% in 2000 and stayed in the 4-5% range until 2009 (NCES, 2013).

The current authors analyzed the National Longitudinal Survey of Youth, NLSY79 and NLSY97 data to learn about dropout trends of the two cohorts. The preliminary analysis of NLSY79 showed that the dropout rate was 15.2% for White students and 17.1% for Black students, resulting in 1.9% racial gap. NLSY97 data shows that the dropout rate was 9.1% for White students and 14.4% for Black students resulting in a widening of the Black-White dropout gap by 3.4% from the 1980s to the 2000s. Depending on how dropout rates are measured, reports can be inconsistent. However, from the data provided above we can conclude that the gap is no longer shrinking, but widening even if the trend is more or less fluctuating.

While researchers have paid significant attention to the narrowing of the Black-White achievement gap in the 1980s and early 1990s (Hedges & Nowell, 1998; Smith & O'Day, 1991), few researchers have successfully addressed the widening of the gap in more recent years. This research focuses on trend changes in the Black-White dropout gap, beginning with the first signs of narrowing that occurred in the 1980s and continuing until the trend began to reverse in the first decade of the 2000s. Using decomposition analysis, this research also investigates potential causes of the widening Black-White dropout gap during the 2000s.

Research Methods

This study used data from two cohorts of the National Longitudinal Surveys of Youth, 1979 (NLSY79) and 1997 (NLSY97). The NLSYs consist of a nationally representative sample of youths who were 12 to 22 years old as of December 31, 1978 and 1996 respectively. The majority of the NLSY79 cohort was in high school during the 1980s while the NLSY97 cohort was in school during the early 2000s. Initially, researchers for both NLSYs re-interviewed the youths on an annual basis to track their schooling and early entrance to the labor market. Since 1994, the NLSY79 survey has been administered on a biennial basis as many of the respondents have made transitions from school to work, and from their parents' homes to being parents and homeowners. However, the NLSY97 has been continuously administered annually. To compare Black-White dropout rates, youths other than non-Hispanic Black or non-Hispanic White were removed from the sample. The final number of youths included in the analysis was 11,633 for NLSY79 (8,528 White and 3,105 Black) and 7,398 for NLSY97 (5,060 White and 2,338 Black). Youths were determined to be dropouts if they neither graduated high school nor enrolled in high school as of 1991 for the NLSY79 cohort and 2009 for the NLSY97 cohort.

The NLSY surveys collected extensive information about youths' personal, behavioral, familial, and educational experiences over the years. In the current study, researchers selected fourteen independent variables from the NLSY data bank which were found to be statistically correlated with school dropout rate in at least one cohort analysis. Factors identified as socioeconomic and family conditions include: sex of the youth (GENDER), whether the student lived with both biological parents as of the initial survey year (BIO); number of household members (HHSIZE), ratio of household income to poverty level (POVERTY), and whether the mother was employed for most of the student's childhood (MOMJOB). Variables identified as youth culture, study, and behaviors include: Armed Services Vocational Aptitude Battery score (ASVAB), students who were suspended (SUSPENSION), and number of days absent from school (ABSENT). Factors identified as schooling conditions and practices include: perception of teacher (TEACHER), percent of peers who plan to go to college (PEER), whether the youth was residing in a Metropolitan area (MSA), and census regions of residence compared with the Northeast (REGION1, REGION2, and REGION3).

Qualitative independent variables were coded 1 if the statement was true or present and 0 otherwise, with the exception of the GENDER variable where 1=male and 0=female. The remaining three variables (HHSIZE, ASVAB, and ABSENT) are quantitative variables. The census region of residence variable is divided into four regions and the Northeast is selected as an implicit variable in this analysis. REGION1 represents the North Central region compared to the Northeast, while REGION2 and REGION3 represent the South to the Northeast and the West to the Northeast, Logistic respectively. regression and decomposition methodology were employed for data analysis.

Results

Table 1 shows the change in descriptive variables for the last two decades. For the NLSY79 cohort, the dropout rate was 17.1% for Black students and 15.2% for White students, resulting in 1.9% racial gap. The rate changed to 14.4% and 9.1%, respectively for the NLSY97 cohort and the BlackWhite gap increased to 5.3%. As a result, the Black-White dropout gap widened by 3.4%, even though the dropout rate for Black students declined by 2.7% during that period.

Students				
	NLSY79		NLSY97	
Variable	Black	White	Black	White
DROPOUT	.171	.152	.144	.091
GENDER	.508	.504	.502	.517
BIO	.496	.745	.263	.578
HHSIZE	5.012	3.979	4.588	4.424
POVERTY	.410	.226	.339	.157
MOMJOB	.628	.616	.867	.810
ASVAB	29.425	51.975	32.522	52.511
SUSPENSION	.365	.210	.479	.219
ABSENT	13.059	11.796	4.865	4.768
TEACHER	.797	.797	.806	.893
PEER	.528	.542	.789	.877
MSA	.723	.676	.834	.790
REGION1	001	.058	.024	.092
REGION2	.386	.100	.449	.119
REGION3	099	.001	095	.039

Table 1 Change in Descriptive Variables for Black and White Students

Table 1 also shows the trends in factors contributing to dropout over the same period. There were mixed patterns between Black and White students among the socioeconomic and family conditions, youth culture and behavior factors, and schooling conditions. However, the general pattern supports a narrowing of the racial gap for individual factors. For example, the portion of male students decreased from 50.8% to 50.2% for Black students, while it increased from 50.2% to 51.7% for White students, resulting in a relative decrease in male students among Black youth. Black and

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White students both showed an increase in the MOMJOB, ASVAB, SUSPENSION, TEACHER, PEER, REGION1, and REGION3 variables, while both showed a decrease in BIO, POVERTY, and ABSENT variables. The directional change in the GENDER and HHSIZE variables for White youth was opposite that of Black youth. The magnitude of change fluctuates across variables with the same directionality and contributes to either the narrowing or widening of the Black-White gap. A decrease in the Black-White gap occurred for the following factors: household size, armed service battery score, and days absent from school. Factors showing an increase in the racial gap include: living with biological parents, whether the mother was employed, portion of suspended students, perception of teachers, peers going to college, and the portion of youths living in the South and West regions. The racial gap remained almost the same during the last two decades for the following: portion of youths below the poverty level, living in the metropolitan area (MSA), and portion of youths living in the North Central region.

Logistic Regression

Table 2 summarizes results of a logistic regression analysis after running Black and White samples separately. Most of the contributing factors showed a consistent effect on dropout rates in the two cohorts with the exception of TEACHER, PEER, and MSA variables. A positivecoefficient indicates a higher probability of dropping out as the value of a predictor increases, while a negative value indicates a reduced likelihood of dropping out of school. For example, the coefficient of GENDER for Black students in NLSY79, 0.312, indicates that the log odds (probability) of dropping out of school rise by 0.312 when the youth is male

Table 2 Change in Coefficients from the LogisticRegression for Black and White Students

	NLSY79		NLSY97	
Variable	Black	White	Black	White
GENDER	.312	.154	.585	.029
BIO	407	454	491	878
HHSIZE	.029	040	.156	.049
POVERTY	.396	.478	.612	.538
MOMJOB	036	058	046	018
ASVAB	056	060	030	037
SUSPENSION	.632	.778	.641	.809
ABSENT	.016	.022	.030	.019
TEACHER	.007	.005	434	282
PEER	902	893	.058	407
MSA	206	.070	.112	027
REGION1	.172	112	084	082
REGION2	378	.177	.116	.186
REGION3	001	.153	.005	.063

(GENDER=1) compared with female (GENDER=0). As suggested in previous research (Suh & Suh, 2011), GENDER, HHSIZE, POVERTY, SUSPENSION, and ABSENT variables have a positive effect on DROPOUT for both Black and White youths in the 1980s and 2000s. Factors that have a consistently negative impact on dropout include BIO, MOMJOB, and ASVAB, which implies that living with biological parents, having a mother on the job, or getting a high battery test score reduces the likelihood of dropping out.

An increase or decrease in the size of the coefficient indicates increased or decreased influence of the predictor variable. For Black youth, GENDER, BIO, HHSIZE, POVERTY, MOMJOB, ABSENT, and TEACHER variables evidenced increased impact on dropout, while the influence of ASVAB, PEER, MSA, REGION1, and REGION2 were weakened from NLSY79 to NLSY97. For White youth, increased influence occurred for BIO, POVERTY, and TEACHER, while decreased impact was noted for GENDER, MOMJOB, ASVAB, and PEER.

There were other changes for the period that need to be noted. The TEACHER variable had a positive but small effect on dropout in NLSY79 since the coefficients were nearly zero. However, the factor became a strong and negative influence in NLSY97 for both races, implying that the positive perception of teachers by the youth significantly reduced the risk of dropping out. As expected, the PEER factor has significantly reduced the risk of dropping out for both Black and White in NLSY79. In NLSY97, however, the role of PEER was limited, and even appeared to have the opposite effect for Black students. It is plausible that the increase in interracial friendships since complete desegregation in the 1990s may have altered the impact of this variable. Inconsistent impact of MSA for both races reflects a narrowing of the gap in dropout rates between metropolitan youths and suburban youths.

Among factors having a consistent impact on dropout, the focus has been shifted from the environment to family and student experience. It is worth noting that dropout in the NLSY79 cohort was predominately influenced by academic achievement (ASVAB), friends (PEER), and location variables (MSA, REGION1-3). Two decades later for the NLSY97 cohort, the influence of family environment (BIO, HHSIZE and POVERTY) and a school variable (SUSPENSION) came into focus. This shift in contributing factors may signal the need for new interpretations of and policy revisions for dropout. Although previous research and the concomitant understanding of dropout prevalent in the 1980s are still important in the 2000s, the level of influence and the direction of interpretation of individual components have changed significantly.

Decomposition Analysis

Two logistic regression models, NLSY79 and NLSY97, can be decomposed into four components (Blinder, 1973; Le & Miller, 2004; Oaxaca, 1973) to better understand dropout trends in the long-run by subtracting NLSY79 from NLSY97 such that:

Change in the Black-White gap = characteristic change + coefficient change + interaction by Black + interaction by White

The first term on the right-hand side of the decomposition denotes the change in the Black-White dropout gap due to changes in the characteristics (independent variables) between Black and White students. The second term on the right-hand side of the equation expresses the difference in the Black-White dropout gap due to changes in the coefficient. The final two terms represent changes in the coefficients over time weighted by the Black-White gap. The decomposition analysis does not attribute the unexplained portion of the Black-White gap in the dropout rate to specific characteristics. Thus, the decomposition of two interaction terms is not discussed. The results of the decomposition of the trend in the Black-White dropout gap between the 1980s and 2000s are presented in table 3. There are various ways the decomposition analysis can be applied, depending on the choice of the benchmark group. This paper is based on the initial cohort, NLSY79, as the benchmark. As indicated above, we report three sources of components of decomposition due to changes in characteristics, coefficients, and interaction. Column 1, changes in characteristics, indicates that the explained component of the trend in the Black-White dropout gap is -0.0262 in total. The aggregate trend should have been a 2.62% decrease in the Black-White dropout gap if all conditions remained the same. Compared with their White counterparts, Black students recorded a decrease in the portion of male students, average number of

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Decomposition of Dropout Contribution Factors			
	Characteristic	Coefficient	
Variable	Change	Change	
GENDER	-0.0051	-0.0022	
BIO	0.0368	-0.0959	
HHSIZE	-0.0421	0.0227	
POVERTY	-0.0010	0.0285	
MOMJOB	-0.0018	-0.0017	
ASVAB	-0.1172	-0.0638	
SUSPENSION	0.0751	-0.0046	
ABSENT	-0.0254	0.0116	
TEACHER	0.0153	0.0067	
PEER	0.0397	-0.0242	
MSA	0.0000	0.0189	
REGION1	0.0002	0.0182	
REGION2	0.0011	0.1494	
REGION3	-0.0019	-0.0112	
Total	-0.0262	0.0524	

 Table 3

 Decomposition of Dropout Contribution Factors

household members, portion of households in poverty, and the number of days absent from school. The most significant improvement by Black youths occurred in the standardized test score, ASVAB. The Armed Services Vocational Aptitude Battery (ASVAB) is one of the most widely used standardized tests to assess student ability and aptitude. Since more than half of all schools in the US administer the exam, the test is considered to be a good measure of youth's learning level across the nation. The average ASVAB score gap narrowed by 3 points during the 1980-2000 period and should have reduced the gap by 11.7%.

Column 1 also shows that most of the factors describing the socioeconomic (SES) background of the youth's family contributed to a decrease in the Black-White dropout gap. The relatively large drop in the number of Black students' household members resulted in a 4.2% decrease in the gap. A similar decrease was noted due to the changes in poverty (0.1%) and rate of mother's employment (0.18%). Traditionally, these SES factors were considered to be some of the most important characteristics contributing to the gap between Black and White populations (Cook & Evans, 2000; Morgan, 1996) in a cross-section or cohort analysis. However, a steady decline in poverty rates over the half of the century may actually contribute to a decrease in the Black-White gap as Black students benefit from elevated family status more so than White students. This suggests that the impact of SES factors on the racial gap may fluctuate or even be reversed over time. Contrary to the impact of SES and attendance, four variables contributed to an increase in the racial dropout gap: BIO, SUSPEND, TEACHER, and PEER.

The biggest increase in the Black-White gap was due to the SUSPENSION variable. The portion of Black youths suspended from school increased by more than 30%, while White students had less than a 5% increase for the same period. A significant increase in the number of suspended Black youths combined with a rising regression coefficient on SUSPENSION contributed to a 7.5% increase in the dropout gap. A relatively significant increase in the portion of White youths whose friends plan to attend college (PEER) resulted in a widening of the Black-White gap by 4.0%. As seen in the regression analysis, the influence of BIO increased in NLSY97 for both Black and White students. The 3.7% increase in the gap due to BIO was caused by a significant decrease in the portion of Black youths who live with their biological parents, from 49.6% to 26.3%. TEACHER contributed to a 1.5% increase in the gap. Column 2 of Table 3 represents the change in the gap due to change in the regression coefficients, which contributed to a 5.2% increase in the gap.

Discussion

A comparison of the racial dropout gaps for the NLSY79 and NLSY97 cohorts reveals noticeable differences. Most of the socioeconomic and behavioral variables contributed to a narrowing of the Black-White dropout gap. Black students made relatively more improvements than White students over the approximately two decades. Nonetheless, the gap widened during the past two decades (1980s-2000s) due to changes in school policy and youths' environment. It appears that factors that have been considered to impact the Black-White gap in the past do not fully explain the current racial gap. We limit our discussion to factors which contributed to the recent increase in the gap.

First, suspension was the characteristic that contributed most significantly to the widening of the gap. Researchers found that Black students tend to receive stiffer penalties than White students. Suspension is one of the more severe forms of penalties used to discipline students. Not only are students excluded from classroom learning while suspended, they may be unsupervised at home and thus more likely to get in trouble in the community (Hinojosa, 2008; Raffaele-Mendez, & Knoff, 2003). Dropout rates are consistently much higher for suspended students and research indicates that some schools actually use suspensions to push troublesome students out of school (Raffaele-Mendez, Knoff, & Ferron, 2002; Suh et al., 2007).

Researchers have proposed the possibility that education policies (discipline) may have impeded Black students' progress toward closing the gap since the adoption of the Gun Free School Act of 1994 and the No Child Left Behind (NCLB) Act of 2001. Zero tolerance policy under the Gun Free School Act disproportionately affected disciplinary action for Black students (Shah, 2013). Under NCLB, schools and local school districts were required to report Adequate Yearly Progress (AYP) every year. Troublesome

students may hinder AYP and thus, schools have strong incentives to exclude low-performing students from school through strict discipline for offenders of school policy as a means of achieving AYP (Knaus, C, 2007; Skiba, R., Eckes S., & Brown, K., 2009).

Traditionally, Black students are more likely to be suspended for committing any offense. According to the US Department of Education report (2000), Black students comprised 17% of the U.S. student population, but accounted for 34% of out-of-school suspensions. According to the data collected nationwide by the Education Department's office for civil rights from the 2009-10 school year, Black students were 3.5 times more likely to be suspended or expelled compared to their White peers (Shah, 2013). This pattern of discipline dramatically worsened between the 1980s and 2000s, during which time the portion of Black students suspended from school increased by 11.4%, while for White students the same measure increased only 0.9%. While student test scores have been increasing since NCLB took effect in 2002 and the test scores of minority students have increased the most, critics argue that schools pushed troublesome students out of school to achieve AYP (Skiba et al., 2009).

Second, the influence of peers has become more important to the racial school dropout gap between Black and White youth. The portion of peers who planned to attend higher education was nearly the same for Black and White students in the NLSY 79 cohort, compared with the 8.8% gap in favor of White students in the NLSY97 cohort. This result may indicate that peer pressure for attaining a higher degree was decreased among Black students in the NLSY97 cohort, leading them to sustain less interest in staying in school. Friend's influence on adolescent's behavior as well as their attitudes towards school have been well documented. Peer factors were good predictors of whether students would

drop out (Cairns, R., Xie, H., & Leung, M., 1998; Bagwell, C., Coie, J., Terry, R., & Lochman, J., 2000). After conducting interviews with 8,531 transferred or dropped out students, Kim et al. (2011) found that the biggest influence on students was whether their friends had dropped out of school. Other research on peer influence shows that students isolated from peers lack positive relationships and eventually become disengaged and on the path toward dropping out (Brewster & Fager, 2000; Bryck & Thum, 1989; Sinclair, Christenson, Evelo, & Hurley, 1998). This may also influence the impact of suspensions on dropping out as students who are suspended from school are excluded from the school environment, and therefore isolated from their peers.

Third, the role of biological parents altered the Black-White dropout trend over the last two decades. According to the National Principals Association (2010), 71% of all high school dropouts come from fatherless homes and children with fathers who are involved in their life are 70% less likely to drop out of school. The portion of adolescents living with their biological parents was 49.6% for Black youth and 74.5% for White youth in the NYSY79 cohort. For NLSY97, the rate changed to 26.3% for Black youth and 57.8% for White youth, resulting in a widening of the gap from 24.9% to 31.5%. Over the last century, increases in divorce and unmarried childbearing have changed American family life significantly. The majority of youths from one-parent families live with their biological mother. Thus, living in one-parent families implies living without a biological father for many youths. The father's absence hurts the educational success of youths of all races. Research consistently shows that fatherless children or children who live with only one parent are more likely to drop out of school (McLanahan & Sandefur, 1994; McNeal, 1995; U.S. Department of Health and Human Services, 1993). Our investigation proves that youths who grew up apart from one of their biological parents were less likely to finish high school and attend college. The differences in this study are significant enough to support the claim that the father's absence is a major cause of the widening of the racial gap in dropout rates (Hanson, McLanahan, & Thomson, 1996, 1997; McLanahan & Sandefur, 1994).

Fourth, school alienation and poor student-teacher relationship is another major cause of high school dropout (Turner, Laria, Shapiro, & Perez, 1993; Wayman, 2002). Studies have pointed out the importance of student-teacher relationships to academic achievement (Calabrese & Poe, 1990; Jordan, Lara, & McPartland, 1996). Poor studentteacher relationships can contribute to negative feelings toward school and eventually lead to school dropout. Alva Padilla suggested that and (1995)student-teacher relationships are particularly important for minority high school students. Minority students often reported that the perception of teacher ethnic bias was the main cause of disengagement from school (Katz, 1999). Though the role of the student-teacher relationship is relatively weak in the cohort analyses for the NLSY79 and NLSY97 datasets, the impact on the trend over time implicates it as one of the main contributors to the Black-White dropout gap. This indicates that although perceptions of teacher ethnic bias are not prevalent, such perceptions do exist and partially impact school dropout.

Conclusion

Some improvements in the Black-White dropout gap were made in the 1980s. Since peaking in the late 1980s and staying level for about a decade, the gap began widening in the late 1990s-during a period of strong school reform efforts. Since 2000, the gap has stabilized in the 4-6% range. This research suggests that the magnitude and direction of factors leading to dropout change over time. Decomposition analysis

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also suggests that the gap would have been narrowed by 2.62% if all conditions had remained the same. This research identifies a few factors which contributed to the widening of the Black-White gap: school suspension policies, peer impact, fatherless households, and the student-teacher relationship. Due to on-going and potential future changes in familial and societal contexts and youth cultures, a new research model and interpretation are needed for a better understanding of the Black-White dropout gap. Beginning in the 2009-10 school year, the U.S. Department of Education adopted a common measure designed to rigorously assess four-year high school graduation rates (Zubrzycki, 2012). This new nationwide initiative for measuring dropout rates is expected to provide researchers with rich and credible data to further our understanding of dropout issues.

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