THE EFFECT OF RACIAL SEGREGATION ON AFRICAN AMERICAN EDUCATIONAL OUTCOMES

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ABSTRACT

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This thesis examines the African American and White socioeconomic gaps in education, income and unemployment in 50 MSA using the American Community Survey (ACS 2010-2012) data. Racial segregation was measured using the index of dissimilarity and exposure index. The data shows that African American and White socioeconomic gaps continue to widen significantly. School enrollment gaps in high school continue to narrow, but significant gaps continue to widen in bachelors and graduate educational attainments. Income shows huge gaps. Whites continue to earn twice as much as African Americans in both wages and wealth accumulation. The unemployment rates shows rising trends for African Americans in predominantly African American neighborhood averaging twice the average of White unemployment rates.

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INTRODUCTION

Defining Segregation

The word segregation connotes different meanings depending on its usage. Residential segregation has been ascribed various definitions. For instance, Gorham and Glazer (1976) defined segregation as the concept that refers to the level of crowding of a particular ethnic group within a given place. Freeman&Sunshine (1970) also observed that segregation can be seen in areas in which people share similar cultural beliefs that seem to be at variance from the overall majority population. Gorham and Glazer (1976) also suggest that racial segregation of the minority subgroup within the community must show some kind of crowding which suggest limited amount of exposure to other subgroups.

On the basis of the definitions above, segregation can thus be described as the extent and degree of isolation of a particular ethnic group from the majority ethnic population. Isolation in this sense does not necessary entail lack of social interactions, but one in which social and economic developments are unevenly distributed.

Clearly, significant relationships exist to explain the effect of segregation on African American and White human capital differences as well as socio economic outcomes (Borjas, 1995). Despite the decline in the level of segregation in American central cities, the relative segregation indices have been rather persistent over the years. Neighborhoods with predominantly minority populations tend to suffer quality of public and educational resources. These neighborhoods suffer from low performing schools, high crime rates and low housing value (Borjas, 1995).

This situation makes racial segregation in American societies a significant issue for both city and policy makers. The persistence of segregation in urban and suburban cities in the United States is phenomenal in scope and complex in character (Logan, Stults, and Farley, 2004).

This study seeks to answer the central question of whether racial segregation in a metropolitan area can influence African American socioeconomic status that is in terms of household income, educational attainment, and unemployment.

Historically, segregation in the US can be traced to as far back as Jim Crow, when American institutions created and maintained an enforced legal segregation of African American and White in all spheres of social, cultural, economic, and political lives across the nation (Massey and Denton, 1993).

Today, racial residential segregation in metropolitan cities across the US continues to generate socioeconomic problems for African Americans' economic well-being. It can be mentioned that much of segregation in the 1960s concentrated poverty in the African American ghettos (Massey and Denton, 1993). The migration of African Americans from the South to the North in search of jobs for instance, resulted in the creation of ethnic enclaves around central cities, where manufacturing jobs were located (Massey and Denton, 1993). The perceptions of socio-economic differences resulted in several riots in the ghettos (Massey and Denton, 1993). Indeed, it was not until the agitations by civil rights movements in the 1960s that president Lyndon Johnson set up an ad hoc committee known as the Kerner Commission to investigate the African American White relations following series of riots in the American ghettos (Massey and Denton, 1993.).

Cutler and Glaeser (1997) suggested that American integration of African Americans in to mainstream socio economic development in the US led to at least three theories that explain racial segregation: that is the "port of entry theory," the centralized or "collective racism theory" and "quasi-legal and violent theory." I intend to expand these theoretical explanations in their entirety in chapter two.

The literature on segregation shows that there is persistent trend in racial isolations across American urban and peri-urban areas (Logan, Stults, and Farley, 2004). Other social scientists have shown that segregation in both metropolitan and suburban cities in the US is the outcome of socio economic status, in which one group is willing, and able to pay more to avoid another group (Massey and Denton, 1993). And given differences in income and wealth, it is fair to infer that segregation indeed is the outcome of social and economic status (Massey and Denton, 1993). The 2010 census data in particular show that African American White earnings gap continued to widen Logan, Stult, and Farley, (2004). This earnings gap can be explained by the levels of the relative dissimilarity index of city segregation as well as institutional and structural outcomes of the American society (Massey and Denton, 1993).

The effect of segregation has permeated well into the fabric of American societies over the years. The perceptions of housing discrimination and the African American and White home ownership gaps culminated in the passage of the Fair Housing Act in 1968 outlawing housing discrimination (Massey and Denton, 1993). Indeed, one would have expected that, after 40 years since the Act was passed, that American communities would have created a mixture of well nested integrated social, political, economic, and cultural life (Massey and Denton). Logan, Stult's and Farley's analysis of the 2010 census data

show that for the last 50 years the pace at African American and White integration has been slow. Indicating that the average White person lives in neighborhood that is 75% White, this figure was 88% in the 1980s (Logan, Stults and Farley, 2004). They further observed that the average African American live in a neighborhood that is 45% African American. The staggering gaps in residential segregation are a further reflection of social and economic inequality (Massey and Denton, 1993).

The effects of segregation on socio-economic gaps can be further seen in the level of poverty rates that is measured over time. African Americans in central cities consistently recorded higher poverty rates over time, than White and Hispanics. In 2006 for instance, the poverty rate among African Americans was 24.2% compared to 8.4% of Whites (Gradin, 2012). Overall, female-headed household recorded significantly higher poverty rate of 31.9% than married couple 5.9% while a family of one records a poverty rate of 20.8% compared to a family size of two at 9.5%.[1] Given that 2006 year provides a snap shot of the trends of poverty rate across the entire US population. Children below 18 years have been the hardest hit compared to the rest of the population over the years. The poverty trends from 1979 to 2009 indicate that the poverty rate of children corresponds to the rest of the population, but the magnitudes of their rates differ from the rest of the working population. For example, during the recession in 1983, the poverty rate for the adult working class was 15.2% compared to that of children of 22.3 in the same year period (Meyer and Wallace, 2009). After a decade one will expect that the rate of poverty for children will decrease, instead it urged further by 0.4% percentage point while that of the

[1] Daniel R. Meyer and Geoffrey L. Wallace Poverty Level and Trends in Comparative Perspectives: https://www.google.com/?gws_rd=ssl#safe=active&q=poverty+level+and+trends+in+comparative+perspectives

working adult decreased by 0.1% Meyer and Wallace, (2009). The poverty rate for instance increased from 13.2% in 2008 to 14.3% in 2009.

This represents an additional 3.7 million people to the 43.6 million people living with poverty in 2009 (Meyer and Wallace, 2009). Out of the numbers, the poverty rate for children hit the highest of 20.7% in 2009.Indeed, the poverty rates for African Americans significantly exceeded the national average. In 2009, an estimated 35.9 percent of African Americans were poor (Gradin, 2012). This is significantly higher compared to the average poverty rate for Whites. Furthermore, socioeconomic gaps for African Americans continue to widen (Gradin, 2012).

Background of Study

To the extent that racial residential segregation show both income and wealth inequality, it can be argued that affluent individuals tend to live in affluent neighborhoods, while individuals with lower income and wealth tend to live in less affluent neighborhood (Massey and Denton, 1993) Even with higher incomes, African Americans are still unable to "buy entry into White neighborhoods" as a result of both covert and overt White racism and discriminatory practices (Massey and Denton, 1993 p.138). This is particularly consistent with Massey and Denton's analysis that social class continue to create social stratification based on race rather than income in the American communities Massey and Denton,(1993).

There are several factors generating segregation in American metropolitan cities. For instance, the debate implicating American public and private institutions' color blindness attitudes continue to surface in the literature. Eduardo Bonnila-Silva's book on *Racism*

Without Racists: Color Blind Racism and the Persistence of Racial Inequality in America challenges mainstream and dominant thinking on racial outcomes in the American society. He argues that racism and prejudice in American communities are subtle albeit real in accounting for the persistent inequality (Eduardo Bonnila-Silva,). Indeed, if institutions condone discrimination based on color blind attitudes, are we right to say that institutions naturally maintain the persistent of segregation in American life?

Cutler, Glaser and Vigdor (1999) in particular, traces these racial patterns over the years since 1800, and point out that the formation of the American ghetto system between (1890-1940) indicate that the African American ghetto formation averaged from being 27% in 1940 to 43% by 1970 which have seen a dramatic spike in African American neighborhood formation averaging 68%, in 1990 (Cutler, Glaeser and Vigdor , 1999). If social policy is for instance to mitigate and intervene in African American socioeconomic well-being, why has that seem to be acting against them, and benefiting Whites? (Bobo, 2013).

These may be difficult problems to grapple, but consider, yet the segregation dissimilarity index by (Duncan and Duncan, 1955) that looks at the nature of racial compositions by the density of ethnic populations using the dissimilarity index (Cutler, Glaeser, and Vigdor 1999). They observe that segregation over the years has seen some decline across major metropolitan areas in the US. And for a meaningful integration to take place, approximately 45% of White Americans will have to relocate or move into African American neighborhoods (Logan, Stults, and Farley, 2004). African Americans continue to live in neighborhoods that are highly African American, compared to Hispanics and Asian origins (Logan, Stults, and Farley, 2004). There has been generally resistant to

change in certain American cities, especially metros such as Detroit, Milwaukee, and New York among the first three most segregated in the US (Logan, Stults, and Farley, 2004).

The Problem

Segregation and its outcomes indeed create worse and adverse conditions for people of color and minorities than for white (Cutler and Glaeser, 1997). While segregation may be unintentional, its manifestation can disproportionally affect educational, employment, income, and wealth outcomes of African Americans (Cutler and Glaeser, 1997). The racial compositions of residential areas also determine life outcomes. For instance, a more affluent neighborhood may have its residents earning more, with higher educational attainment and low poverty rates (Massey and Denton, 1998). The proposed research problem is therefore to determine the effect of racial segregation on African American socioeconomic gaps as reflected in the level of household income, unemployment and education attainment in 50 randomly selected Metropolitan Statistical Areas (MSA).

African American poverty rates for instance are twice as high compared to Whites (Gradin, 2012). Indicating that African Americans and Latinos earn less than Whites, even when they share similar socioeconomic characteristic, such as having low education, limited health insurance coverage or being unemployed (Gradin 2012)

The census records of 2005 show that the percentage of teens between ages 16-19 who are not in school continue to increase among African Americans (Census Bureau). In 2005, an estimated 3,000 or 15% were considered “idle teens” or “disconnected youth” (Gradin, 2012).

The outcome of segregation, particularly neighborhood segregations in American societies, permeates deep into the days of slavery in America. Graziella Berttocchi's article on *The Historical Roots of Inequality*: *Evidence from Slavery* observes that the effects of American slavery adversely affected African American communities for several years even after its abolition. And argues that in particular, education where first-generation African Americans were unable to attain high education, especially under the "separate but equal" principles that legally separated African Americans on one hand, and Whites on the other (Bertocchi 2010). After the abolition, "separate but equal' public schools were far lower in school quality compared to "separate but equal" White's schools. Invariably, African Americans were for several decades continuing to fall behind Whites in terms of educational attainment. Persistent educational inequality reduces African Americans' human capital skills, especially in the effort to participate in the free market economy. Persistent educational gaps between Whites and African Americans are reflections of the income and wage gaps over the years (Bertocchi 2010).

Financial assets are an insurance safety net in times of economic crisis, however much of these safety nets eludes a significant number of African Americans. Financial net worth indicates the readiness preparedness of retirement and the capabilities to support one's self in times of old age. In 2009, for instance, African Americans' net worth was just $5,677 compared to Whites at $113,149 and Hispanics at $6,325 (Gradin, 2012). The median income for African Americans was $35,629 in 2006 while that of Whites were $60,000 that is twice the median income of African Americans. (Gradin, 2012).

Bertocchi (2010) identified three channels in which the racial inequality continues to manifest income distributions across the US. First, land inequality as seen in factor

endowment that continues to have adverse effects among African Americans in the US. The second is the persistent of racial discrimination, which reflects racial wage gaps, due to returns to education. And third, is the low human capital accumulation due to inequality in education and educational achievement gap.[2]

African Americans and other minorities in the US continue to make less compared to white despite exhibiting similar skills in educational attainment and experiences. The question now is, to what extent does racial segregation in a metropolitan area reflects income, educational attainment, and unemployment gaps?

The 2000 census data show that the earnings gap between African Americans and Whites has surged over the years. In 2011, a typical household median income was $32,216, and median family income of $37,879. While Per capita income in 2011 was $41,560, with African Americans averaging $16,000 approximately 21% of the population, while 17% was below the average poverty line (US Census Bureau).

Lawrence D. Bobo's article on *How America Built the Racial Wealth Gap* articulate well on the net financial wealth of African Americans compared to Whites. In particular, he observes that residential segregation across the metropolitan statistical areas paved way for predatory subprime lending in major African American communities. The consequences are that, after the bubble burst most of the homes owned by African Americans were hit with foreclosures, and given that, African Americans wealth were locked in home equity, much of it was lost (Bobo, 2013).

[2] Bertocchi, G. (2010). The Historical Roots of Inequality: Evidence from Slavery. *VOX*.

The *Pew Research* conducted recently can also attest to these wealth differences. Their recent report shows that the recession further widened African American wealth gap by 11:1 (White: African American) in 2004 to 20:1 (White: African American) by 2009. In translating these to dollars, it means an almost 53% of the wealth gap is attributable to the recession period alone, an indication of a further loss of net worth (Bobo, 2013). The *Census Bureau's* website also reported that the median net worth for African Americans fell from $12,124 in 2005 to meager $5,677 by 2009.

Although Whites lost their net worth in the same period, the gap was not as much compared to that of African Americans. For instance, in the same year period Whites had a net worth of $134,992 to $113,149 by 2009.[3] Similarly, Mckernan, et al. (2013) article, *Less than Equal: Racial Disparities in Wealth Accumulation* argues that, to the extent that wealth accumulation translates into opportunities, African American wealth accumulation is slim if not none existence.

In deed by 2010, it can be said that for every $6 Whites accrue in wealth, African Americans and Hispanics accumulate $1, translating in average of $632,000 for Whites and only $103,000 for African Americans (Mckernan, et al. 2013). It is also significant to point out that an age comparison on wealth accumulation differences among African Americans and Whites, also continue to show significant gaps. For instance, White's age between 32 and 40 in 1983 recorded an average family net wealth of $184,000, while African Americans in the same age bracket in the same year had a family wealth of only

[3] Bobo, L. (2013). How America Built the Racial Wealth Gap. Retrieved from http://www.theroot.com/articles/culture/2013/04/how_america_built_the_racial_wealth_gap/

$54,000 (Mckernan, et al. 2013). Indeed by 2010 African American family wealth fell by 31% compared to 11% for White

Unemployment can significantly impact African Americans financial stability. The average national unemployment rate in 2008 and in 2010 was 4.8 and 8.5 respectively while the unemployment of rate of African Americans was 12.6 % in 2008 (Census Bureau). The recession that ensued between 2007-2009 also vacuumed African Americans income away leaving them with nothing in their savings, which again caused significant loss in their net worth assets. Although many groups in the United States suffered in the recession, Hispanics lost at a disproportionally higher rate, than the other group in terms of their net worth thus losing approximately 40% of their net worth (Mckenan, et al. 2013). By 2010 the average white net worth had risen to $632,000 compared to only $98,000 among African Americans (Mckenan, et al. 2013).

Cutler and Glaeser (1997) Study for instance show that there are observable negative outcomes of segregation among African Americans in metropolitan areas that are heavily segregated. Indeed, the effects of segregation and its outcomes are further manifested in both African American school graduation rates, and incomes. Indeed, racial segregation itself has worse outcomes, this is because segregated neighborhoods tend to be isolated from the mainstream of the population hence losing out of higher socio-economic status (Cutler Glaeser, and Vigdor,1999).

It is surprising to note that wage and earnings are largely dependent on the neighborhood in which one lives. In fact, one's mobility or chances of attaining higher socioeconomic status reflects one's income which well depends on one's neighborhood or community (Cutler, Glaeser and Vigdor, 1999). So, the extent, to which African Americans

are segregated to poor, and low-income neighborhoods, reduces their chances of socioeconomic mobility and educational advancement.

Labor premarket factors also indicate that African Americans labor participation rate have been lower over the years. Heckman (2000) observes that wage differential can converge, if educational attainment among African American increases relatively to Whites. It is in this vein that other scholars attribute wage differential to low quality education of African Americans, which goes to affect their human capital necessary for the job market.

Neal and Johnson (1996) also observe the skills gap between Whites and African Americans, and argue that the wage gap is partly attributed to poor school, due to low socio-economic characteristics, resulting in the wage earnings differential between African Americans and Whites.

Research Questions

The research questions that I seek to answer are:

a) To what extent does racial segregation, as measured in dissimilarity index, affects the African American and White socioeconomic gaps.

b) To what extent does racial segregation or the White to African American exposure index in 1980 affects the African American and White socioeconomic gaps

c) To what extent does racial segregation or the White to African American exposure index in 2010 affects the African American and White socioeconomic gaps

d) To what extent are African American-White gaps in household income, unemployment rates and educational attainment more pronounced in highly segregated metropolitan areas than in areas characterized by lower levels of racial residential segregation?

e) If African American-White gaps are, in fact, larger in more segregated metros, to what extent does this account for overall African American-White gaps in the metropolitan population as a whole?

Massey and Denton's article on the "*Effect of Residential Segregation on African American Social and Economic Well-being*" makes the African American-White socioeconomic gaps clear when they examine the consequences of residential segregation on African American middle class, social and economic mobility. Their findings reveal that high status African Americans are forced to reside in segregated neighborhoods with poor social and economic development, poverty, crime, and mortality.

Again, in the American apartheid, Massey and Denton (1993) show that the persistent of poverty in the American ghettos is the result of White intentional ways of isolating the

growing African American population in the metropolis. And further argues that segregation in American cities is being perpetuated by both a combination of institutional practices and individual prejudice fueled by racism and discrimination.

While Card and Rothstein (2007) on the other hand looks at the effect of school and neighborhood segregation on African American students test score (SAT scores).

The outcome of their study shows that there was significant evidence to suggest that African American and White SAT score gaps were much higher in segregated cities than for less segregated cities, holding constant parents and family background characteristics. The sample data for this research comprised of students from different metropolitan cities using the microdata of 1998-2001scool cohorts.

Research Design and Methodology

This study seeks to determine the effects of residential segregation on African American socioeconomic gaps in unemployment, educational attainment, and income across 50 randomly selected metropolitan statistical areas to determine if African American and White residential segregation are associated with differences in African American and White socioeconomic status. That is household income, educational attainment, and unemployment.

The research adopts the 2012 five year estimates of the American Community Survey data of individuals who reported as being African American and White alone, with household incomes, employment status (16 years and over), and educational attainment of individuals (25 years and older).

The research does not seek to establish causality, but to determine the effects of racial segregation on African American socioeconomic gaps. The research seeks to further find whether these 50 metropolitan areas are also segregated by levels of educational attainment, unemployment, and household income. Consequently, dissimilarity index is computed for African American and White in each metropolitan area, as well as the mean estimates in educational attainment, employment status, and household income of individuals who reported as being African American and White in each of the metropolitan area. The justification for using the index of dissimilarity is that, it can capture the tract level inequality, and therefore easily determines the percentage of individuals who will have to swap census tract to make the population even.

Many scholars and social scientist use different research designs and approaches, nevertheless arriving at similar conclusions. Indeed, two designed research methodologies could be discerned from the studies by Cutler and Glaeser. The first aspect of their research

design was to establish some kind of association of the observed variables that is between segregation and African American outcomes. The second aspect, sought to describe the output of these research outcomes without manipulating the variables. For instance, describing how segregation influences school enrollments and graduation rates, employment among African Americans and the nature of single parenthood. While Massey and Denton's article, also adopted data from the Philadelphia area in 1980 to investigate the constraints faced by high status African Americans in their desire to move away from segregated neighborhoods. In this research, the empirical design is descriptive based on the 359 census tracts data collected from the city of Philadelphia. The outcome of the research also points to substantial barriers to African American upward mobility constrained by negative White attitudes towards African Americans desire to relocate into upper middle-class neighborhoods. In the *American Apartheid* Massey and Denton, also look at both descriptive and speculative ways of identifying institutional practices, individual prejudices as well as government policies that ensure the perpetuation and persistence of the African American underclass. The outcome of the study shows that African Americans living in high concentrated neighborhoods also implies high rates of poverty that is scientifically correlated with geographical segregation.

Significance of Study

The research project is significant in several ways. First and foremost, it is my hope that the research project will serve as a guide for policy making as well as a platform for continuing discussion on the impact of segregation on socioeconomic outcomes.

Theories Explaining Residential Segregation

The Debate over Measuring Segregation

Much of the literature on segregation today is based on varied theories and interpretations. Bell Wendell (1954) argues that theoretically, there are no limits to any specific standard theory on segregation across the literature, but rather it exists in piece meal fashion. The 1940s and 1950s, for instance, saw a massive development of residential segregation theories (Marvin and Martin, 1987). Notably among these early pioneers were Duncan and Duncan, (1955) Teauber and Teauber (1965).

The two central ideas that defines Taeuber and Taeubers theory of residential segregation is the segregation curve and the ideal curve. Taeubers segregation curve is based on the ratio of the cumulative frequency and the number of cases of the two racial groups compared.

Despite its impressive strides in unifying the theoretical study on segregation to some extent, Duncan and Duncan (1955) early piece on the *Methodological analysis of segregation indexes* has been heavily criticized for failure to account for racial variations within a subdivision, for instance, the study tends to ignore the proportion of African Americans who may be living in alleys or on the streets in a city's block, who might be segregated, but nevertheless unaccounted for (Marvin and Martin, 1987). As a result of these variations, indices on racial segregations based on theoretical constructs over the years has led many scholars to argue that residential segregation is not only complex, but a nebulous concept, given its varied theoretical and methodological constructions and interpretations (Marvin and Martin,1987).

Much of the problems of segregation theory is its inadequacy to comprehensively cover entire ethnic enclaves within the geographical unit. In cities such as Chicago, where majority of African Americans are concentrated in what is known as the "African American belt", it is not uncommon to find similar ethnic enclaves elsewhere that might be sparsely distributed across the geographically unit.

Massey and Denton (1988) also acknowledged that "the field of segregation studies is presently in a state of theoretical and methodologically disarray, with different researchers advocating different definitions and measures of segregation" (1988:282). There is generally no consensus as to what measure of segregation is best under any circumstances (Massey and Denton, 1988). Nonetheless Massey and Denton initiated a methodological construct that seeks to harness both old and new forms of understanding of the theory of segregation, and its measurement, by identifying five distinct measures of segregation that continue to serve as the standard of measurement in segregation literature today. These are evenness, exposure, concentration centralization and clustering.

The Theories of Segregation

Historically, African American, and White racial segregation in the south was markedly different from that of north. Many of these differences are situated in the nature of the economic and social environments that characterized the nature of the social and economic environment of the area at the time (Kellogg, 1977). This observation is consistent with John Kellogg, Reynolds Farley and William Fry who traces the changes in African American and White segregation over the years and observed that changes in African American and White residential segregation among African Americans and Whites

continue to persist in metropolitan cities of urban America. This led Myrdal (1944) to argue that the subordination of African Americans to the social and economic system of the society is due in part to residential segregation. This is because racial segregation prevented and excluded African Americans from participating in both social and economic activities in the society, a point like what Massey and Denton (1993) described as the *American apartheid*, a system that ensured African American exclusion in several social and economic activities including schools and community activities.

In recent times, there has been Whites' willingness and desires to move out of a growing African American and minority neighborhood, a situation that has long been implicated in the formation of African American racially segregated neighborhoods (Duncan and Duncan (1955), Galster (1990), Massey and Denton, (1993) Teauber and Teauber (1965)). Prior research also suggests that Whites are more likely to responds to large presence of African American racial composition in the neighborhoods than any other minority groups Krysan (2002). A situation, which creates ethnic homogeneity, such as African American neighborhoods, the Hispanic neighborhoods etc.

There are several ways in the literature that point to how neighborhood segregations are formed, for instance Farley and Williams Frey (1994) argued that residential segregation are influenced by four distinct practices.

1. Discriminatory mortgage and lending procedures: a situation where largely African Americans and other minorities are prevented from living in White neighborhoods by banks and mortgaged lenders backed by the federal housing administration and veteran's administrations that insured home loans at ridiculous low interest rates to White home buyers. The policies of FHA were designed to construct new homes in

the suburbs exclusively for Whites that continue today to be known as the White suburbia.

2. Whites continue to prevent African Americans in their neighborhoods by intimidation and violence. In Chicago for instance, African Americans who moved into affluent white neighborhoods were stoned and heckled, much of this violence were curtailed as a result of the FHA backed home loans that enabled whites to buy newly constructed homes in the suburbs.
3. Many suburbs-initiated policies that deliberately excluded African Americans after World War II. These were characterized by zoning laws and municipal ordinances.
4. Federal housing assistance programs such as the HUD's section 8 programs that assisted low-income families coincidentally encouraged segregation in many cities. Single mothers and poor African Americans who benefited these programs were pushed into segregated areas of the cities. These policies consequently affected segregation of urban American cities. Despite many sweeping reforms to end housing and home mortgage lending discriminatory practices, especially the passing of the Fair Housing law of 1968, which outlawed segregation in all spheres of the housing market, discrimination in housing continued to be problem. Congress unanimous passed the Home Mortgage Disclosure Act (HMDA) as a" freedom of information" to report all home loan application denials to the federal government. These measures were to curtail future housing and mortgage home lending discriminatory practices.

Unfortunately, residential segregation has evolved into what Cutler and Glaeser described as a marked shift from centralized or collective action racism to a

decentralized racism. This means racial discrimination evolved from being institutionalized to one that is now decentralized based on individual White racial attitudes towards African Americans which causes African Americans to be segregated from Whites. Cutler, Glaeser and Vigdor, traces the development of ghetto neighborhoods from the period of 1890 to the 1940s. Cutler et al, like Krysan (2002) argues that Whites' attitudes towards integrated neighborhoods continue to dominate widely across metropolitan cities of urban America. Their article brings a better perspective in both theoretical constructs and interpretation of segregation measures. Cuttler Glaeser and Vigdor grouped these theoretical constructions into three major areas that encompasses many previous theoretical and methodological constructions of segregation.

The first is the port of entry where African Americans either self-segregate themselves or prefer to live in neighborhood compositions with largest majority being African American and or other minorities. This is particularly evident among newly migrants' entry into new neighborhoods that are hitherto unfamiliar to the neighborhoods that they are moving into. The second theoretical construction of segregation is the centralization or collective action racism that has particularly dominated the segregation literature. This theory explains that White collective attitudes have adopted quasi-legal and legal ways to prevent African Americans from moving into white neighborhoods. These practices are usually manifested in landmark zonings or natural demarcations separating one neighborhood from the other. Decentralized racism suggest that White exclusion of African Americans is manifested in ways in which

whites pay extra dollars to avoid living in African American neighborhoods or integrated areas with higher composition of African Americans.

In this section, I attempted to trace both theoretical and methodological constructions of residential segregation, by reviewing early theoretical models by Duncan and Duncan, Teauber and Teauber and later Massey and Denton who are considered pioneers on the study of residential segregation. The study of segregation in the literature has been approached from many different perspectives, I adopted Cutler, Glaesers and Vigdor (1999) theoretical constructs that seeks to bring together both old and new forms of theoretical studies of residential segregation by harnessing them into threefold. The port of entry, the collective action racism and decentralized racism.

Chapter II
LITERAUTRE REVIEW

Factors Generating Neighborhood Segregation

Racial residential segregation in the US continue to remain a central discussion for policy makers across all US metropolitan statistical areas. The nature and scope of residential segregation in American inner cities are pervasive and complex. Historically, since the passage of the fair housing act in 1968 banning all forms of discrimination in housing, much of its intent is yet to be achieved. It is over 40 years since the Act was passed, however segregation in American neighborhoods continue to remain "separate and unequal" leaving social scientist and policy expert baffling on the rising trends of hyper segregation in the Midwest region. Logan and Stults'2011 analysis of the 2010 census data show that for the last 50 years there has been slow pace at integration (Logan and Stults, '2011). Indicating that the average white person dwell in neighborhood that is 75% White this figure was 88% in the 1980s.[4] They further observed that the average African American live in a neighborhood that is 45 % Black. (Logan and Stults, '2011).

Social science scholars have offered both historical and present day explanations of how racial segregation is generated and why this phenomenon continue to persist over the years. Historically, the most common attribute of racial segregation is the deep migration in which newly African American immigrants from the south subsequently formed racial clusters around the industrial parts of the northern belt. Like Peach and Smith (1981), the clustering

[4] Logan, J. R., Stults, B. J., & Farley, R. (2004). Segregation of Minorities in the Metropolis: Two Decades of Change. *Demography, 41*(1), 1-22.

of ethnic groups can be explained by both individual choices as well as constrains to desegregation.[5] For instance, the choice by migrants to inner cities can be explained by the need to maintain ethnic cohesion and identity. This argument is again consistent with earlier scholar's assertion that the formation of Irish, Italian and Asian communities across the US in the early parts of the 20th century can be attributed to the need to create ethnic identity

Peach, Robinson and Smith (1981) point to one's social class status as another way in which racial segregation can be generated, thus segregation constraints African Americans ability to enter a particular neighborhood or move between predominantly White neighborhoods.

Social class status is predicated on the assumption that social stratification in the American society are based on income and ones' status, which becomes standards for entry into affluent neighborhoods. Thus economic differences between African Americans and Whites reflect places in which African Americans live, for instance poor African Americans tend to live in neighborhoods that are generally poor, a reflection of their economic and social status while affluent Whites tend to live in neighborhoods with higher income and social status.

[5] Peach, C., Robinson, V., & Smith, S. (1981). *Ethnic segregation in cities*. Athens, GA: University of Georgia Press.

The 1970s saw significant decline in African American incomes as a result of outsourcing of jobs from the central cities to the suburbs. The consequences were that the African American ghettos became much poorer than before.[6]

Cutler and Glaser and Vigdor (1999) identifies three most prominent theories generating housing segregation, "the port of entry", "collective action racism" and "decentralized racism."[7]

The port of entry refers to in part the arrival of new immigrants, because of the likelihood of maintaining ethnic cohesion. This theory involves the voluntary choice of migrants in settling in neighborhoods that they can easily identify with. This was particularly rampant in the early 1920 when newly immigrant neighborhoods in Chicago could be easily identified as being Irish, Italian, or polish origins. This context help explain the nature of clustering of African American immigrants from the south to the north in the mid-20th century, that continue to manifest itself today, resulting in hyper segregated cities like Chicago, Detroit, New York and Cleveland.

Another way in which housing segregation is generated can be largely seen in the idea of Whites taking collective actions to avoid African Americans using natural environmental demarcations, as barriers for African American entry into White neighborhoods, thus resulting in African Americans being clustered in certain

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[6] Massey, D. S., & Denton, N. A. (1993). *American apartheid: Segregation and the making of the underclass*. Cambridge, MA: Harvard University Press.

[7] Cutler, D. M., Glaeser, E. L., & Vigdor, J. L. (1999). The Rise and Decline of the American Ghetto. *Journal of Political Economy, 107*(3), 455.

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neighborhoods, as a result of the lack of mobility to integrate into White neighborhoods. Cutler and Glaser and Vigor's (1999) argues that collective action racism symbolizes the actions taken to specifically discourage African Americans from moving into White neighborhoods as a result of either threat of violence or intimidations.[8]

Decentralized white racism is the third way in which housing segregation can be generated. This can be seen in ways in which Whites demonstrate the willingness to pay extra dollars to live in predominantly White neighborhoods, while ipso facto creating ghetto conditions in certain neighborhoods, as a result of decentralized racism among Whites.[9]

Charles Camille's (2003) seminal paper *The Dynamics of Racial Residential Segregation* identified spatial assimilation and place stratification as the foundational perspectives on which residential segregation is based. Camille paper re-echoes earlier points made by Massey and Denton (1993) in the *American Apartheid* when he observes the extent of African American and White differences across metropolitan statistical areas that reflects African American socio-economic outlook as well as the level of acculturation to explain the patterns of African American residential segregation.[10]

It is significant to point out that socio-economic status alone according to Camille may not account for the full explanation of African American segregation in the inner cities across

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[8] ibid

[9] Cutler, D. M., Glaeser, E. L., & Vigdor, J. L. (1999). The Rise and Decline of the American Ghetto. *Journal of Political Economy, 107*(3), 455.

[10] Charles, C. Z. (2003). The Dynamics of Racial Residential Segregation. *Annual Review of Sociology, 29*, 167-207. Retrieved July 23, 2014, from http://www.jstor.org/stable/10.2307/30036965?ref=no-x-route:c69b0f07ddee7acb9da995dc513fc07b

the metropolitan statistical areas. For Massey et al (2010) one's skin color continues to suffer "a higher constant penalty" for being African American that is not captured in socio-economic status.[11]

Not only does income and class status contribute to generating racial segregation, but also place stratification has become persistent over the years, an indication of White racial prejudice and discrimination, as well as the lack of institutional will to rid racial and discriminatory practices.[12]

Institutional practices such as local governments, lending and real estate agencies as well as construction engineers are all influenced by the extent of residential racial segregation in the central cities.[13]

In the *The Rise and Decline of the American ghetto,* Cutler, Glaser and Vigdor look at the extent of residential segregation from the period of 1890 to 1990 and observe that migration of African Americans from the South to the North further expanded with modest decline in segregation in the 1970s, however as more and more African Americans moved into hitherto White neighborhoods, Whites responded by moving out to pay more to live in areas outside African American neighborhoods.[14] This evident is particularly documented in the adoption of the Metropolitan Statistical Area's housing cost and people's attitudes towards integration.[15]

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[11] Rugh, J. S., & Massey, D. S. (2010). Racial Segregation and the American Foreclosure Crisis. *American Sociological Review, 75*(5), 629-651

[12] ibid

[13] ibid

[14] Cutler, D. M., Glaeser, E. L., & Vigdor, J. L. (1999). The Rise and Decline of the American Ghetto. *Journal of Political Economy, 107*(3), 455

[15] ibid

Cutler et al hypothesis test whether African Americans and Whites segregation is due to African Americans preference for self-segregation, or whether African American segregation is the outcome of some barriers to integration, if the latter is the case, then African Americans will pay more to live in White neighborhoods, and conversely if segregation is due to Whites willingness to live among themselves, then White will pay more to live in White neighborhoods. Consequently, Cutler et al (1999) findings reveal that African American paid relatively more to live in segregated neighborhoods than in integrated neighborhoods and conversely by the 1990s Whites relatively paid more to live in White neighborhoods, an indication of a "decentralized racism" in which Whites adopts a collective action to pay more to avoid African American neighborhoods.[16]

Cutler et al again observed that, by 1890 and 1940 there was evidence of African American crowding in segregated neighborhoods. For instance the dissimilarity index gained 20 points to averaging 68%.[17]

Findings on the dissimilarity index which points to the level of concentration of African Americans in the neighborhood averaged -0.068 which is statistical significant at 5 per cent level. This statistical analysis show that the level of segregation increased higher in the 1970s. Therefore to achieve optimum integration of African Americans, an approximately 80% of the African American populations will have to swap census tract areas that were heavily African American to equalize.[18] Not only that the index of dissimilarity continue to increase in African American neighborhoods, but also there is evident to suggest that segregation and population characteristics show significant

[16] ibid
[17] ibid
[18] ibid

relationships between population density and segregation, meaning the denser the population the more likely that segregation is going to be present[19].

There are also present day factors that fosters the persistent of racial segregation across the US metropolitan statistical areas. Racial discriminatory practices work against African Americans and other racial minority groups; which becomes problematic especially when the net effect of market discriminatory practices create racial clusters around particular neighborhood. This is particularly exemplified in circumstances in which African Americans have to pay twice as much to live in White neighborhoods, simply because American "gatekeepers" reserve the right to withhold access to opportunities for African Americans to assimilate. Chaterjee (2010) also recounts the potential noisy signals in market mechanism that stalls individual's innate abilities and the potential likelihood of achieving optimum success. Chatterjee (2010) further argues that employer's attitudes towards applicants may be based on imperfect information used by employers or real estate agents to determine individual chances of success. While these processes may be costly, real estate agents and lenders may rather base decisions on color lines that go to undermine the applicant's innate abilities.[20]

These barriers can be further seen in both home and mortgage lending practices by both financial and non-financial banks' lack of complete information of African American applicants tend to use discriminatory lending practices to deny home and mortgage loans. Kopkin (2014) also argues that home mortgage denial rates are consistent with spatial

[19] ibid

[20] Chattejee, Debipriya. Essays in the Theory of Categorical Representation. PhD. Dissertation Brown University RI.

prejudices[21]. Indicating that home mortgage loan denials are correlated with states with high racial prejudice. As a result, African Americans inability to buy homes or accessed the lending market creates adversarial situation that tend to crowd African Americans in certain neighborhoods.

Similarly, Rugh and Massy (2010) also point to significant effect of segregation and mortgage subprime lending and foreclosures. In the sample of the top 100 metropolitan cities across the US, they find that segregated areas were twice more likely to be foreclosed than less segregated neighborhoods. The 1990s saw upsurge of subprime mortgage lending for African Americans across the US. The estimated value for subprime lending accounted for about 43 percent surge in African American home ownership.[22] Unfortunately, the 2007 housing bubble that subsequently deflated in the later parts of 2008-2009 created adverse economic meltdown of unimaginable proportions for African Americans and other minorities.[23] The consequences of foreclosures resulted in lost home equity values, lost home values. The American dream of becoming homeowners for many average African Americans now becomes an illusionary tale.

Other ways in which racial segregation can be generated is the level of African American and White isolation that is via social interactions. Peach, Robinson and Smith (1981) observe that social interaction among African Americans and Whites are

[21] Kopkin, Nolan. Evidence of Discrimination Against African Americans in the Market for Home Loans Exploiting Spatial Differences in Prejudicial Attitudes. Unpublished Manuscript

[22] Rugh, J. S., & Massey, D. S. (2010). Racial Segregation and the American Foreclosure Crisis. *American Sociological Review, 75*(5), 629-651.

[23] ibid

determinants of spatial patterns of intermixture that is capable of explaining significant gaps among different ethnic groups. For instance, if informal social interaction depends on spatial patterns as Peach and Smith claim, then it could well again explain that African American informal social interactions may be limited by these spatial patterns. In this case, the lack of social and informal interactions makes racial residential integration difficult if not outright impossible to attain, thereby creating racial enclaves or the African American ghettos.

Thus, segregation among African Americans and White are borne out of a gamut of factors. In this case, historical and present day factors have shaped ways in which racial residential segregation are generated. Cutler et al have looked at the historical dimensions in which racial residential segregation are generated, in particular, out the need of African American early migrants from the deep south to adjust ways of life in the northern belt. Massey and Denton also looks at the present day factors when they alluded to class and economic status in the society, as well as both institutional and local government practices discriminating against African Americans, thereby creating a population of the underclass. In sum, discriminatory mortgage lending, and real estate practices including racism and prejudice towards African Americans backed especially by threats of physical harm have are all been implicated in creating racial residential segregation that constrains African Americans from moving into White neighborhoods, a situation which create overt African American enclaves within central cities.

Measuring Segregation

Over the years, research have shown that African Americans continue to fall behind White in all spheres of socioeconomic life, education, income and unemployment, health and

wellness et cetra. I particularly selected education as the major socioeconomic variables because they are the ones that reflect lifestyle and standard of living for African Americans in general. To the extent that African Americans attain low educational status their standard of living and level of socioeconomic status will be impacted significantly. I measure segregation using the dissimilarity index to understand this ongoing trends.

Segregation indices can be classified into 5 distinct groups. The dissimilarity index, isolation index, concentration, centralization and clustering. However the most commonly and widely used measure of segregation is the dissimilarity index initially developed by Schmid and Schrag (1947), which measures the percentage of people who will have to move or swap census tracts to make even in the overall population hence ensuring that the level of homogeneity within a subgroup of the population is even. Thus according to the index of dissimilarity, an area is said to be highly segregated if the dissimilarity index is above 0.6 or 60 percent. The formulae for calculating the dissimilarity index is given below:

$$D = \frac{1}{2}\sum_{i}\left|\frac{b_i}{B} - \frac{w_i}{W}\right|$$ where B and bi and W and wi are the number of counts of people living within the two subgroups.

Outcomes of Neighborhood Segregation

According to Metrotrend's[24] empirical survey of African American economic well-being across the US residential segregation index, neighborhood income gap, school test score gap, employment gaps, and homeownership gaps are estimated to be the underlying outcomes arising out of segregation. These indicators were scored with over all city wide ranking relative to the national metropolitan areas across the country. This data was based on the 2007 American community survey (ACS) and the Neighborhood Change database

Examinations of the national trends indicate that poverty, race, and place continue to be polarized. Out of the 186 metros, Milwaukee, Wisconsin scored 100% representing the worst metropolitan city for African Americans. Despite that Milwaukee's residential segregation index continue to drop, it scored the highest nationwide, at 79.6. Its neighborhood income gap scored F at 42%, while school test score gap received F at 65.8%. Employment and homeownership both failed at 25.3% and 52.0% respectively.

Chicago, Illinoi followed next with overall ranking of 99%. Chicago's residential segregation index scored 75.2. The neighborhood income gap also scored F at 38% while school test score gap failed at 68.6% and employment and homeownership gaps scored F and C respectively at 25% and 47%.

While New York residential dissimilarity index is 74. The neighborhood income gap failed at 38.8%, despite that school test score edged up a little scoring D at 52% for African Americans, their employment gap scored F and homeownership gap scored B.

Detroit Michigan followed next with an overall ranking of 96%. Detroit's residential segregation index scored 74, while neighborhood income gap scored F at 38.8%. School

[24] http://metrotrends.org/commentary/segregation_1970_2010.cfm

test score gap scored D at 52.9% while employment and homeownership scored F and B respectively at 23.8% and 39.8%.

Cleveland the last of the five cities overall ranking is 89% making it the fifth highest most racially polarized cities with residential segregation scoring at 72.6, while neighborhood income gap scored A at 4.3%. School test score gap failed at 62.8% with employment and homeownership gaps scoring F and D respectively at 21.6% and 49.4%.

The question now is why does this indicators matter? In order to understand the effect of residential segregation on African American outcomes we ought to look at the available data and studies that documents these significant effects with a view to identify gaps in the segregation literature that informs our understanding.

Indeed, the top five metropolitan cities show that income gap, school test scores, and employment gaps continue to perform poorly in all cities averaging residential segregation index above 59.9, although Cleveland's neighborhood income gap scored A, it leaves me to wonder if spillover effect in African American neighborhood could be occurring. As Cutler and Glaser (1997) pointed out, ghettoes for that matter are not necessarily bad. However, the income gap in Cleveland does not seem to support school test score gaps which failed miserably like the others already mentioned above.

Metrotrends data analyses is also consistent with Cutler and Glaser's estimation of segregation and its outcomes using the dissimilarity index, an index that measures segregation by sampling 209 Metropolitan Statistical Areas involving 100,000 people of whom 10,000 were African American. In this study, Cutler and Glaser's seek to address the effect of segregation on African American outcomes in:

a. Schooling

b. Employment

c. Single parenthood

They adopted the instrumental variable approach to circumvent problems of reverse causality using distinct topographical markers that is teens living within residence and political zones.

Their findings indicate that there is strong relationship between African American outcomes and segregation, and this association is consistent across all variables that were observed. An indication that African Americans suffered worst outcomes in more segregated neighborhood than less segregated neighborhoods.

The regression output in Cutler and Glaeser's findings also indicated that the average level of city wide segregation was 59% with a standard deviation of 13%, the average African American income with segregation was 51%. This regression outcomes show that segregation continues to remain relevant across the metropolitan cities sampled, for example the study show that there is strong positive correlation (.70) of segregation by race and segregation by income, which implies that African Americans in more segregated neighborhoods also earns low incomes (839).[25]

In the OLS estimation of the nearly 10,000 sample of young teens between the ages of 20-24 also show that there are significant differences in outcomes among African Americans themselves. For instance African Americans in more segregated neighborhoods were worse off than African Americans in less segregated neighborhoods (844).[26]

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[25] ibid

[26] Cutler, D. M., & Glaeser, E. L. (1997). Are Ghettos Good or Bad? *The Quarterly Journal of Economics, 112*(3), 827-872.

Segregation and Educational Attainment Outcomes

Educational performance among African Americans continue to be debated across the US metropolitan areas. Several findings on the effect of segregation on educational attainment undoubtedly establish that neighborhood effect is a strong predictor of a child's educational performance. The center for education policy report observes that math and science scores among elementary school kids in low incomes neighborhoods continue to plummet over the years, and predicted that an estimated 48 states might not meet the math and science standards by 2014. This phenomenon has necessitated social scientists to investigate the causes of low educational performance among low income neighborhoods. The experiment by Jens Ludwig, Helen Ladd and Greg Duncan[27] demonstrate that there are significant effect of neighborhood's environmental characteristics on educational performance. Their experiment is based on the Moving To Opportunity (MTO) data samples across five states in which children were placed in low income neighborhoods and others in neighborhoods with high incomes. The experiment reveal that kids in low income neighborhoods scored lower than kids in high income neighborhoods.

It is therefore important to mention that the effect of low human capital skills such as education and vocational skills among African Americans has also far reaching consequences. Indeed the educational gap between African American and White across the US metropolitan cities explains much of the effect of neighborhood effect on African American socio economic outcomes. Cutler and Glaser also show that the effect of segregation is indeed real, and the outcomes can be seen in the level of high school graduation rates among young teens between 20-24 and 25-30. The findings show that

[27] Jens Ludwig, Helen Ladd and Greg Duncan Do Neighborhood Conditions Affect school performance? http://urbanportal.org/issues/entry/do_neighborhood_conditions_affect_school_performance/ March 1, 2012

overall outcomes for African Americans continue to worsen compared to Whites. For instance there is 11.7% gap in high school graduation rate between White and African American and 8.7% gap in terms of college graduation rate.

Segregation and Income Outcomes

The connection between racial segregation and income inequality has also been documented across central cities in the US. It is astonishing to say that African Americans over the last few decades continue to make less than White. This inequality is particularly evident in hyper segregated areas than less segregated neighborhoods. Cutler and Glaeser study show that incomes for African Americans in more segregated areas were 8.77 compared to income for African Americans in less segregated neighborhoods 8.61.[28] Indeed using the difference-in-difference to determine this estimation shows that there is significant difference of -0.16 in log of earnings and 6.2 for idle teens, meaning there is high number of young teens who are either not in school or not employed in these neighborhoods, hence the difference-in-difference was -6.1% for high school graduation rate between White and African American.[29]

Again, income, as measured in total wages and salaries was 9.8 in less segregated neighborhoods compared to 9.13 in hyper segregated neighborhoods, in this case, idleness or teens who reported not working were markedly greater in higher segregated neighborhoods 21.3% than less segregated neighborhoods 15.8% (table III).[30] Furthermore, empirical findings show that racial segregation is correlated with income and

[28] Cutler, D. M., & Glaeser, E. L. (1997). Are Ghettos Good or Bad? *The Quarterly Journal of Economics, 112*(3), 827-872.

[29] ibid

[30] ibid

this correlation is positive (.70)[31]. In this case, when racial segregation is proxy for income segregation, the net outcome within a metropolitan city generates worse outcome for African Americans.[32]

This argument is also consistent with the national trends on metropolitan cities across the US, which suggest that low income neighborhoods tends to fall in hyper segregated neighborhoods, which ipso facto implies that residential racial segregation may also mean income segregation for African Americans who continue to remain in segregated neighborhood.[33]

Paul Osterman (1991) examines the nature and influence of neighborhood segregation and individual likelihood of participating in welfare using the city of Boston survey on neighborhood effects. Osterman (1991) observes that neighborhood characteristics such as low income areas tend to predict an individuals' likelihood of participating in welfare services, especially among single parents, who are twice more likely to participate in welfare programs than individuals without kids, that is after controlling for personal characteristics such as age, education and illness. Households with non-wage income also tend to predict higher chances of welfare participation.[34]

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[31] ibid

[32] Ibid.

[33] Massey, D. S., & Denton, N. A. (1993). *American apartheid: Segregation and the making of the underclass*. Cambridge, MA: Harvard University Press.

[34] Osterman, P. (1991). Welfare Participation in a Full Employment Economy: The Impact of Neighborhood. *Social Problems, 38*(4).

Segregation Unemployment Outcomes

Unemployment offers another perspective in which the context of segregation and labor force participation can be explained. Segregation has a significant impact on unemployment that negatively affects African Americans' social and economic outcomes. For instance, racial minorities in spatially segregated neighborhoods show worse outcomes, especially for African Americans than less spatially segregated neighborhoods.[35] It can also be mentioned that the physical separation of African Americans and White neighborhoods makes it difficult for African Americans to acquire certain skills and values that could help for African American socio-economic mobility. As a result, African Americans find it difficult to acquire jobs because of their physical isolation, because jobs are located farther in the suburbs than in African American neighborhoods.

Indeed African Americans in spatially segregated areas also lack social interaction and their physical distance from Whites isolates African Americans from potential and informational resource opportunities for jobs[36]. As more and more African Americans become compacted in a neighborhood implies that there is little interaction with Whites which creates a situation of "spatial mismatch" because African Americans are closed out

[35] Cutler, D. M., & Glaeser, E. L. (1997). Are Ghettos Good or Bad? *The Quarterly Journal of Economics, 112*(3), 827-872.

[36] Cutler, D. M., & Glaeser, E. L. (1997). Are Ghettos Good or Bad? *The Quarterly Journal of Economics, 112*(3), 827-872.

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in areas that are potentially endowed with better public good such as schools and employment which invariably hurt African Americans.

There are several empirical findings that buttress the effect of segregation on African American outcomes. For instance racial segregation creates worse social interaction which impacts the ability of African Americans within the metropolitan area to gain skills and values for the job market.[37]

Indeed the estimates show that a 1% reduction in standard deviation closes at least an estimated 13% or one third of the outcome gap between White and African American.[38]

It can also be seen that the effects of segregation on African American outcomes show that Whites in more segregated neighborhoods have better socio-economic outcomes than African Americans in more segregated neighborhoods.[39] The empirical results that tests the effects of segregation on African Americans social and economic outcomes reveal that there are strong evident to suggest that segregation indeed has worse outcomes for African Americans across all the metropolitan cities that was sampled. For instance, a 1% increase in segregation reduces African American high school graduation rate, income, and joblessness (828). Cutler and Glaser further argues that if one were to reduce segregation by a standard deviation, then segregation will eliminate about one third of the differences in outcomes between white and African American (828).

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[37] Kane, T. J. (1994). College Entry by African Americans since 1970: The Role of College Costs, Family Background, and the Returns to Education. *Journal of Political Economy, 102*(5), 878-911. Retrieved July 23, 2014, from http://www.jstor.org/stable/10.2307/2138651?ref=no-x-route:fdb7e60ea9af4c9b2432d22c30483e1f

[38] ibid.

[39] ibid

Empirical Claims that Refute Evidence that Segregation has Adverse Outcomes

Card and Rothstein (2007) research findings seeks to establish whether poor school enrollments are the cause of low achievements among African American students. And argues that, it is difficult to simply point to peer group influence rather than neighborhood or school level characteristics that is often unobservable which might be causing bias estimates. This is because students may possess certain specific characteristics that may be responsible for their low achievements rather than simply the results of peer group expectation or neighborhood characteristics. Their findings show that the effect of segregation on African American students test score performance reduces as family income rises. As a result, income differences accounts for more than one half of the effect of segregation. Indeed a significant number of African American student's enrollments in a given school tend to correlate with school quality and concluded that segregation has negative outcomes for African Americans students test scores that ultimately reduces their achievements.

Card and Rothstein (2007) used aggregated data from the metropolitan statistical area level to determine the extent of the achievement gap between African American and Whites in segregated metropolitan statistical areas. The strategy adopted is to aggregate data by omitting other variables such as individual family's preference to a mix neighborhood, and city effect that may be correlating with segregation.

David Harding (2003) experimental and quasi experimental research using counterfactual evidence to refute the popular quantitative techniques using observed characteristics as a standard for empirical evidence. He argues that conventional research

techniques is inherently flawed with selection bias since unobserved factors often times accounts for some kind of association. For instance, it's well-known that neighborhoods with high concentration of poverty also have significantly worse outcomes; similarly kids growing up in poverty stricken neighborhoods tend to show worst outcomes than kids growing up in high income neighborhoods.

While these empirical findings are clear Harding (2003) point to counterfactual causal inference as best establishing research techniques that avoids estimation bias, since observed characteristics alone cannot simultaneously tell the whole stories because we unable to tell whether other observed characteristics are not affecting outcomes such as parental incomes, parents personal characteristics and socio-economic status. And therefore, point out that those unmeasured indicators including individual outcomes might be influencing neighborhood poverty rates. As a result, counterfactual causal inferences rather provide robust empirical evidence and statistical significance than merely observed characteristics.[40]

Cutler and Glaser's study also admits to the problem of reverse causality, a potential bias estimation. This is because their study could not be sure which parameter in the model is having the most impact in revealing significant socio-economic outcomes, which subsequently led to the adoption of instrumental variables IV, (local government finance and Ariel features) in order to determine the extent to which it affects outcomes of segregation**.**

[40] Harding, D. (2003). Counterfactual Models of Neighborhood Effects: The Effect of Neighborhood Poverty on Droping Out and Teenage Pregnancy. *Chicago Journals, 109*(3), 676-719.

Discrimination in African American Salaries and Wage Differentials

Social science scholars have established that racial segregation has significant effect on African American earnings differentials. Although African American and White earnings gap continue to narrow for the last 4 decades, the average African American continue to earn less than the average White. Card and Krueger (1992 a,b) looks at the influence of education on earnings among African Americans, while Loury (1998) looks at the lack of social network and social capital among African Americans, and Card and Rothstein (2007) argue that peer group influences among African American students enrollment maybe influencing achievement gaps which further reflects on earning differences.

Racial segregation in both theory and practice, creates negative perceptions for African Americans in the labor market. This is because racial segregation in central cities results in poor performing schools, low school quality, and poor educational attainment across metropolitan public school districts in the US (Cutler and Glaeser, 1999). Segregation thus results in little interactions among racial groups, and little to nothing is known about networking for job opportunities in African American neighborhoods, resulting in high unemployment in segregated neighborhoods than less segregated neighborhoods (Loury, 1998).

Additionally, segregation generates peer group expectation among young teens resulting in poor test score and low achievements than in less segregated schools. This is because peer influence tends to have deleterious effects on African American students than for White students (Card and Rothstein, 2007). And therefore to the extent that these economic outcomes exist among racially segregated groups, it generates labor market

signals for employers, and therefore African Americans and other minority groups become targets for prejudice and racial stereotyping.

As a result, these indicator variables become signals in labor market outcomes, especially in both hiring and wage determination. This is because segregation becomes a visible trait or characteristics used by employers in the labor market, which impact African American wages as a result of the perception of low African American worker productivity due to the level of signal ratio that is being perceived. Although employers in the labor market are exercising rational choice out of the need to maximize utility or profit, employers however, tend to use group averages that tend to exhibit high signals, rather than innate abilities. The tendency is that African Americans in the labor market tend to become disadvantage, while White tends to gain as a result of their low signal ratio. This result in a situation in which African Americans earn less compared to Whites, known as statistical discrimination.

Statistical discrimination is an economic theory first developed by Phelps (1972) in his piece on *The Statistical Theory of Racism and Sexism* and later explicated in Arrows (1973) *Theory of Economic Discrimination*. Both scholars described statistical discrimination as an economic theory in which economic and social inequality are based primarily on stereotypes. In the labor market for instance, employers exercising their rational choice of making effective hiring decisions often base their hiring decisions on whatever information that is available, and since employers wants to cut hiring cost, the decision to hire and not to hire tends to be based on the individual group characteristics, that is average group behavior of the individual race.

As a result of lack of knowledge of applicant's worker abilities, employers tend to observe applicants visible traits or characteristics of the applicant. This tendency end up generating a vicious cycle of self-filling prophecies (on the part of African Americans) when individuals perceive that their potential employer might not look at their worker abilities, but rather their race characteristics. Thus influencing (African Americans) decisions to apply or not to apply for a job, or whether to attend or not to attend college.

Statistical discrimination indeed occurs when women in the labor market for instance are perceived to be less productive than men, and consequently results in lower wages for women and higher wages for men.[41] As a result, statistical discrimination creates inefficiency in the market economy which adversely affects certain groups against others. For instance, when statistical discriminations is present, it leads to lower wages for African Americans, unemployment or underemployment, and in some cases occupational crowding where African Americans tend to advance career in certain occupations against others as a result of market imperfections[42]. The resultant effect is that statistical discrimination creates differences which tend to reflect on wage earnings gaps between African

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[41] Dickinson, D. L. (2009). Statistical Discrimination in Labor Markets: An Experimental Analysis. *Southern Economic Journal, 76*(1), 16-31. Retrieved August 18, 2014, from http://www.jstor.org/stable/10.2307/27751450?ref=no-x-route:12747b44025ef37569155d8b2d90374b

[42] Albelda, R., Drago, R., & Schulman, S. (2010). *Unlevel Playing Field:Understanding Wage Inequality and Discrimination* (Third ed.). Boston, MA: Dollar and Sense.

Americans and Whites.[43] As a result, labor market discrimination accounts for the major differences arising out of African American and White earning differences.

Arrow (1973) cited in Albelda et al for instance observes that wage differences' arising out of African American and White wage earnings in the labor market is due to insufficient information. And defines statistical discrimination as "the problem of applying group information to an individual member of that group.[44]" Arrow again cited in Albelda et al further argues that employers incur certain costs in their attempt to hire the best workers, these transaction cost may involve the time that is used to search, hire, and train workers for the job[45]. Because companies and firms are profit maximizing ventures, and because firms do not want to engage in costly methods of finding out and researching on potential best workers, merely rely on statistical discrimination to filter potential best employees for their firms.

That is when employers select potential applicants on the bases of certain preconceived characteristics of the applicants' group membership.[46] Indeed to the extent that African Americans stereotypes fits these preconceived characteristics, African

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[43] Albelda, R., Drago, R., & Schulman, S. (2010). *Unlevel Playing Field:Understanding Wage Inequality and Discrimination* (Third ed.). Boston, MA: Dollar and Sense.

[44] Albelda, R., Drago, R., & Schulman, S. (2010). *Unlevel Playing Field:Understanding Wage Inequality and Discrimination* (Third ed.). Boston, MA: Dollar and Sense.

[45] ibid

[46] Albelda, R., Drago, R., & Schulman, S. (2010). *Unlevel Playing Field:Understanding Wage Inequality and Discrimination* (Third ed.). Boston, MA: Dollar and Sense.

American individuals may be treated not on the basis of their productive capabilities, but on the basis of their overall group membership which may either lead to low wages or unemployment or underemployment[47]. For example, when firms believe that African Americans from the central cities acquire poor education, and low skills, they may be offered low wages, because employers are basing their wage decisions on lack of adequate information of the individual innate abilities of the applicant.[48]

Given that segregation has significant effects on educational attainment, school quality, social networking and peer influence, it is not surprising that initial differences arising out of these factors might be feeding into the persistence of African American and White wage differences. For instance, there are several empirical findings that link discriminatory wage earnings to both experience and educational differences, in accounting for labor market earning differentials. Albelda et al, described human capital as the improvement in one's productive abilities due to an investment in education.[49] Indeed the decision to invest in one's productive ability is essential to ones future abilities to earn higher wages. And college education is a critical part of the earning differences. Individuals who decides to invest in education rather than joining the labor force now see the

[47] ibid

[48] Albelda, R., Drago, R., & Schulman, S. (2010). *Unlevel Playing Field:Understanding Wage Inequality and Discrimination* (Third ed.). Boston, MA: Dollar and Sense..

[49] Albelda, R., Drago, R., & Schulman, S. (2010). *Unlevel Playing Field:Understanding Wage Inequality and Discrimination* (Third ed.). Boston, MA: Dollar and Sense..

opportunities to earn higher wages, and therefore the returns to schooling becomes ultimately higher than for those who decides not to invest in human capital[50].

Gary Becker distinguishes two kinds of human capital: *firm specific human capital* and *general human capital.* This distinction lies in the former being the knowledge and skills that one acquires on the job while the later refers to the mobility of the productive skills such as one's education. Empirical findings suggest that much of the differences in African American and White earning differential have been accounted for by return to education and job experience.[51]

The persistence of human capital gap between African American and Whites continue to widen amidst affirmative action policies. Indeed the number of Whites, ages 25-29 in 1980 with a college degree rose from 25% to 35% by 2007 compare to 11.6% to only 19.5% for African Americans in the same age and year period.[52] The decision to acquire human capital skills is further reinforced by the pessimism of employers' perception of African American worker productivity in the labor force. Coate and Loury (1993) makes this observation clear when they argue that when firms rely on an individual persons race as an informational source of his or her worker skill, which often leads to "*self-fulfilling equilibria",* especially when firms believe that individuals from certain

[50] ibid
[51] ibid
[52] ibid

groups or neighborhoods are less skilled. This tendency can reduce the incentive to invest in human capital, which goes to confirm the firm's pessimistic beliefs about the group.[53]

The impact of segregation on college enrollment decisions can be further seen in the study by Dellas and Sakkellaris (2003). Consider the case for macroeconomic fluctuations on school enrollment decision during the school year enrollment period in October. Dellas and Sakkellaris (2003) observe that the decision to acquire human capital skills is countercyclical to market imperfections (coordination failure). Indeed their study find that there is strong relationship in the interest to acquire human capital skills or the decision to attend college or the ability to afford.

As a result, the ability to invest in human capital, becomes pro-cyclical among individuals with the ability and willingness to pay, and countercyclical for individuals who were unable to afford[54]. Although the incentive to invest in human capital does not relate to individuals likely of making a certain "market premium" however macroeconomic instability in interest rates continue to asymmetrically influence the decision to pay for college among individuals who were likely to borrow to attend college[55].

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[53] Coate, S., & Loury, G. (1993). Will Affirmative-Action Policies Eliminate Negative Stereotypes? *American Economic Review, 83*(5), 1220-1240. Retrieved from Jstor.

[54] ibid

[55] Dellas, H. (2003). On the cyclicality of schooling: Theory and evidence. *Oxford Economic Papers 55*(1), 148-172.

Many cross-sectional data has shown that there is significant relationship between parent's socio-economic status and children's enrolments decision in college. The CPS data sampled by Dellas and Sakkellaris show that there was no significant relationship to predict these occurrence. Dellas and Sakkellaris citing Betts and McFarland[56] (1995) point out that unemployment strongly correlate positively with college enrollments, and observe that a percentage increase in unemployment accounts for about 0.5% of college enrollments, even though this disappears as more variable are endogenous (10).[57]

However an examination of macroeconomic factors affecting the decision to invest in human capital show that unemployment rate which is statistically significant also positively correlate with college enrollment decision, and therefore a percentage point in unemployment for instance accounts for 0.25% of an individual probability of college enrollment, indeed not much of a difference from that of Betts and McFarland (1995).[58] Indeed college enrollment decisions are particularly based on individual's levels of commitment in both physical and human capital needs.

As more unemployment continues to rise among African Americans in segregated neighborhoods, the propensity to enroll in college diminishes. The empirical results by Dellas and Sakkellaris (2003) show that a percentage increase in interest rate accounts for about 0.29% probability of one attending college (14). College enrollment among African Americans over the 1969 to 1998 fluctuates and ranged between 29% and 39%.[59]

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[56] Betts, Julian R., and Laurel L. McFarland, (1995), Safe Port in a Storm: The Impact of Labor Market Conditions on Community College Enrollment The Journal of Human Resources, v. 30,no. 4 pp741-765

[57] Dellas, H. (2003). On the cyclicality of schooling: Theory and evidence. *Oxford Economic Papers 55*(1), 148-172.

[58] Betts, Julian R., and Laurel L. McFarland, (1995), Safe Port in a Storm: The Impact of Labor Market Conditions on Community College Enrollment The Journal of Human Resources, v. 30,no. 4 pp741-765

[59] ibid

Kane (1970) also makes similar observations when he noted that the average African American college enrollment declined between 1980-1984 among African American youth of 18 and 19 years old (879),[60]an observation that is consistent with Dellas and Sakkellaris (2003) that there was upward rebound in college enrollments after 1984 among African American youth.

Kane (1970) further alludes that the rate of college tuition hikes, especially for public funded universities continue to impact college enrollment for African Americans after controlling for family background characteristics and returns to education. For instance, public funded universities increased by 45% between 1980 to 1988 (879).[61]

The marginal effect of rising college tuition causes college enrollments to plummet hence college tuition increases negatively affects African American enrollments more than it does for White college enrollments. For example, a $1000 increases in tuition tend to reduce enrollments by 8.5% for African Americans while it reduces 4.6% for Whites (893).[62]

Human capital differences continue to indicate substantial wage differences for African Americans as a result of differences in education and "specific skills" such as experience or abilities. Based on the underlying human capital differences, it is not surprising that there is significant causal effect of education on African American and

[60] Kane, T. J. (1994). College Entry by African Americans since 1970: The Role of College Costs, Family Background, and the Returns to Education. *Journal of Political Economy, 102*(5), 878-911. Retrieved July 23, 2014, from http://www.jstor.org/stable/10.2307/2138651?ref=no-x-route:fdb7e60ea9af4c9b2432d22c30483e1f

[61] ibid

[62] ibid

White earnings differences. Available evident suggest a strong correlation between earnings, education, and experience in the labor market.[63] Card (2001) observes that return to schooling has for many years predicted on wages individuals in the labor market make. That is the higher one's education the higher the wages one earn.[64] This determination covaries with experience as well, in which one's experiences strongly correlates with one's wage, the trendline, shown in Cards analyses is consistent with other scholars' research on educational outcomes. For instance, the OLS estimation indicate that an additional year of schooling has an upward increase in one's wage, which further show that the return to education continue to remain higher for individuals with high school diploma or college degrees.[65]

Thus returns to schooling explain approximately 35% of the variations in earnings, while controlling for other characteristics. The implications are that, as African American human capital skills continue to show significantly low outcomes compared to Whites, it is not surprising to see significant reductions in wages.

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[63] Card, D. (2001). Estimating the Return to Schooling: Progress on Some Persistent Econometric Problems. *Econometrica, 69*(5), 1127-1160. Retrieved July 23, 2014, from http://www.jstor.org/stable/10.2307/2692217?ref=no-x-route:db65575b35be82f0a8d8b1f20557a30a

Card, D. (1999.). The Causal Effect of Education on Earnings. *Journal of Economic Literature*.

[64] Card, D. (1999). The Causal Effect of Education on Earnings. *Journal of Economic Literature*.

[65] ibid

Additionally, there are empirical evidence to show that children's educational outcomes also tend to positively correlate with parents educational attainment (1822). Thus about 30% of the variation in educational outcomes is explained by parents' level of education, which is consistent with other research on the causal effect of education and earning among young adults in the US. If return to schooling is higher for individuals with higher education what then accounts for the variations in earnings?

While this may not be a straightforward answer, Card points out that earnings differential may be due to the following sources such as family background, school quality and ability measured in either test scores or IQ. Card, citing Welch (1973) show that returns to schooling for African Americans have been lower compared to that of White.[66]As a result, African Americans educational attainment and skills in segregated neighborhoods tend to be valued differently because of statistical discrimination.

Individual premarket factors can also vary for African Americans and for White's applicants in the labor market. As Loury (1998) indicated, networks of social capital through employee referrals can be crucial for potential individuals entering the labor market. And to the extent that African Americans' social capital is constraint due to the level of segregation in the neighborhoods, create conditions for labor market discrimination by Whites, despite similar productivity or skills and abilities. Loury makes this clear when he points to "self-filling prophecy" among African Americans as the cause of the persistence of African American-and White earning differences when he argues that "bias

[66] Smith, J. P., & Welch, F. R. (1988). *African American economic progress after Myrdal*.

social cognition" creates conditions in which peoples beliefs are re-enforced as a result of their pessimistic expectation of a phenomenon[67].

In this case, the pessimistic behavior of African Americans are likely to create a situation in which the expectations are fulfilled, especially when African Americans lose confidence in the labor market and give up looking for jobs or applying for loans to attend college. In the same realm, Kenneth Arrow's, seminal paper on *The Impact of Social Capital on African American and White Wage Differentials* also point out that social networks continue to play significant part in job referrals by co-workers. The network of friends and peers in different corporate bodies can constitute social capital for an individual looking for a job. Indeed empirical studies have also shown that these networks have greater impact and indeed accounts for a larger percentage of applicants landing a job. Loury (1998) while alluding to Arrow's argument on statistical discrimination in the labor market, postulates that the wage differentials in the labor market is induced by the fact that there are skills gap differentials between African Americans and Whites which is further reflected in "*social and cultural differences, geographic segregation, social norms and*

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[67] Loury, G. C. (2003). Racial Stigma: Toward a New Paradigm for Discrimination Theory. *The American Economic Review*, *93*(2, Papers and Proceedings of the One Hundred Fifteenth Annual Meeting of the American Economic Association, Washington, DC, January 3-5, 2003), 334-337. Retrieved July 23, 2014, from http://www.jstor.org/stable/10.2307/3132250?ref=no-x-route:a1018901c0ff21f7c2c33960182ab6bf

peer influences and poor quality education".[68] As a result, these premarket factors inhibit the wage gap convergence between African American and White.

This point is also consistent with Neal and Johnson's (1996) observation that low job skills reflecting in low test scores among African American adult teens entering the labor market is the cause of the wage gap differential. This is more so because, the problems inherent in acquiring skills in segregated neighborhoods across metropolitan cities inhibit the share of fair wages in the labor market, which invariably create the opportunity for discrimination in the labor market.[69] Neal and Johnson further made the observation that discrimination in the labor market alone accounts for 1/3 to ½ of the wage gap between African Americans and Whites.[70] In arriving at this stunning conclusion, Neal and Johnson (1996) adopt the Arm Forces Qualification Test (AFQT) as a measure of skills to test the wage gap differential on individuals in their later twenties in the labor market.[71]

It is important to note that segregation creates conditions for "unequal pay for equal work" a phenomenon that continues to have significant effects on African American and White earning differences. Ronald Oaxaca (1973) examines these effects after controlling for various variables that are likely to affect wage differentials in the labor market. The sample data, drawn from the 1967 Economic Opportunity Survey of individuals 16 years and

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[68] Loury, G. C. (1998). Discrimination in the Post-Civil Rights Era: Beyond Market Interactions. *Journal of Economic Perspectives, 12*(2), 117-126.

[69] Neal, D. A., & Johnson, W. R. (1996). The Role of Premarket Factors in African American-White Wage Differences. *Journal of Political Economy, 104*(5), 869.

[70] ibid

[71] ibid

above show significant wage gap across the US. The wage regression reveals that the coefficient for white male and females are 0.036 and -0.1024 respectively, while that of African American males and females is 0.0953 and -0.3851 respectively[72] (700). Indeed the female coefficient show that it is statistical significant at the 5% level.[73] The statistics indicate a consistent wage gap that isn't narrowing as Card and Krueger (1992) suggested in their paper that there seems to be some kind of wage convergence. The G, which refers to the wage differential for African American and White wage differential show that there is a significant gap among the two groups. Indeed the G for Whites is at 0.54 while that of African Americans is 0.49. Therefore, from here it is easier to compute the value of the discrimination coefficient that is attributable to the wage gap by taking the difference in the Gs.

In addition, when personal characteristics are controlled for, it predicted even wider effect of discrimination.[74] Ronald Oaxaca (1973) empirical results show that an estimated 77.7% accounts for the effect of discrimination of wages among African Americans and Whites (P.704). Indeed education which forms significant part of the human capital differences among African American and White show larger gaps in wage differences for African American males and White males as well as for African American females (701).[75]

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[72] Oaxaca, R. (1973). Male-Female Wage Differentials in Urban Labor Markets. *International Economic Review*, *14*(3), 693.

[73] ibid
[74] ibid
[75] ibid

At this juncture, it is also significant to point out that African American and White earning differentials published in the February 2012 issue of the *current population report* on educational attainment in the United States indicate that the median earnings for workers 25 years and over for African Americans alone with high school diploma in 2009 is $23,582 while Bachelor's degree earned $41,329 compared to White non-Hispanic with high school diploma is $28,644 and Bachelor's $48,185 respectively.

In sum, segregation in African American neighborhoods creates adverse economic and social conditions that results in negative outcomes for African Americans. In particular, differences in educational gaps, as well as school qualities and neighborhood compositions have becomes signals in the labor market evaluation of African American productivities. As a result of costly process of finding out applicants worker abilities, employers adopt group averages of the individual race as standards for job evaluation, which leads to incomplete information of potential employees worker abilities. Phelps and Arrow, both point to statistical discrimination as the phenomena used by employers to generate unequal wages for equal work based on stereotypes of the individual race, and because African Americans' stereotypes tend to generate high signals, potential employers use these signals to make hiring decisions that often leads to job denials or low pay.

Chapter III

Data and Methodology

The nature and extent of the formation of racial segregation has been controversial. This chapter describes the data for the research on segregation and the African American and White social and economic gaps in educational attainment. The chapter also put into perspective the role of class and socioeconomic status in the formation of African American and White residential neighborhoods[76] (Spivak et al, 2013). This study adopts dissimilarity and exposure indices in other to find out if significant relationship exists between patterns of residential segregation as measured in the dissimilarity, and exposure indices and income, educational attainment and unemployment.

Evidence on racial segregation suggests that African Americans with high incomes are more likely to live closer to Whites than other African Americans.[77] Karl Tauber (1968) also observes that the nature and extent of urban inequality and residential distribution of African Americans and White across Metropolitan Statistical Areas continue to widen among ethnic groups. Tauber traces the rising trend in the residential dissimilarity index from the Ward level in 1910 up to the Block group levels in the 1960s. And finds that, residential segregation prior to World War I was quite small if not totally nonexistent, however with the rise of Civil Rights Movements and the quest for racial equality

[76] Spivak, Andrew L. Shannon M. Monnat (2013). The Influence of Race, Class and Metropolitan Area Characteristics on African American Residential Segregation. *Social Science Quarterly* vol.94.5

[77] Spivak, Andrew L. Shannon M. Monnat (2013). The Influence of Race, Class and Metropolitan Area Characteristics on African American Residential Segregation. *Social Science Quarterly* vol.94.5

intensified White racism in the 1970s, which ultimately gave rise to ghetto African American neighborhoods with increasing number of African Americans confined to crowded enclaves around central cities across the US. The formation of racial segregation also implies the separation of African American and White social amenities such as schools, stores, and other recreational facilities. As neighborhoods perks differ, White affluent neighborhoods tend to offer more varieties, than African American low income neighborhoods as a result of socioeconomic inequalities among residences of the neighborhoods.[78]

The dissimilarity and the exposure indices are often the most popular of all the indices measuring racial segregation and socioeconomic inequalities. The reason for the choice of the dissimilarity and exposure indices for this research is that, it offers accurate and simplified measurement of spatial distribution of the population. It is thus widely used by researchers and scholars in estimating racial segregation. Its popularity is not only based on its easy usage, in terms of measuring and interpreting, but also it captures the number of people who will have to move to other census areas to make even the distribution of the population.

There are many other studies in the literature for instance, that measures segregation using the concept of dissimilarity. Polednak (1991) used 38 samples of large MSAs to find out that infant mortality was more pronounced among African American residential neighborhood than for White residential neighborhoods. Polednak (1991) study, points out that the dissimilarity index predicts differences in African American and White infant

[78] Tauber, E. Karl (1968) The Problem of Residential Segregation Proceedings of the Academy of Political Science, 1 Jan., Vol.29(1)

mortality in the sampled of large cities.[79] Similarly Hashemi et al (2013) study on child and infant mortality using pairwise correlation coefficient of health and socioeconomic indicators to measure how segregation influences health inequalities in Iran. Their study adopted the dissimilarity index and the generalized entropy theory combined, to inform discussions on the extent of residential segregation and health disparities in Iran (Hashemi et al, 2013). Their findings reveal that infant mortality is high in residential provinces that were highly segregated. Consequently, socioeconomic indicators correlate positively with health dissimilarity index.[80]

In the same vein; albeit contrary to Massey and Denton's study, spanning data from 1970s through to 1990 across 60 MSAs finds that significant pattern exist among African American and White residential segregation and socioeconomic status (Massey and Denton, 1987). The findings show that class and socioeconomic status did not predict any occurrence of African American and White residential formation, but rather White racism and racial prejudice accounted for African American exclusion in White residential neighborhoods. In particular, the rising socioeconomic status of African Americans in major urban cities in the Northeast of the US show less association of residential

[79] Anthony P. Polednak (1991). African American-White Differences in Infant Mortality in 38 Standard Metropolitan Statistical Areas. *American Journal of Public Health* Vol.81.11 1

[80] Syed Saeed Hashemi, Mahmood Mahmoodi, Kourash Holakouie Naieni (2013). Residential Segregation of Socioeconomic Variables and Health Indices in Iran. International Journal of Preventive Medicine Vol. 4.7

segregation and socioeconomic status, at least from the census summary tape files from the 1970s to the 1990s[81].

In this study, I adopt the dissimilarity and exposure indices obtained from Brown university USA 2010 project and the American community survey data (ACS) 2012 three year estimates on educational attainment for cohorts less than high school and for high school, bachelors, graduate or professional, median incomes, as well as the unemployment rates across 50 random sample of Metropolitan Statistical Areas. Two reasons explains the choice of data and the type of data. First I chose 50 metropolitan cities as the basis of analyses because the random sample size is considered ideal for a research of this kind compared to a sample size of 10 for instance. It represents at least a quarter of the total metropolitan statistical districts of the entire United States. The second reason for the choice of data is because the ACS 2010-2012 is considered most reliable compared to year to year estimates. The data also provides average estimates of African American and White socioeconomic data for the three year spans over time.

The socioeconomic indicators are analyzed using stata, as the software to estimate the African American and White socioeconomic gaps using the 2012 American Community Survey obtained from the US Census Bureau to determine the mean differentials of African American and White socioeconomic gaps. Other studies that examines racial residential segregation and the socioeconomic gaps (average mean differential) using the dissimilarity index and Exposure Index are: Massey and Denton (1987), Duncan and Duncan (1955), Tauber and Tauber (1965).

[81] Massey and Denton (1987). Trends in the Residential Segregation of African Americans, Hispanics, and Asians 1970-1990. *American sociological Review* 52.6.

Massey et al (2003) argue that the geography of inequality among African Americans and Whites residential distribution over the years continue to show significant declines in income among the groups. Massey et al demonstrates that, the geography of the poor and affluent are separate and unequal in many socioeconomic outcomes.[82] The IPUMS data used in Massey and Denton's study show incomes of the poor and the rich in separate geographically areas across both regional, states, and at metropolitan levels.[83] The study calculates the value of population distribution using the dissimilarity index to measure residential segregation, income segregation and occupational segregation across regional, states and metropolitan levels.[84]

Racial segregation is the uneven spatial distribution of the population among ethnic groups. African American and White residential segregation describes how even or otherwise uneven the distribution of African Americans and Whites are within a particular census tract. In this study, dissimilarity and exposure indices measure racial segregation, which indicates how low, moderate or high racial residential segregation, is within a metropolitan statical area.

Karl E. Tauber describes residential segregation as a spatial distribution in which one ethnic group differ from another ethnic group within the urban landscape.[85]His study uses the dissimilarity index as a measure of segregation because, the dissimilarity index is able

[82] ibid

[83] ibid

[84] Douglas S. Massey, Mary J. Fisher, William T. Dickens and Frank Levy (2003). The Geography of Inequality in the United States, 1950-2000. *Brooking-Wharton Papers on Urban Affairs*.

[85] Tauber, E. Karl (1968). The Problem of Residential Segregation Proceedings of the Academy of Political Science, Vol.29(1).

to capture the proportion of people who will have to move or change census tracts or geographical location to make the population even (Massey and Denton, 1987), (Duncan and Duncan, 1955).

Although the dissimilarity index is widely used in many theoretical discussions despite its limitations, there are other indices such as the information theory index, denoted by H, that measures segregation; it captures the extent of variation within population subcultures. Isolation index, the third most widely used index calculates the proportion of people who are isolated from another ethnic group within a geographic location. The isolation index measures the concentration of a particular group at a time and does not compare the relative distribution of two or more ethnic categories. It is calculated using the formulae $\Sigma(wi/W)*(wi/ti)$.[86] The Interaction or Exposure index, measures the segregation among the distribution of ethnic groups within a metropolitan city. It is calculated using the formulae $\Sigma(wi/W)*(bi/ti)$. These indices range from 0 to 100, with any value above fifty considered high racial segregation. Like the other indices, the dissimilarity index and the exposure index in this study were obtained from Brown University USA Project 2010. The formula often used in calculating the dissimilarity index is as follows:

$D = \Sigma(\text{abs } bi/B\text{-}wi/W)*0.5$ where bi and wi are the number of members who belong to the census tract and B and W are the total African American and White in the geographical unit.

In this study, Milwaukee-Waukesha-West Allis has the highest metropolitan city dissimilarity index of 79.6, followed by Chicago-Naperville at 75.2 and 74 for Detroit. These figures are also consistent with Logan and Stults (2010) US-Project that looks at

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Metropolitan Statistical Areas across the USA since the1970s. Las Vegas had the lowest dissimilarity index of 35.9 followed by San Jose with a dissimilarity index of 38.6. These indices are consistent with Farley (1977) observation that large urbanized cities tends to have much larger African American concentrations than small cities. Which entails that more urbanized cities tends to see more diverse population distribution than suburban areas.

The African American and White median income gap (mean differential) across metropolitan cities show an average deficit of $11,196.36, with San Antonio TX and San Jose CA showing low African American and White median income gaps of $2,316 and $3,676 respectively. San Francisco-Oakland shows a very high African American and White income gap of $23,013 follow by Bridgeport-Stanford, CT.

Thus, not only does income continue to predict residential choices, but also as family income rises the prospect for good and safer neighborhoods also rises.

The mean African American household income is $27,787 while that of Whites income is $38,984; that is African American median incomes are nearly twice the median incomes of Whites. Like many other scholars, I relied on median income values as opposed to mean incomes or average values, because median incomes captures the real income value as opposed to mean incomes or average values due to outliers.

While many scholars trace the patterns of African American and White socioeconomic gaps over decades others have controversially argue that the African American and White socioeconomic gaps are causally attributable to specific socioeconomic indicators. For instance, Sean-Shong Hwang et al, examine the racial residential segregation in the state of Texas using longitudinal study to find that socioeconomic status in state of Texas in

the1970-80 data did not predict any influence in residential segregation, going contrary to popular studies on the impact of socioeconomic differences on residential outcomes in Farley (1976), Massey and Denton (1987) Cutler and Glaser (1997). Sean-Shong Hwang et al, study found that population growth in Texas showed significant association with residential segregation than income and educational attainment.[87]

Educational attainment also tends to show relative gaps among African American and White cohorts. The African American and White high school attainment did not show any mean gaps. In some major cities the African American high school populations surpasses that of Whites which goes to show that Whites high school students tend to be located in areas other than central cities. Bachelors degree and graduate and professional studies show significantly huge gaps across all metropolitan cities.

Quillian (2014) argues that racial segregation and educational attainment among African Americans and White students graduation rates continue to show significant differences. Quillian (2014) research data is drawn from the Panel Study of Income Dynamics which reveals that high school graduation rates were correlated with socioeconomic status of African Americans and White residential choice. In particular, African Americans who came from poor neighborhoods were found to have low graduation rates and less opportunity to enroll in college, than for whites who came from predominantly White affluent communities. As income segregation rises, inequalities rises, which mean that neighborhoods with high income tend to gain more educational attainments than

[87] ibid

impoverished neighborhoods with low incomes.[88] Iceland et al (2006) evaluates the significance of race and class in the formation of African American and White residential neighborhoods across US Metropolitan Statistical Areas. Iceland et al (2006) paper finds a common ground between the long standing contention, assimilation theory and place stratification theory as bases in explaining African American and White patterns of residential segregation.

Iceland et al (2006) study found that African Americans were highly segregated across different socioeconomic status. Regardless of one's economic status in the society. Indicating that African Americans were being segregated as a result of their color. Thus confirming that place stratification continue to predict highly African American and White residential choices[89]

Unemployment status among African Americans and Whites again show significant socioeconomic gaps. The average African American unemployment rate in this sample of 50 metropolitan cities is 13.4 while that of White is 7.12, a gap that is almost twice the size of the African American unemployment rate. That is among those individuals who reported as being unemployed during the week of administering the questionnaires in the 2012 ACS summary files. The African American and White unemployment gaps show a sharp deferential with overall unemployment across the metropolitan cities averaging an African American and White gap of 6.3. Metropolitan cities such as Oklahoma city and Austin

[88] Lincoln Quillian (2014). Does Segregation Creates Winners and Losers? Residential Segregation and Inequality in Educational Attainment. *Social Problems* Vol.61.3

[89] John Iceland Rima Wilks (2006). Does socioeconomic status matter? Race, Class and Residential Segregation *Social Problems* vol.53.2.

Round Rock Texas Metropolitan Area has lower unemployment rates of 5% and 5.4% respectively, while Tampa-Clearwater Metropolitan Area and Indianapolis Metropolitan Area has very high unemployment rates of 21% and18.2% respectively. These statistical analyses are also consistent with Noah Lewin-Esptein's paper on T*he Impact of Residential Structures and Employment Opportunities.* Which draws on empirical evidence to adduce that the African American and White unemployment gaps among the youth stems from differences in neighborhood opportunity structures among African Americans and Whites. Essentially, the paper argues that as long as African Americans and Whites live in different neighborhoods with different socioeconomic outcomes, they are bound to have different labor opportunity structures that could potentially disadvantage one group over the other.[90] Similarly, Niki Dickerson observed that the spatial distribution of jobs among African Americans and Whites racial residential configurations in the metropolitan labor market structures continue to show significant pattern of racial difference in socioeconomic status. Specifically she argues that local job structures and African American and White access to these jobs in the labor market show diverging gaps. The paper further identifies 95 large cities, using cross sectional data to examine how African American and White population distribution in the metropolitan areas are influenced by their access to jobs in the labor market. Like the "spatial mismatch hypotheses," the author identifies that African Americans suffer from labor market accessibility because they tend to live in neighborhoods that are far from jobs or areas with less job opportunities. Even when

[90]Noah Lewin-Esptein.(1986). Effects of Residential Segregation and Neighborhood Opportunity Structure on the Employment of Young African American and White Youth. *American Sociological Quarterly* Vol.27.4

African Americans are willing to take up job opportunities in neighborhoods other than their own, the commuting distance to and from work as well as commuting cost makes it extremely difficult to maintain and keep a stable job[91].

John E. Farley (1987) also used the data from the 1980 and 1977 economic census in analyzing the male unemployment differential among African Americans, Whites and Hispanics. The paper finds that in general African Americans suffer higher unemployment in areas that are considered White suburban, which positively correlates with segregation in the metropolitan area. In his analyses, Farley (1987) offers two competing hypotheses that test the African American and White unemployment differentials.

The first and foremost is "segregation and job decentralization hypothesis" in which Farley argues that residential segregation creates conditions in which jobs and opportunities for employment are shifting away from central cities to the suburbs, and because African Americans cannot afford to pay to live in the suburbs because of high housing cost they are locked out of the labor market. The second hypothesis is the "white gain hypothesis" which argues that while discriminatory practices benefit White it works to constraints African American labor market opportunities, and argues that as along as White racism and discrimination exist, it tends to benefit Whites overall economic well-being[92].

[91] Niki Dickerson Von Lockette. Occupational and Residential Segregation: The Confluence of Two Systems of Inequality SMLR Research Brief No. 9 Rutgers School of Management and Labor Relations

[92] Farley John E. (1987). Disproportionate African American and Hispanic Unemployment in US Metropolitan Areas: The Role of Racial Inequality, Segregation and Discrimination in Male Joblessness. *The American Journal of Economics and Sociology* Vol.46.2.

Arnot (1998) suggest that high unemployment rates in predominantly African American ghettos are low incomes due to the inability of the later to make residential choices[93]. In a similar vein, Duncan and Duncan's (1955) pioneer article using the ecological approach suggests that the differences in racial residential segregation among African Americans and Whites is confounded on the fact that African Americans and Whites occupational status are parallel to their socioeconomic status, in which African Americans lack relevant occupational skills for certain kinds of jobs.[94]

[93] Arnott, R. (1998). Economic Theory and the Spatial Mismatch Hypothesis. *Urban Studies, 35*(7), 1171-1185.

[94] Duncan O. D, and Beverly Duncan(1955). Residential Distribution and Occupational Stratification *American Journal of Sociology* Vol.60.5.

Sources of Data

The sources of data for this project were extracted from the USA Bureau of the Census and the Brown University's USA-project 2010. The data provides three year estimate and summary tape files for the year 2012 on African American and White demographic counts for each of the 50 Metropolitan Statistical Area. I decided to adopt Metropolitan Statistical Area districts as the unit of measurement in other to overcome the problems of census tract boundary re-demarcations. Census tracts change quite often, and so it is not uncommon to find a geographical unit shared by more than two census tracts within a common geographic unit.

Table 1 of the Census data comprised of disaggregated data on African American and White populations, as a result, metropolitan and city total populations were adjusted in order to calculate the percentage change of White and African American populations. Table 2 comprised of sex by educational attainment for White alone 25 year and over, based on total estimates of male and females with less than high school diploma, those with high school diploma and for those with some college and ones with college degrees.

The ACS data on educational attainment are specifically used to assess individual and community socioeconomic conditions. Again, educational attainment data help government and other policy advocates and agencies to allocate or stress the allocation of funding for school and school districts in need. The educational attainment data is derived from question 11 of the ACS 2012, which all respondents answered. Respondents were between the ages of 18 and over. The educational attainment classifications were based on respondents who answered their highest degree or level of schooling completed. While respondents who were still schooling were made to report their last highest grade

completed. Table 5 describes sex by employment status for White 16 years and over, while table 6 also describes employment status for African Americans or African American 16 years and above.

The ACS data questionnaires on unemployment status can be derived from questions 29 and 35 through 37 of the 2012 American Community Survey. Respondents were between the ages of 15 years and older. The main reasons for these questionnaires are to elicit up to date information from respondents who have worked anytime during the week of the study. And for respondents who were temporarily laid off work or who did not work at all during the week of administering the questionnaires. As well as for those who are not working, but were actively looking for a job within the last month. It is significant to know and understand the unemployment situation in the community for multiple reasons.

Knowing the employment status of individuals is significant in determining how many people in the community are participating in the labor market, as well as how many are unemployed in the community in other to intervene with policies such as job training and tax breaks to get people back to the labor market. The unemployment rate is defined by considering individuals from age 16 and older who are unemployed, especially if they were without a job or not working during the week of administering the questionnaires. The unemployment rate is calculated by dividing the number of unemployed individuals to the total civilian labor force multiply by 100—per cent (Census Bureau).

The ACS data on income is also based off from questions 47 and 48. Respondents were between the ages of 15 and older. Respondents "total income" were reported separately from wages and salaries. Among the area included in determining individual

income status were: whether or not the respondent received social security, what their net self-employment income is, trusts and estate, public assistance, disabilities and pensions etc. the median household income is in two components: the one's below the median income and the one's above the median income. The median income is based on a population distribution with total number of households or families either with or without income (US Census Bureau).

Table 3 shows median earnings in the past 12 months for Whites alone 16 years and over with 2009 inflation adjusted dollars, while table 4 show median earnings for the past 12 months for African American or African American 16 years and over with 2009 inflation adjusted dollars.

Sample

The sample consists of 50 randomly selected Metropolitan Statistical Area (MSA) districts rather than by population size or city characteristics. The reason for this selection is to avoid bias in the data selection process; however, it is fair to say that these 50 randomly selected metropolitan areas may not be representative of the total US metropolitan statistical districts which is about 380. The problem with the choice of sample is that some metropolitan cities may be heavily concentrated by Whites while in other cities the proportion of African Americans to White might be 50% as in the case of many central cities with populations' more than a million people.

Identification of Variables

There are four main variables in this study, the dissimilarity index that is the measure of racial residential segregation, median household income, educational attainment, and unemployment rates. These variables were carefully chosen in order to

determine whether there are any significant empirical relationship between racial segregation and African American and White gaps in household income, unemployment, and educational attainment. Specifically, the study identifies whether residential segregation predicts African American income, unemployment and education outcomes across the major US metropolitan statistical district areas.

The study begun by running the OLS regression of the dependent variables over independent variables to see the how much change in the independent variables is affected by the dependent variable in this case the average African American and White gaps. In other to overcome bias estimation, I further introduced more independent variables to the model in a multivariate analyses to find out if the change in dependent variable is consistent with the hypothesis.

The study found significant association between residential segregaion and African American educational attainment for cohorts with no high school diploma and this correlation was positive, that is a correlation of 0.51. Also, the correlation between African Americans high school attainments and residential segregation was 0.46% or 0.46. There was no significant association between income and residential segregation and the correlation was negative, an indication that residential choice does not necessarily increase or decreases one's income.[95] Given that the average metropolitan dissimilarity index is 58%.

This study has also found that there was strong positive correlation between income and school segregation, which again suggest that education attainment predicts income and

[95] This does not mean that income is not correlated with residential segregation. Sean Reardon et al have documented significant positive relationship between income and patterns of residential choice. This sample size is not representative of the entire USA and therefore cannot generalize to reflect all Metropolitan Statistical Areas.

earnings among African Americans and Whites. Like many scholars, school locations tend to predict how well the school performs, since school districts are partly financed by the taxes within the school districts. This means that school districts with poor incomes are more likely to perform poorly, that is with both school enrollments and graduation rates, which altogether predicts individual school quality.

Chapter IV
Socioeconomic Variables
Educational Attainment

The impact of segregation on educational attainment among African American teens point to significant gaps in areas highly segregated than areas with no segregation. Card and Rothstein (2007) research finding establish that it is difficult to simply blame the poor educational performance to peer group influence rather than neighborhood or school level characteristics that are unobservable, but which might be causing the African American and White educational gaps to widen. This is because students may possess certain specific characteristics that may be responsible for their low achievements rather than the results of peer group expectation.

Card and Rothstein findings show that the effect of segregation on African American students' test score performance reduces as family income rises. As a result, income differences accounts for more than one half of the effect of segregation. Card and Rothstein point out that significant number of African American student's enrollments in a given school tend to correlate with school quality, and suggests that segregation has negative outcomes for African Americans students' test scores thus ultimately reduces their academic achievements.[96] Card and Rothstein (2007) on the other hand, aggregated data from the Metropolitan Statistical Area to determine the extent of the achievement gap between African Americans and Whites in segregated metropolis. The strategy here is to aggregate data by omitting variables such as individual family preferences towards a diverse neighborhood, and also omitting each metropolitan city's effect that may be correlating with segregation.

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Dellas and Sakkellaris (2003) observe that the decision to acquire human capital skills is countercyclical to market imperfections (coordination failure). Their study finds that there are strong relationship in the interest to acquire human capital skills or attend college, and the ability to afford it. As a result, the ability to invest in human capital, becomes pro-cyclical among individuals with the ability and willingness to pay, and countercyclical for individuals who were unable to afford. Although the incentive to invest in human capital does not relate to individuals likely of making a certain "market premium" however macroeconomic instability in interest rates continue to asymmetrically influence the decision to pay for college among individuals who were likely to borrow to attend college[97].

Also, several empirical studies on cross-sectional data have shown that there are significant relationship between parent's socio-economic status and children's enrolments decision in college. The Current Population Survey (CPS) data sampled by Dellas and Sakellaris show that there is no significant relationship that predict these occurrence. Dellas and Sakellaris citing Betts and McFarland[98] (1995) point out that unemployment strongly correlate positively with college enrollments, and observe that a percentage increase in unemployment accounts for about 0.5% of college enrollments, even though this disappears as more variable are endogenous (10)[99]. Indeed a close examination of

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[97] Dellas, H. (2003). On the cyclicality of schooling: Theory and evidence. *Oxford Economic Papers, 55*(1), 148-172.

[98] Betts, Julian R., and Laurel L. McFarland (1995). Safe Port in a Storm: The Impact of Labor Market Conditions on Community College Enrollments *The Journal of Human Resources*, V. 30,No. 4

[99] Dellas, H. (2003). On the cyclicality of schooling: Theory and evidence. *Oxford Economic Papers, 55*(1), 148-172.

macroeconomic factors affecting the decision to invest in human capital show that unemployment rate is not only statistically significant, but also positively correlated with college enrollment decision, and hence, a percentage point in unemployment for instance accounts for 0.25% of an individual probability of college enrollment, indeed not much of a difference from that of Betts and McFarland (1995).[100] Again, college enrollment decision is particularly centered on individual level of commitment in both physical and human capital needs. As unemployment continues to rise among African Americans in hyper segregated neighborhoods, the propensity to enroll in college diminishes. The empirical results by Dellas and Sakellaris (2003) show that a percentage increase in interest rate for example, accounts for about 0.29% probability of one attending college (14). College enrollment among African Americans over the 1969 to 1998 fluctuates and ranged between 29% and 39%.[101]

Kane (1970) also makes similar observations when he noted that the average African American college enrollment declined between 1980-1984 among African American youth of 18 and 19 years old (879),[102] an observation that is consistent with Dellas and Sakellaris (2003) who observed that, there was upward rebound in college enrollments after 1984

[100] Betts, Julian R., and Laurel L. McFarland (1995). Safe Port in a Storm: The Impact of Labor Market Conditions on Community College Enrollments *The Journal of Human Resources*, V. 30,No. 4

[101] ibid

[102] Kane, T. J. (1994). College Entry by African Americans since 1970: The Role of College Costs, Family Background, and the Returns to Education. *Journal of Political Economy, 102*(5), 878-911. Retrieved July 23, 2014, from http://www.jstor.org/stable/10.2307/2138651?ref=no-x-route:fdb7e60ea9af4c9b2432d22c30483e1f.

among African American youth. Kane (1970) further alludes that the rate of college tuition hikes, especially for public funded universities continues to affect college enrollment for African Americans than for other racial groups after controlling for family background characteristics and returns to education. For instance, public funded universities increased by 45% between 1980 to 1988 (879).[103] The marginal effect of rising college tuition causes college enrollments to plummet; hence college tuition increase negatively affects African American enrollments more than it does for White college enrollments. For example, a $1000 increases in tuition tend to reduce enrollments by 8.5% for African Americans while it reduces 4.6% for Whites (893).[104]

Human capital differences show substantial wage differences among African American and White that can be attributed to differences in education attainment and the acquisition of "specific skills" such as experience or abilities either physical or innate. The underlying human capital differences are not entirely surprising given that there is significant causal effect of education and African American and White earnings and unemployment differences. Indeed available evident suggest a strong correlation between earnings, education, and experience in the labor market.[105] For instance, Card (2014)

[103] ibid
[104] ibid
[105] Card, D. (2001). Estimating the Return to Schooling: Progress on Some Persistent Econometric Problems. *Econometrica, 69*(5), 1127-1160. Retrieved July 23, 2014, from http://www.jstor.org/stable/10.2307/2692217?ref=no-x-route:db65575b35be82f0a8d8b1f20557a30a

Card, D. (1999.). The Causal Effect of Education on Earnings. *Journal of Economic Literature*.

observes that return to schooling has for many years predicted wages individuals make in the labor market. That is the higher one's education the higher the wages one earn.[106] These analyses on wages and education also co-varies with experience as well, in which one's experiences strongly correlates with one's wage.

The trendline for example, in Cards analyses is consistent with other scholars' research on educational outcomes. For instance, the OLS estimation indicate that an additional year of schooling has an upward increase in one's wage, which further show that the return to education continue to remain higher for individuals with high school diploma or college degrees.[107] Thus returns to schooling explain approximately 35% of the variations in earnings, while controlling for other characteristics. The implications are that, as African American human capital skills point to significantly low outcomes compared to Whites, it is however, not surprising to see significant reductions in unemployment to rebound if African American educational attainment surges.

In addition, there are empirical evidence that show that children's educational outcomes also tend to positively correlate with parents educational attainment (1822). David Card observes that about 30% of the variation in educational outcomes is explained by parent's level of education, which again is consistent with many other research on the causal effect of education attainment and earning among young adults in the US metropolitan statistical areas.

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[106] Card, D. (1999). The Causal Effect of Education on Earnings. *Journal of Economic Literature*.

[107] ibid

The question now is, if African American and White have equal amount on return to schooling, what then accounts for the variations in earnings if return to schooling is higher for individuals with higher education? While this may not be a straightforward answer, Card (2014) observes that earnings differential may be due to the following sources such as family background, school quality and ability measured either in test scores or IQ. Card, citing Welch (1973) show that returns to schooling for African Americans have been lower compared to that of White,[108] mainly because African Americans education attainment and skills in segregated neighborhoods tend to be valued differently arising out of statistical discrimination based on stereotypes that might be influencing African American and White wage differential.

Results of African American and White Educational Attainment Outcomes

This section analyzes the data on African American and White socioeconomic gaps in education. It begins by summarizing African American and White socioeconomic variables and subsequently comparing the average differentials of the racial populations. The statistical software used for this research is Stata version 12. This section, also shows how racial residential segregation or the dissimilarity index affects African Americans socioeconomic wellbeing. Thereby, demonstrating why the African American mean average is an important criteria for determining the African American and White socioeconomic outcomes in education.

[108] Smith, J. P., & Welch, F. R. (1988). *African American economic progress after Myrdal*.

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In order to test whether segregation affects socioeconomic outcomes in educational attainment the following standard assumptions must be made (Stattrek.com/hypothesis-testdifference-means n.d.)

1. that the African American and White population groups have equal variances

2. the African American and White racial groups are normally distributed

3. the African American and White values are independent from one another.

For example, Let **μW** equals the population of White mean, **μB** equals the population of African American mean in testing the hypothesis of the two means let **Ho: μW-μB = 0ses** Where Ho represents the null hypothesis that says that there are no significant African American and White socioeconomic differences. Where "**0ses**" is Zero Socioeconomic Status. The alternative hypothesis is **H_1:μW-μB≠ 0** where **H_1** is the alternative hypothesis that says that there are significant negative outcomes in African American and White socioeconomic outcomes. In order to test the significance of the mean differential for both racial groups we will need to compute the test statistic or the t of the difference, using the formula below:

$$t = \frac{(\mu W - \mu B) - O}{SE(\mu W - \mu B)}$$

the standard Error (SE) is given by SE (μW-μB) = $\sqrt{\frac{SW^2}{nW} + \frac{SB^2}{nB}}$ where SW^2 and SB^2 are the White and African American variances of the population parameters. The variance S^2 is computed using the following formula below:

$$SW^2 = \frac{1}{nw} - 1 \sum_{n-w}^{n} (W - \mu w)^2$$

$$SB^2 = \frac{1}{nb} - 1 \sum_{n-b}^{n} (B - \mu b)^2$$

Where W and B are the sample mean and μ is the population mean[109].

Educational Attainment for Cohorts Less than High School

The mean gap for educational attainment for cohorts less than high school for African Americans and White in the sample is 4.5. This means that the proportions of African Americans without high school diploma are significantly higher than for those categorized as Whites. Not only that the African American mean differential is higher compared to that of White, but also the average dissimilarity for cohorts less than high school diploma also show higher mean. Metropolitan Statistical Areas in the sample are considered segregated if the dissimilarity index is either 50 per cent or higher. The table below shows Educational Attainment less than high school with Dissimilarity above and below 50 percent. Dissimilarity above 50 per cent is generally considered moderately high or hyper segregation. Consistent with previous research, many scholars have drawn the correlation between racial residential segregation using the dissimilarity index with educational attainment. Thus MSAs with higher racial residential segregation also show significantly higher proportions of low educational attainment. Conversely, Metropolitan Statistical Areas with low dissimilarity indices tends to show high proportion of education attainment. There are several indicator variables that affects the outcome of educational attainment. Generally, individual socioeconomic status, and parent's educational status, parental income, school quality, teacher to student ratio, peer group influence, neighborhood characteristics among others. This research considers the African American and White educational attainment for cohorts with less than high school, high school, bachelors,

[109]Stattrek.com/hypothesis-test difference-means

graduate and professional, median income, and unemployment rates as the explanatory variables in the sample. The dependent variables are the African American and White gaps of each of the independent variables.

The regression output of the effect of segregation on educational attainment of cohorts less than high school is also shown in Table.2

The associated regression model is **BW_LH_Gap=βo-12.62863-β10.0857808Dismilarities+β21.064346Beduc_LHS-β30.0939685Bunem-β40.0000718Bmedian_Inc-β50.0105638W_BEXP1980-β60.0754645W_BEXP2010**

The African American and White educational attainment gap for cohorts less than high school in the sample is predicted to increase by only 0.085 units when dissimilarity goes up by one unit, holding all other variables constant. The coefficient on dissimilarity is positive and only reduces the African American and White gap by only 0.085. The White exposure to African Americans for the periods 1980 and 2010 were both rather increasing the African American and White educational attainment gaps. For instance, the White-African American exposure index coefficient for the period 1980 and 2010 increases the African American and White educational attainment by 0.01 and 0.075 respectively. Since this is a multiple regression analysis the coefficient of determination or the R-square explains about 68% of the variation in educational attainment gaps for cohorts less than high school.

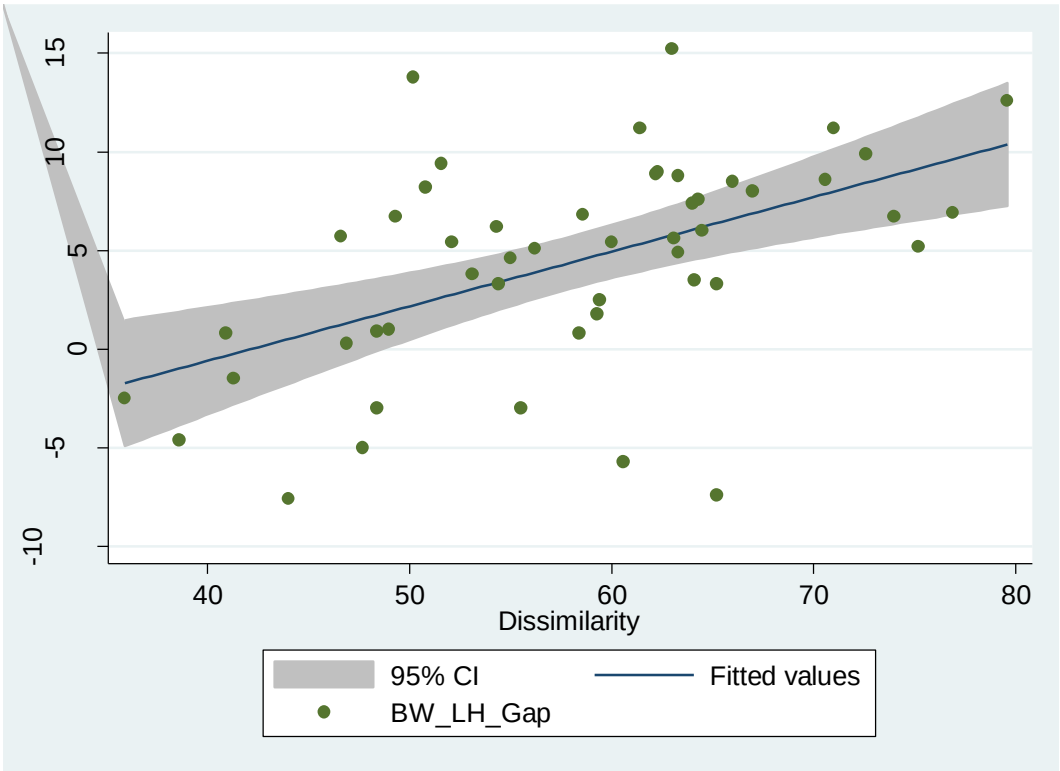

Figure1. Showing the effect of dissimilarity on African American and White educational attainment for cohorts less than high school.

Test of Hypothesis for Educational Attainment for Cohorts Less than High School

This is a two tail test. From the regression output the coefficient of the Dissimilarity index or segregation is 0.076 assuming the African American and White educational attainment gap for cohorts less than high school are the same or zero. The expectation is that the two groups will both differ or different from zero. Hence suppose:

Ho: μW-μB = 0

H_1:μW-μB≠ 0

Let **μ** equals the population mean =12.88

μB equals the African American sample population mean=15.09

SB equals the standard error of the African American education mean =$\frac{S}{\sqrt{N}}$=0.530

t=$\frac{B-\mu}{SB}$ = 15-12.88/0.530= 4.18

The degree of freedom is N-1=49

At 5% significance level **α** is 0.05 and since this is a two tail test each tail is 0.025 from the **t** distribution table the critical values are **2.010 < 4.18** thus we reject the null that the African American and White educational attainment for cohorts less than high school is same or equals to zero. Again at 1% significance alpha **α** is 0.01. The test statistic for education attainment less than high school is 4.18 which follows t-distribution with 49 degrees of freedom. At the 1% significant alpha is 0.01/2 =0.005 with critical value is 2.68 < 4.18 which means we again reject the null hypothesis that Educational attainment for cohorts less than high school are equal for African American and Whites at both 95 percent and 99 percent confidence intervals.

Table.3

Educational Attainment High School

In this section, the educational attainment measures cohorts with high school diplomas. It is intended to demonstrate the African American and White average educational attainments gap with a view to measuring their levels of significance. Typically, every school going age for both Elementary and High school are mandatory across all Metropolitan Statistical Areas in the United States. African American elementary and high school enrollments have seen exponential increase over the years. However, the quality of educational attainment couple with college preparedness among African American cohorts have raised several concerns about the educational attainment gaps.

Table.4 below show a detail summary of the percentile gaps in educational achievements for both African American and Whites.

TABLE6

The table below show educational attainment for cohorts with high school diplomas with mean and Dissimilarity index less than and greater than 50 per cent.

The regression output for educational attainment of cohort's with high school diplomas and the dissimilarity index are shown below in table 6.

The associated regression model is **BW_HS_Gap=βo-17.69139+β10.0542782Dismilarities+β21.0397117Beduc_HS-β30.1271777Bunem+β40.0003139Bmedian_Inc+β50.3250203W_BEXP1980-β60.3032462W_BEXP2010**

The African American and White educational attainment gap for high school cohorts in the sample is predicted to increase by only 0.054 units when dissimilarity goes up by one unit, holding all other variables constant. The coefficient on dissimilarity is positive and only reduces the African American and White gap by only 0.054. The White exposure to African Americans for the periods 1980 and 2010 were rather mixed. For instance, the White-African American exposure index coefficient for the period 1980 reduces the African American and White Gap by 0.325 while the 2010 White exposure to African American index increases the African American and White gap by 0.303. Since this is a multiple regression analysis the coefficient of determination or the R-square explains about 40% of the variation in educational attainment gaps for high school cohorts.

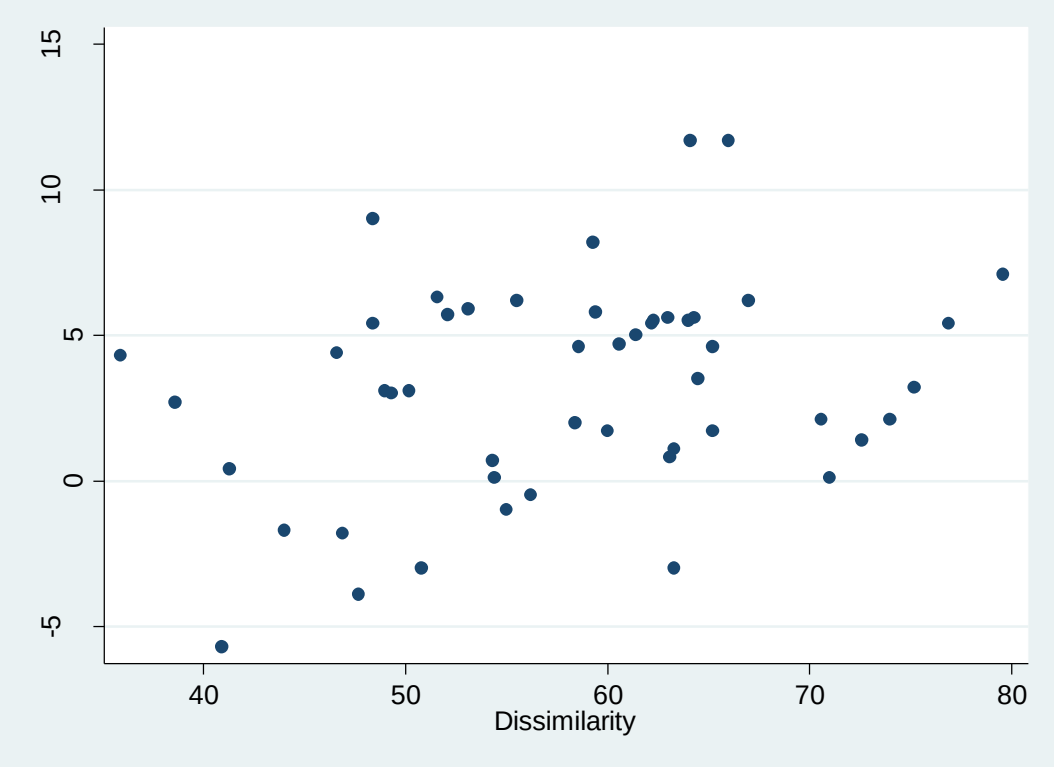

Figure.2 Showing the effect of dissimilarity on African American and White educational attainment for high school cohorts.

Test of Hypothesis for Educational Attainment High School

This is a two tail test. From the summary statistics output the mean for African American educational attainment for high cohorts is 29.326, assuming the African American and White educational attainment gap for cohort's high school are the same or zero. The expectation is that the two groups will both differ or be different from zero. Hence suppose:

Ho: μW-μB = 0

H_1:μW-μB ≠ 0

μB equals the African American sample population mean= 29.326

SB equals the standard error of the African American education mean =$\frac{S}{\sqrt{N}}$= $\frac{3.892}{7.07}$=0.55

t=$\frac{B-\mu}{SB}$ = 29.326-27.06/0.55= 4.12

The degree of freedom is N-1=49

At 5% significance level α is 0.05 and since this is a two tail test each tail is 0.025 from the t distribution table the critical values are 2.010 and -2.010, and since 2.010 < 4.12 we reject the null that the African American and White educational attainment for high school cohorts is same or equals to zero. Again at 1% significance alpha α is 0.01. The test statistic for education attainment high school cohorts is 4.12 which follows t-distribution with 49 degrees of freedom. The critical value is 2.68 < 4.12 which means we again reject the null hypothesis that Educational attainment for high school cohorts are equal for African American and Whites at both 95 percent and 99 percent confidence intervals.

Results of Educational Attainment for Bachelors

These are cohorts with bachelor's degree or its equivalent. Out of the 50 Metropolitan Statistical Areas 38 MSAs have segregation indices greater than 50 percent. That is at least from moderately high to high segregation. The table below show Educational Attainment Bachelor's degree with Mean and Dissimilarity greater than and less 50 per cent

Table. 7

The regression output of those with Bachelor's degree is shown below.

Table.8

The associated regression model is **BW_Bachelor_Gap=βo-6.895423 –β10.01432579Dissim+β20.3580656Beduc_Bach +β30.1750962Unemp-β40.0000133Bmedian_Inc-β50.4391951W_BEXP1980+β60.2468635W_BEXP2010**

The African American and White educational attainment gap for those with bachelors degree in the sample is predicted to increase by only 0.014 units when dissimilarity goes up by one unit, holding all other variables constant. The coefficient of the dissimilarity index is negative and therefore increases the African American and White gap by only 0.014. For instance, the White-African American exposure index coefficient for the period 1980 increases the gap by 0.439 while the 2010 exposure index reduces the gap by just 0.246. Since this is a multiple regression analysis the coefficient of determination or the R-square explains about 35% of the variation in educational attainment gaps for those with Bachelor degrees.

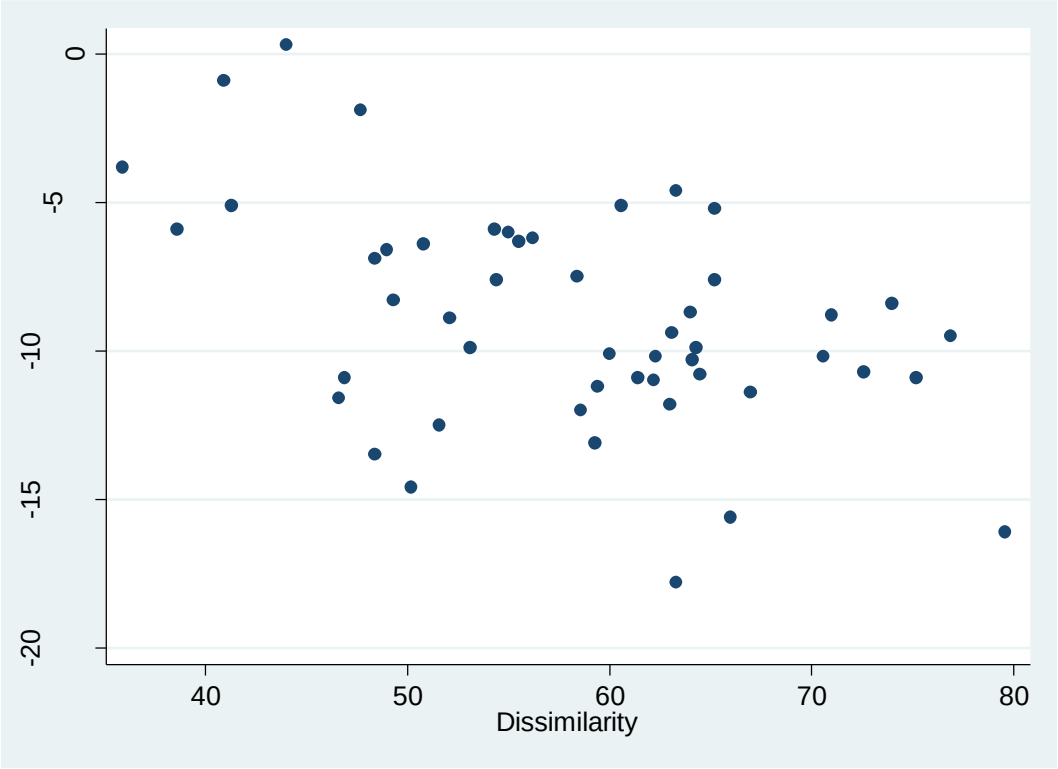

Figure. 3

Showing the effect of dissimilarity on African American and White educational attainment for cohorts with Bachelor's Degree.

Test of Hypothesis for Educational Attainment Bachelor's Degree

This is a two tail test. From the summary statistics, the African American mean educational attainment for those with bachelor degrees is 12.734 assuming the African American and White educational attainment gap for cohorts bachelor's degree are the same or zero. The expectation is that the two groups will both differ or be different from zero. Hence suppose:

Ho: μW-μB = 0

H_1:μW-μB ≠ 0

μB equals the African American sample population mean= 12.734

μ = 17.216

SB equals the standard error of the African American education mean =$\frac{S}{\sqrt{N}}$= $\frac{3.030}{7.07}$ = 0.428

t=$\frac{B-\mu}{SB}$ = 12.734-17.216/0.428 = -10.47

The degree of freedom is N-1=49

At 5% significance level α is 0.05 and since this is a two tail test each tail is 0.025 from the t distribution table the critical values are 2.010 and -2.010, and since 2.010 <10.88 thus we reject the null that the African American and White educational attainment for bachelor degrees is same or equals to zero. Again at 1% significance alpha α is 0.01. The test statistic for education attainment bachelor is 10.47 which follows t-distribution with 49 degrees of freedom. The critical value is 2.68 < 10.47 which means we again reject the null hypothesis that Educational attainment for those with bachelor degrees are equal for African American and Whites at both 95 percent and 99 percent confidence intervals.

Educational Attainment Graduate

Out of the total 50 MSAs, 38 has dissimilarity 50 percent and above. While 12 MSAs have dissimilarity index at 50 percent or below. This is an indication that US metropolitan cities remain segregated, with heavy concentration of African Americans in central cities and Whites in the suburbia. The table below show Educational Attainment for graduates and professional degrees with their means.

Table.9

The educational attainment for those with graduate and professional degrees have mean dissimilarity index of 3.93, indicating that there are significant gaps among metropolitan areas with low dissimilarity indices.

The regression output of those with graduate and professional degree is shown below in table 10

Table.10

The associated regression model is **BW_Grad_Gap= βo5.805923-β10.126919Dissim+β20.3818188Beduc_Grad+β30.019343Unemp-β40.0002893Bmedian_Inc-β50.5579437W_BEXP1980+β60.4331876W_BEXP2010**

The African American and White educational attainment gap for those with graduate and professional degrees in the sample is predicted to increase by only 0.126 units when dissimilarity goes up by one unit, holding all other variables constant. The coefficient on dissimilarity is negative and therefore, suggest that the African American and White gap increases by only 0.126. The White to African American exposure index for the periods 1980 and 2010 were again mixed. For instance, the White-African American exposure index coefficient for the period 1980 increases the gap by 0.557 while the 2010 exposure

index reduces the gap by just 0.433. Since this is a multiple regression analysis the coefficient of determination or the R-square explains about 44% of the variation in educational attainment gaps for those with graduate and professional degrees.

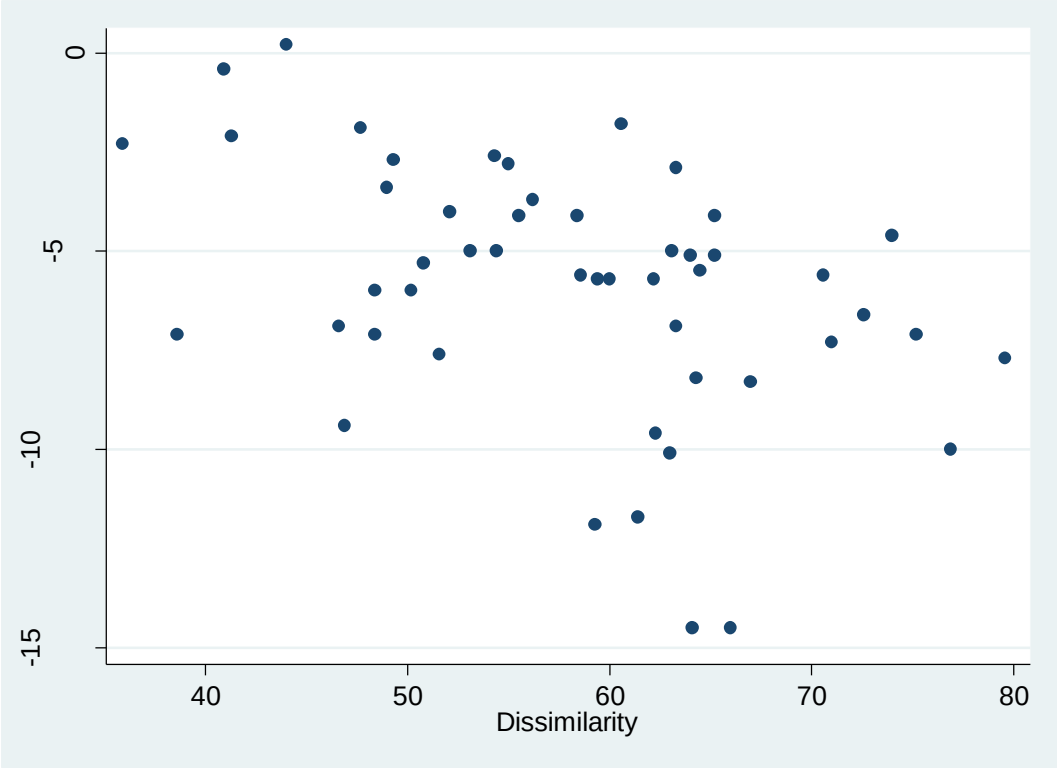

Figure.4

Showing the effect of dissimilarity on African American and White educational attainment for cohorts with graduate and professional Degrees.

Test of Hypothesis for Educational Attainment Graduate and Professional Degrees

This is a two tail test. From the summary statistics output above, the mean graduate educational attainment for African Americans is 7.064. Assuming the African American and White educational attainment gap for cohorts with graduate and professional degree are the same or zero. Although the expectation is that the two groups will both differ or be different from zero. Hence suppose:

Ho: μW-μB = 0

H_1:μW-μB ≠ 0

μB equals the African American sample population mean= 7.064

μ = 10.025

SB equals the standard error of the African American education mean =$\frac{S}{\sqrt{N}}$= $\frac{1.723}{7.071}$ = 0.244

t=$\frac{B-\mu}{SB}$ = 7.064-10.025/0.244 = -12.14

The degree of freedom is N-1=49

At 5% significance level α is 0.05 and since this is a two tail test each tail is 0.025 from the t distribution table the critical values are 2.010 and -2.010, and since 2.010 < 12.14 thus we reject the null that the African American and White educational attainment for graduate and professional degree is same or equals to zero. Again at 1% significance alpha **α** is 0.01. The test statistic for graduate education attainment is 12.14 which follows t-distribution with 49 degrees of freedom. The critical value is 2.68 < 12.14 which means we again reject the null hypothesis that Educational attainment for those with graduate degrees are equal for African American and Whites at both 95 percent and 99 percent confidence intervals.

Income

Results of African American and White Median Income

Below is summary statistics of African American and White median incomes for the 50 MSAs

Variable	Obs	Mean	Std. Dev.	Min	Max
Bmedian_Inc	50	27787.76	5575.05	18856	49090

Variable	Obs	Mean	Std. Dev.	Min	Max
Wmedian_Inc	50	38984.12	7057.735	23737	62120

Table.11

The regression output below show the marginal effect of segregation on median incomes of African American households.

Table.12

The associated regression model is **BW_Median_Inc_Gap= βo1412.181-β1111.8174Dissim-β2177.521968Beduc_HS-β3-183.9123BUnemp-β4977.299 W_B_Expo_Index_1980 +β790.0649 W_B_Expo_Index_2010**

The African American and White median income gap in the sample is predicted to increase by only $111 when dissimilarity goes up by one $1, holding all other variables constant. The coefficient of the dissimilarity index is negative, and therefore, suggest that the African American and White gap increases by only $111. The White to African American exposure index for the periods 1980 and 2010 were again mixed. For instance, the White-African American exposure index coefficient for the period 1980 increases the gap by $977 while

the 2010 exposure index reduces the gap by just 790. Since this is a multiple regression analysis the coefficient of determination or the R-square explains about 14.5% of the variation in median income gaps.

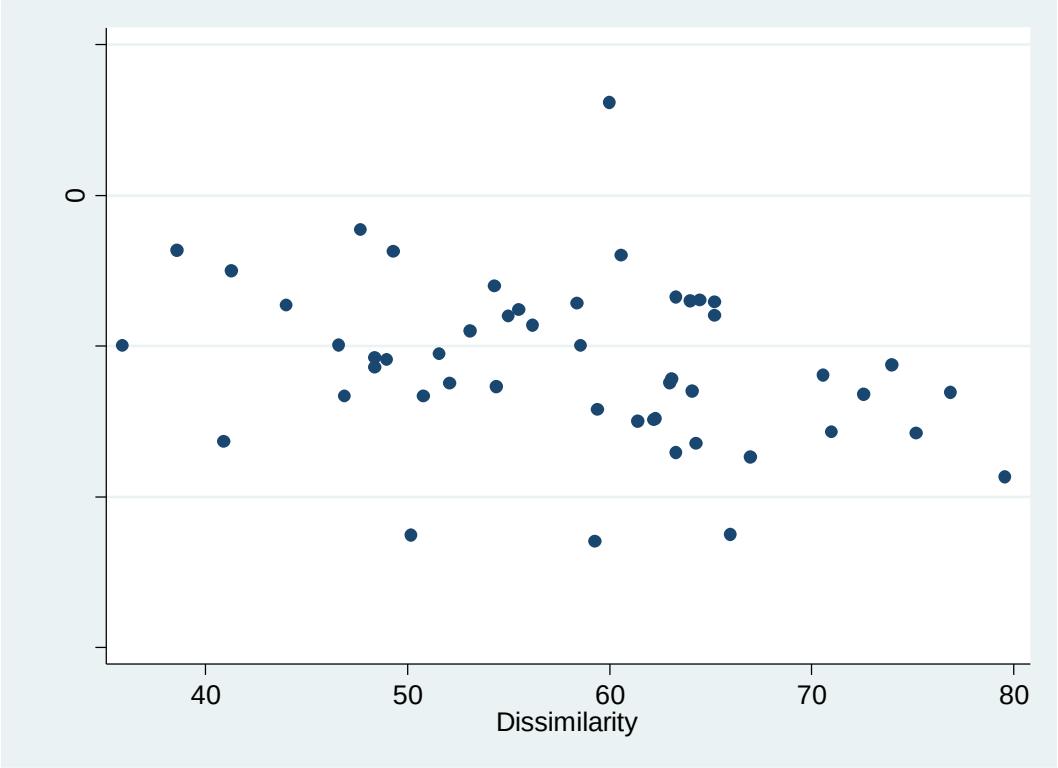

Figure.5

Showing the effect of dissimilarity on African American and White average Median Incomes.

Test of Hypothesis of African American and White Median Income

This is a two tail test. From the regression output above, the African American median income coefficient is 0.165. Assuming the African American and White median household income gaps are the same or zero. Although the expectation is that the two groups will both differ or be different from zero. Hence suppose:

Ho: μW-μB = 0

H_1:μW-μB ≠ 0

μB equals the African American sample population mean= 27787

μ = 33385

SB equals the standard error of the African American education mean =$\frac{S}{\sqrt{N}}$= $\frac{5575}{7.071}$ = 788

t=$\frac{B-\mu}{SB}$ = 27787-33385/788 = -7.10

The degree of freedom is N-1=49

At 5% significance level α is 0.05 and since this is a two tail test each tail is 0.025 from the t distribution table the critical values are 2.010 and -2.010, and since 2.010 < 7.10 thus we reject the null that the African American and White median income is the same or equals to zero. Again at 1% significance alpha α is 0.01. The test statistic for median income is -7.10 which follows t-distribution with 49 degrees of freedom. The critical value is 2.68 < 7.10 which means we again reject the null hypothesis that median incomes are equal for African American and Whites at both 95 percent and 99 percent confidence intervals.

Unemployment

The skyrocketing unemployment rates among African Americans offer another perspective in which the context of residential racial segregation and African American socioeconomic outcomes are explained. Social science scholars have established that racial residential segregation has significant effect on African American and White earning differences and thus unemployment. Although African American and White unemployment gap continue to narrow for the last 4 decades, the average African American continue to be unemployed or earn less than the average White. While Card and Krueger (1992 a,b) looks at the influence of education on earnings among African Americans, Loury (1993) looks at the lack of social network and social capital among African Americans that influence one's chances of being employed.

Racially segregated metropolitan cities continue to be mired with cycle of poverty, low incomes, joblessness and social misery. Unemployment has a significant impact on segregation which negatively affects African Americans' social and economic outcomes. For instance, racial minorities in spatially segregated neighborhoods show worse outcomes, especially for African Americans than less spatially segregated neighborhoods.[110] It can also be mentioned that the physical separation of African Americans and White neighborhoods makes it difficult for African Americans to acquire certain skills and values for their own socio-economic mobility. This make African Americans find it difficult to acquire jobs, because of their physical isolation, arising out

[110] Cutler, D. M., & Glaeser, E. L. (1997). Are Ghettos Good or Bad? *The Quarterly Journal of Economics*, *112*(3), 827-872.

of jobs being located farther in the suburbs than in areas closer to African American neighborhoods.

Indeed African Americans living in spatially segregated areas also lack social interaction and their physical distance from Whites isolates African Americans from informational resource opportunities for jobs.[111] Indicating that as more and more African Americans continue to live in isolated neighborhoods, it implies that there are going to be little interaction or exposure to Whites, a situation known as the "spatial mismatch" thesis or hypothesis. The underlying effect is that African Americans are closed out in areas that are potentially endowed with better public good, such as schools and employment opportunities that invariably hurt African Americans.[112]

There are several empirical findings that corroborate the effect of segregation on African American employment outcomes. For instance racial segregation creates worse social interaction which impacts the ability of African Americans in the metropolitan area to gain skills and values for the job market.[113]

It can also be said that the effects of segregation on African American employment outcomes indicate that Whites in more segregated neighborhoods have better socio-economic outcomes than African Americans in hyper segregated neighborhoods.[114] The empirical results by Cutler and Glaser tests the effect of segregation on African American social and economic outcomes which reveals that there are strong evidence to suggest that

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[111] Cutler, D. M., & Glaeser, E. L. (1997). Are Ghettos Good or Bad? *The Quarterly Journal of Economics, 112*(3), 827-872.

[112] Ibid.

[113] Ibid.

[114] ibid

segregation indeed has worse employment outcomes for African Americans across all the metropolitan statistical areas that was sampled. According to the sample, a percentage increase in segregation reduces African American high school graduation rate, income, joblessness and single parents (828). Cutler and Glaser further argues that if one were to reduce segregation by a standard deviation, then segregation will eliminate about one third of the differences in outcomes between Whites and African Americans (828).

Individual premarket factors can also vary for African Americans and for White's applicants in the labor market. As Loury (1998) indicated, networks of social capital through employee referral programs can serve as potential network for individuals entering the labor market. And to the extent that African Americans' social capital is constraint due to the level of segregation in the neighborhoods, create conditions for labor market discrimination, despite similar productivity or skills and abilities. Loury(1998) makes this vividly clear when he points to "self-fulfilling prophecy" among African Americans as the cause of the persistence African American and White earning differences when he argues that "bias social cognition" creates conditions in which peoples beliefs are re-enforced as a result of their pessimistic expectations.[115]

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[115] Loury, G. C. (2003). Racial Stigma: Toward a New Paradigm for Discrimination Theory. *The American Economic Review, 93*(2, Papers and Proceedings of the One Hundred Fifteenth Annual Meeting of the American Economic Association, Washington, DC, January 3-5, 2003), 334-337. Retrieved July 23, 2014, from http://www.jstor.org/stable/10.2307/3132250?ref=no-x-route:a1018901c0ff21f7c2c33960182ab6bf

In this case, the pessimistic behavior of African Americans are likely to create a situation in which the expectations are fulfilled, especially when African Americans lose confidence in the labor market and give up looking for jobs or applying for loans to attend college. In the same realm, Kenneth Arrow's, seminal paper on *The Impact of Social Capital on African American and White Wage Differentials* also point out that social networks continue to play significant part in job referrals by co-workers. The network of friends and peers in different corporate bodies can constitute social capital for an individual looking for a job. Indeed empirical studies have also shown that these networks have greater impact and indeed accounts for a larger percentage of applicants landing on a job. Loury (1998) while alluding to Arrow's argument on statistical discrimination in the labor market, postulates that the wage differentials in the labor market is induced by the fact that there are skills gap differentials between African Americans and Whites, which is further reflected in "*social and cultural differences, geographic segregation, social norms and peer influences and poor quality education.*[116] As a result, these premarket factors inhibit the wage gap convergence between African American and White.

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[116] Loury, G. C. (1998). Discrimination in the Post-Civil Rights Era: Beyond Market Interactions. *Journal of Economic Perspectives, 12*(2), 117-126. Also see

Loury, G. C. (2003). Racial Stigma: Toward a New Paradigm for Discrimination Theory. *The American Economic Review, 93*(2, Papers and Proceedings of the One Hundred Fifteenth Annual Meeting of the American Economic Association, Washington, DC, January 3-5, 2003), 334-337. Retrieved July 23, 2014, from http://www.jstor.org/stable/10.2307/3132250?ref=no-x-route:a1018901c0ff21f7c2c33960182ab6bf

This point is also consistent with Neal and Johnson's (1996) observation that poor job skills among African Americans entering the labor market is the sole cause of the wage gap differential. This is more so because, the problems inherent in acquiring skills in segregated neighborhoods across metropolitan cities inhibit the share of fair wages in the labor market, which invariably create the opportunity for discrimination in the labor market.[117] Neal and Johnson (1996) further made the observation that discrimination in the labor market alone accounts for 1/3 to ½ of the wage gap between African Americans and Whites [118] Neal and Johnson's (1996) conclusion based their argument on the Arm Forces Qualification Test (AFQT), a measure of skills to test the wage gap differential among individuals who were followed into their later twenties in the labor market. Individuals with high AFQT were seen to have acquired higher jobs requiring higher skills, than individuals with low skills.[119] It is important to again note that segregation creates conditions for "unequal pay for equal work," a phenomenon that continues to have significant effects on African American and White earning differences. Ronald Oaxaca (1973) examines these effects after controlling for various variables that are likely to affect wage differentials in the labor market. The sample data, drawn from the 1967 Economic Opportunity Survey of individuals 16 years and above show significant wage gap across the US. The wage regression reveals that the coefficient for White male and females are 0.036 and -0.1024 respectively, while that of

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[117] Neal, D. A., & Johnson, W. R. (1996). The Role of Premarket Factors in African American-White Wage Differences. *Journal of Political Economy, 104*(5), 869.

[118] ibid

[119] ibid

African American males and females is 0.0953 and -0.3851 respectively[120](700). Indeed the female coefficient show that, it is statistical significant at the 5% level.[121] This empirical analyses negate the argument on the notion that there are wage gap convergence (narrowing) as Card and Krueger's (1992) paper suggest. The G, which refers to the wage differential gap for African American and White wage differential, show that there are a significant gap among the two groups. Indeed the G for Whites valued at 0.54 while that of African Americans valued for 0.49. Therefore, from here it is easier to compute the value of the discrimination coefficient that is attributable for the wage gap by taking the difference in the Gs. In addition, when personal characteristics are controlled for, it predicted even wider effect of discrimination.[122] Ronald Oaxaca (1973) empirical results show an estimated 77.7% effect of discrimination of wages among African Americans and Whites (704). Indeed education which forms significant part of the human capital differences among African American and White show larger gaps in wage differences for African American males and White males as well as for African American females (701).[123]

It can be concluded that segregation in African American neighborhoods creates adverse economic and social conditions that results in negative outcomes for African Americans. In particular, differences in educational gaps, as well as school qualities and neighborhood compositions have becomes signals in the labor market evaluation of African American

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[120] Oaxaca, R. (1973). Male-Female Wage Differentials in Urban Labor Markets. *International Economic Review, 14*(3), 693.

[121] ibid
[122] ibid
[123] ibid

productivities. Due to costly screening process of finding out best applicants for particular positions based on individual worker abilities, employers adopt group averages of the individual race as standards for job evaluation, which leads to incomplete information of potential employees or worker abilities. Phelps and Arrow both point to statistical discrimination as the phenomena used by employers to generate unequal wages for equal work based on stereotypes of the individual race, and because African Americans' stereotypes tend to generate high signals, potential employers use these signals to make hiring decisions that often lead to job denials or low pay.

Results of African American and White Unemployment Differential

Table.13

Table.14

The associated regression model **is BW_Unempl_Gap= βo-11.37084+β10.0616586Dissim + β20.1288988BUnemp –β30.0000729Median_Inc – β40.1203253W_B_Expo_Index_1980 + β50.1499602W_B_Expo_Index_2010**

The African American and White unemployment rate gap in the sample is predicted to increase by only 0.062 when dissimilarity goes up by one unit, holding all other variables constant. The coefficient on dissimilarity is positive, and therefore, suggest that the African American and White gap reduces by only 0.062. The White to African American exposure index for the periods 1980 and 2010 were again mixed. For instance, the White-African American exposure index coefficient for the period 1980 increases the income gap by 0.120 while the 2010 exposure index reduces the gap by just 0.149. Since this is a multiple regression analysis the coefficient of determination or the R-square explains about 78% of the variation in the unemployment rate gaps.

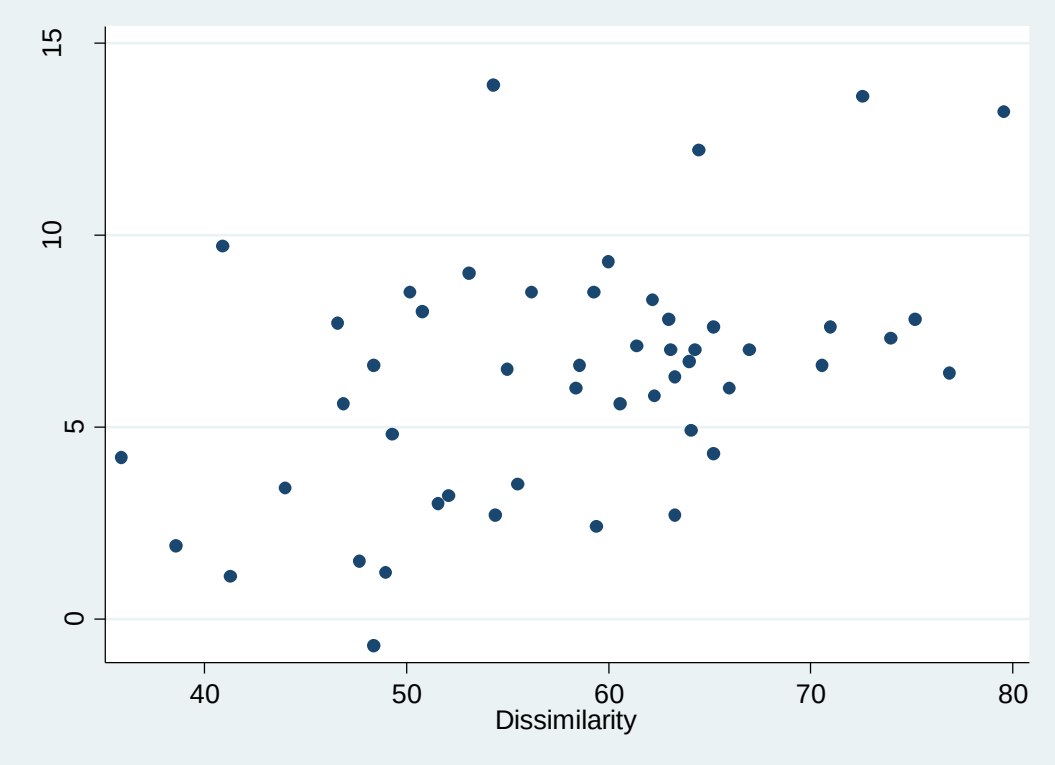


Figure.6

Showing the effect of dissimilarity on African American and White Unemployment rates.

4.6.2 Test of Hypothesis for Unemployment

This is a two tail test. From the regression output above, the African American unemployment coefficient is 0.705. Assuming the African American and White unemployment gaps are the same or zero. Although the expectation is that the two groups will both differ or be different from zero. Hence suppose:

Ho: μW-μB = 0

H_1:μW-μB ≠ 0

μB equals the African American sample population mean= 13.404

μ = 20.524

SB equals the standard error of the African American education mean =$\frac{S}{\sqrt{N}}$= $\frac{3.483}{7.071}$ = 0.492

$t=\frac{B-\mu}{SB}$ = 13.404-7.12/0.492 = 6.284

The degree of freedom is N-1=49

At 5% significance level **α** is 0.05 and since this is a two tail test each tail is 0.025 from the t distribution table the critical values are 2.010 and -2.010, and since 2.010 < 6.284 thus we reject the null that the African American and White unemployment rate is same or equals to zero. Again at 1% significance alpha α is 0.01. The test statistic for unemployment is 6.284 which follows t-distribution with 49 degrees of freedom. The critical value is 2.68 < 6.284 which means we again reject the null hypothesis that unemployment are equal for African Americans and Whites at both 95 percent and 99 percent confidence intervals.

CHAPTER 5

Discussion and Conclusion

This study discovers several findings on the effect of racial segregation on African American and White socioeconomic outcomes. The African American and White racial gaps have been quite controversial over the years in respect of which variable has the most effect, especially in regards to educational attainment, unemployment rates and income status. The results of these findings suggest that the African American and White racial gaps continue to widen. The educational attainments for cohorts less than high school for instance suggest huge African American and White gaps. In this sample, African American educational attainment for cohorts less than high school remains high compared to Whites (table.1). In order to fathom the reasons behind these racial gaps, this study determines whether the dissimilarity index, which is the measure of racial segregation, plays a role in influencing the African American and White racial gaps. The correlation coefficient which measures linear relationships between two variables show that dissimilarity index, and the African American and White gap for cohorts less than high school is 0.52%, which is considered strong positive correlation. This suggest that some kind of linear relationship exists between African American and White educational attainment gaps, especially for those with less than high school diploma. Not only that but, also, African American educational attainment for those with less than high school significantly correlated with Metropolitan Statistical Areas, (MSA) with dissimilarity indices that were above 0.5 or 50 per cent. Thus MSAs with high dissimilarity indices were more likely to experience severe African American and White racial gaps (table 1). The regression output in table 2, also indicate the effect of dissimilarity index on the racial education gap. The associated marginal effect of the dissimilarity index is 7.6, which further suggest that the African

American and White educational attainment gaps for cohorts less than high school changes by 7.6, if all variables remain constant.

In regards to the African American and White gaps for high school cohorts, the correlation coefficient is rather weak. Although it is positive, in the direction of linearity, it is not possible to entirely argue that the effect of the dissimilarity index is influencing the educational attainment gaps. However, there are strong positive correlation with the African American and White educational attainment gaps and MSAs with dissimilarity index greater than 50 percent (table.2). The African American and White high school cohorts were narrow amidst gaps. The margin of the African American-White mean gap is 3.0. That was lowest compare to other educational attainment variables. It can be noted that severally reasons could help explain the significance of these narrowing of the high school gaps. First, is the no child left behind policy that mandated parents and pupils to stay in school as well as the demand by parents (parental motivation). And secondly the realization that education opens the door to opportunities and many career goals, among others. Although the margin of the African American and White high school gap is small, this study finds that majority of African Americans live in central cities, which may be confounding the African American-White gaps, hence for the small margin of gaps.

The study also finds that about 38 MSAs out of the 50 observation has dissimilarity greater than 50%, with high average mean gaps, meaning that MSAs with high dissimilarity index are more likely to have the higher African American and White gaps (table.2). Racial segregation for instance accounts for about 0.054 out of a total of 1, or 5.4% holding other variables constant. However, this number turns to rise as other variables are endogenous. The caveat here is that although the correlation coefficient between the African American

and White high school gaps and segregation is weak estimated at 28%, this cannot be used to generalize the entire population, because the random sample suggest little influence of the effect of racial segregation on African American and White high school gaps, since the model could be omitting variable causing bias. The null hypothesis testing the African American and White educational attainment gaps is rejected in favor of the alternative hypothesis that the two racial groups are different; hence the null is rejected at both 1% percent and 5% significance level. This again confirms our expectations that indeed the African American and White educational attainment gaps for high school cohorts are not the same.

In terms of the educational attainment for bachelor's degree cohorts, the study again finds significant gaps. The average African American and White gap for those with bachelor degree is 8.9, compared to 4.4 and 3.2 for those with less than high school and for high school cohorts respectively. For instance, the African American educational attainment for bachelor's degree cohorts are increasing at a decreasing rate compared to their White counterparts (table.3). Although college enrollments over the years have increased exponentially, the average graduation rates continue to remain low. The correlation coefficient show -0.46 a negative relationship between racial segregation and the African American and White educational attainment gaps for those with bachelors, indicating that although there is some kind of linear negative relationship, the correlation is nevertheless weak. The effect of segregation on educational attainment for cohorts with bachelor's degree is compelling, indeed the results of Metropolitan Statistical Areas (MSAs) with dissimilarity greater than 50 per cent or 0.5 show high African American and White educational attainment gaps as dissimilarity index in the MSA increases. The regression

analyses, also show that the African American and White educational attainment for bachelor degree cohorts indicate that the African American and White gap is predicted to increase by 0.143 units when dissimilarity index goes up by just one unit, holding all other variables constant. For instance the associated regression model show modest segregation effect, but the gap tends to increase moderately as more and more variables are added to the regression equation. The coefficient of determination or the R-Square in the regression model is 35%, which again show the extent of variation of the African American and White bachelor educational attainment gap that is explained by the independent variables.

The graduate African American and White educational attainment gap in the study also reveal disproportional outcomes for African Americans. Indeed African Americans continue to lag behind Whites in higher education, although the enrolling trends continue to increase over the years. All MSA across the sample show increasing enrolling trends over the years, however, the graduation rates remain steadily low compared to White's graduation rates. The African American and White educational attainment gap for graduate and professional degree cohorts is 5.9, the second highest of the African American-White educational attainment gaps. The effect of segregation on African American and White educational attainment gaps for graduate and professional degrees also show significant differences. For example, Metropolitan Statistical Areas with high segregation index tends to exhibit low school enrollments as well as low graduation rates, while low to moderate segregation index show high graduation rates and were generally associated high enrollments as well.

The coefficient of determination or the R-square for the African American and White graduate and professional attainment gap is 44%, indicating that an estimated 44%

of the variation in the African American and White graduate gap can be explained by the independent variables. The regression result of the effect of dissimilarity on African American and White graduate and professional degree gap is predicted to increase by 12.7 when dissimilarity index goes up by one additional unit, holding all other variables constant. While the correlation coefficient is -0.042, indicating a linear negative relationship, although the relationship is linear, its direction is opposite, which predicts that there are continuing huge gaps among African Americans and Whites graduates alike.

The test of hypothesis again show that the African American and White educational attainment is different, a sample statistic was calculated at 12,which is greater than 1% and 5% significant levels, therefore rejecting the null that the African American and White educational attainment for graduate and professional degrees are the same or equal.

Median household income is another variable with huge gaps over the years. The African American and White income gaps have more than doubled in decades and continue to widen among lower and middle income earners. The sample data across the 50 metropolitan statistical areas show huge income gaps. Overall African Americans earn lower across all White color occupational industries. In this sample, the average White earns nearly $40,000 compared to $27,000 for African Americans, with $7,000 away from the overall mean of $38,000.

The correlation coefficient which measures the relationship between median household income and segregation is linear, but negatively related (-0.300). The relation although weak, nevertheless predict some variation of incomes on the basis of segregation. The regression output of the African American and White income gap is predicted to increase by $111 when segregation goes up by one additional unit, holding all other

variables constant. The test of hypothesis that African Americans and Whites income gaps are the same was rejected at both 1% and 5% significant levels, indicating that African Americans incomes are lower compared to Whites' average incomes. The sample statistics was greater than 0.01 and 0.05 respectively. And therefore, the null was subsequently rejected with 49 degree of freedom.

On unemployment rates, African American and White unemployment rates gaps also show significant racial outcome gaps. The average White unemployment rate is twice that of African American unemployment rates. The average White unemployment is 7.0 compared to 13.0 for African Americans. The unemployment rate also tend to vary with the dissimilarity index, for instance high dissimilarity indices tend to show higher unemployment rates for 38 Metropolitan statistical areas. Also, the correlation coefficient is 0.44, showing a positive relationship between the African American and White unemployment gaps and segregation. The marginal effect of the African American and White unemployment gap for instance is predicted to rise by 0.616 when segregation or dissimilarity index rises by additional one unit, holding all other variables constant. The test of hypothesis again rejects the null that the African American and White unemployment rate gaps are the same at both 1% and at 5% significant levels, that is with 49 degree of freedom.

This study is consistent with Cutler and Glaser (1997) finding that African Americans continue to fare worst socially, economically and politically. The effect of segregation on economic wellbeing among African American is no longer a myth, but one that has been empirically established. Test score gaps over the years have differed among African American and White students outcomes for both college enrollments and

graduation rates. The SAT scores for students from poor neighborhoods in central cities across the metropolitan cities (predominantly African American) score lower, with little chances of being offered admission into a college. Like Loury (1998) pointed out, peer group influence among African American teenagers consistently impacted both the decision to attend college and test scores. This is particularly more pronounced in predominantly African American schools, where young teens tend to act according to their group standards. As Dellas and Sakelaris (2003) suggested, the decision to acquire human capital skills depends largely on once motivation and the ability to afford. This is particularly evident in situations where African American teenagers feel unmotivated, and or their skills are unappreciated. And as a result, either drop out or decides not to enroll.

Again, rising college tuitions in recent times have also impacted African American enrollments over the years; couple with low wages in the labor market can be discouraging in cases where individuals will have to take out student loans to attend college. Also, labor market discrimination has been implicated in the reasons why African American and White College gaps have widen over the years, institutional racism and statistical discriminations have been used to explain racial outcome gaps over the years (Cutler and Glaser, 1997 Arrow 1973).

The African American and White earnings gap has widen overall. While there are multitude of reasons for the burgeoning gaps, this study focused on the effect of racial segregation or the dissimilarity index, and educational attainment or human capital skills as variables responsible for the continuing gap differentials. The wage gap differential observed by Oaxaca is consistent with this study's median household income gap that is nearly twice that of White's median household income. Cutler and Glaser's research on

incomes and earnings differentials among African Americans and Whites show that there are connection between income and racial segregation, and this relationship is strong.

High unemployment rates among African Americans in most metropolitan statistical areas continue to soar. Over the decades, the African American unemployment rates have been twice that of Whites. While the African American unemployment could be due to several factors, such as the poor educational skills, individual's level of motivation, networking and neighborhood characteristics, the effect of racial segregations significantly affects African American's unemployment rates. This study has empirical shown that the connection of racial segregation and unemployment is clear, the correlation is strong and positively related. This is again consistent with Kane's "spatial mismatch" thesis when he argues that African American unemployment rates continue to rise due to the gradual movements of jobs from the central cities to the suburbs making travel distance to job sites very difficult for African Americans than for White occasioning in rising unemployment in predominantly African American neighborhoods.

Limitations of Study

This study does not come without some limitations that may potentially affect the results of the study.

1. This study for instance randomly selected 50 metropolitan statistical areas out of the 388 total statistical areas across the United States population. As a result, the sampled population may not accurately reflect the entire population.
2. Like all other empirical research, the problem of omitted variable bias could potential affect the models. This is particularly so when the researcher is unaware of the variable that is having the most influence on the African American and White gaps. Many studies have indeed looked at several combination of variables in order to determine the main variable (s) influencing the African American and White racial gaps.
3. This study did not intend to prove causality, but to determine the effect of racial segregation, measured in the dissimilarity index on the African American and White educational attainment, income and unemployment gaps. Correlation coefficients were determined for all the African American and White variables. The intent was to elicit the directional (linear relationship) effects of racial segregation on African American and White gaps.
4. Also, the data variables were measured in average mean as opposed to aggregate data from the American Community Survey (ACS). Empirically studies have taken either side of the data approaches for research.
5. Neighborhood characteristics and MSA fix effects across the sample population exhibit different scenarios and segregation level effects. This is because every

metropolitan statistical area is unique and therefore may respond differently to racial segregation and socioeconomic gaps

APPENDIX A

Pair wise correlation coefficients

Dissimilarity BW_LH_Gap BWeduc_HS_Gap BW_BacheGap BW_Grad_Gap BWunempl_Gap BWmedian_Incom_Gap W_B_Expo_Index_1980 W_B_Expo_Index_2010

Dissim~y	BW_LH_~p	BWeduc~p	BW_Bac~p	BW_Gra~p	BWunem~p	BWmedi~p
Dissimilar~y	1.0000					
BW_LH_Gap	0.5227	1.0000				
BWeduc_HS_~p	0.2849	0.1815	1.0000			
BW_BacheGap	-0.4678	-0.6733	-0.5919	1.0000		
BW_Grad_Gap	-0.4244	-0.4614	-0.6445	0.6971	1.0000	
BWunempl_Gap	0.4474	0.4525	-0.0572	-0.1723	-0.1162	1.0000
BWmedian_I~p	-0.3008	-0.4737	-0.3212	0.5494	0.5543	-0.1716	1.0000
W_B_Exp~1980	0.0546	0.0570	0.1579	-0.2495	-0.1370	-0.1231	-0.0070
W_B_Exp~2010	0.0543	0.1104	0.1040	-0.2103	-0.0385	-0.0395	0.0515

W_B~1980	W_B~2010
W_B_Exp~1980	1.0000	
W_B_Exp~2010	0.9449	1.0000

```
sum race

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
```

Variable	Obs	Mean	Std. Dev.	Min	Max
Dissimilar~y	50	58.106	10.18156	35.9	79.6

. sum Beduc_LHS

Variable	Obs	Mean	Std. Dev.	Min	Max
Beduc_LHS	50	15.098	3.750891	7.4	23.6

. sum Weduc_LS

Variable	Obs	Mean	Std. Dev.	Min	Max
Weduc_LS	50	10.674	3.209667	4.8	19.3

. sum BW_LH_Gap

Variable	Obs	Mean	Std. Dev.	Min	Max
BW_LH_Gap	50	4.424	5.390451	-7.6	15.2

. sum Beduc_HS

Variable | Obs Mean Std. Dev. Min Max

----------+---

Beduc_HS | 50 29.326 3.892421 19.7 37.2

. sum Weduc_HS

Variable | Obs Mean Std. Dev. Min Max

----------+---

Weduc_HS | 50 26.086 4.437963 16.4 36.4

. sum BWeduc_HS_Gap

Variable | Obs Mean Std. Dev. Min Max

----------+---

BWeduc_HS_~p | 50 3.24 3.662217 -5.7 11.7

. sum Beduc_Bachelors

Variable | Obs Mean Std. Dev. Min Max

----------+---

Beduc_Bach~s | 50 12.734 3.030431 7.6 22.3

. sum Weduc_Bachelors

Variable | Obs Mean Std. Dev. Min Max

----------+---

Weduc_Bach~s | 50 21.698 3.690832 12.2 28.7

. sum BW_BacheGap

Variable | Obs Mean Std. Dev. Min Max

----------+---

BW_BacheGap | 50 -8.964 3.714822 -17.8 .3

. sum Beduc_Grad

Variable | Obs Mean Std. Dev. Min Max

----------+---

Beduc_Grad | 50 7.064 1.723518 4.2 12.8

. sum Weduc_Grad

Variable | Obs Mean Std. Dev. Min Max

----------+---

Weduc_Grad | 50 12.986 3.685493 7.2 27.3

. sum BW_Grad_Gap

Variable | Obs Mean Std. Dev. Min Max

----------+---

BW_Grad_Gap | 50 -5.922 3.200592 -14.5 .2

. sum Bunemp

Variable	Obs	Mean	Std. Dev.	Min	Max
Bunemp	50	13.404	3.483779	5	21

. sum Bunemp

Variable	Obs	Mean	Std. Dev.	Min	Max
Bunemp	50	13.404	3.483779	5	21

. sum Wunemp

Variable	Obs	Mean	Std. Dev.	Min	Max
Wunemp	50	7.12	1.882573	3.8	13.6

. sum BWunempl_Gap

Variable	Obs	Mean	Std. Dev.	Min	Max
BWunempl_Gap	50	6.308	3.170389	-.7	13.9

. sum Bmedian_Inc

Variable	Obs	Mean	Std. Dev.	Min	Max
Bmedian_Inc	50	27787.76	5575.05	18856	49090

. sum Wmedian_Inc

Variable	Obs	Mean	Std. Dev.	Min	Max
Wmedian_Inc	50	38984.12	7057.735	23737	62120

. sum BWmedian_Incom_Gap

Variable	Obs	Mean	Std. Dev.	Min	Max
BWmedian_I~p	50	-11196.36	5466.308	-23013	6169

. sum W_B_Expo_Index_1980

Variable	Obs	Mean	Std. Dev.	Min	Max
W_B_Exp~1980	50	5.754	3.725544	1.5	17

. sum W_B_Expo_Index_2010

Variable	Obs	Mean	Std. Dev.	Min	Max
W_B_Exp~2010	50	9.092	4.923987	2.6	24.4

. tab Dissimilarity

Dissimilarity	Freq.	Percent	Cum.
35.9	1	2.00	2.00
38.6	1	2.00	4.00
40.9	1	2.00	6.00
41.3	1	2.00	8.00
44	1	2.00	10.00
46.6	1	2.00	12.00
46.9	1	2.00	14.00
47.7	1	2.00	16.00
48.4	2	4.00	20.00
49	1	2.00	22.00
49.3	1	2.00	24.00
50.2	1	2.00	26.00
50.8	1	2.00	28.00
51.6	1	2.00	30.00
52.1	1	2.00	32.00
53.1	1	2.00	34.00
54.3	1	2.00	36.00
54.4	1	2.00	38.00
55	1	2.00	40.00
55.5	1	2.00	42.00
56.2	1	2.00	44.00
58.4	1	2.00	46.00
58.6	1	2.00	48.00
59.3	1	2.00	50.00
59.4	1	2.00	52.00
60	1	2.00	54.00
60.6	1	2.00	56.00
61.4	1	2.00	58.00
62.2	1	2.00	60.00
62.3	1	2.00	62.00
63	1	2.00	64.00
63.1	1	2.00	66.00
63.3	2	4.00	70.00
64	1	2.00	72.00
64.1	1	2.00	74.00
64.3	1	2.00	76.00
64.5	1	2.00	78.00
65.2	2	4.00	82.00
66	1	2.00	84.00
67	1	2.00	86.00
70.6	1	2.00	88.00

71	1	2.00	90.00
72.6	1	2.00	92.00
74	1	2.00	94.00
75.2	1	2.00	96.00
76.9	1	2.00	98.00
79.6	1	2.00	100.00
Total	50	100.00	

. tab Beduc_LHS

Beduc_LHS	Freq.	Percent	Cum.
7.4	1	2.00	2.00
7.7	1	2.00	4.00
10.3	1	2.00	6.00
10.5	2	4.00	10.00
10.9	3	6.00	16.00
11	1	2.00	18.00
11.6	1	2.00	20.00
11.7	2	4.00	24.00
11.8	1	2.00	26.00
11.9	1	2.00	28.00
12.2	2	4.00	32.00
12.4	1	2.00	34.00
12.6	1	2.00	36.00
13.3	1	2.00	38.00
14.1	1	2.00	40.00
14.6	1	2.00	42.00
14.7	1	2.00	44.00
15	1	2.00	46.00
15.2	1	2.00	48.00
15.4	1	2.00	50.00
15.5	1	2.00	52.00
15.7	1	2.00	54.00
15.9	1	2.00	56.00
16.3	1	2.00	58.00
16.4	2	4.00	62.00
16.5	1	2.00	64.00
16.8	1	2.00	66.00
16.9	1	2.00	68.00
17.3	1	2.00	70.00
17.4	2	4.00	74.00
17.6	1	2.00	76.00
17.8	1	2.00	78.00
17.9	1	2.00	80.00

18	1	2.00	82.00
18.6	1	2.00	84.00
19.1	1	2.00	86.00
19.5	3	6.00	92.00
20	1	2.00	94.00
22.1	1	2.00	96.00
22.7	1	2.00	98.00
23.6	1	2.00	100.00
Total	50	100.00	

. tab Weduc_LS

Weduc_LS	Freq.	Percent	Cum.
4.8	1	2.00	2.00
6.5	1	2.00	4.00
6.6	1	2.00	6.00
6.7	1	2.00	8.00
7	1	2.00	10.00
7.4	1	2.00	12.00
7.7	1	2.00	14.00
7.8	2	4.00	18.00
8.3	1	2.00	20.00
8.4	2	4.00	24.00
8.5	1	2.00	26.00
8.7	2	4.00	30.00
8.8	2	4.00	34.00
9.1	2	4.00	38.00
9.2	1	2.00	40.00
9.3	1	2.00	42.00
9.7	1	2.00	44.00
10	2	4.00	48.00
10.1	2	4.00	52.00
10.3	2	4.00	56.00
10.7	3	6.00	62.00
10.9	2	4.00	66.00
11	1	2.00	68.00
11.2	1	2.00	70.00
11.3	1	2.00	72.00
11.8	1	2.00	74.00
12.3	1	2.00	76.00
12.4	1	2.00	78.00
13.2	1	2.00	80.00
13.3	1	2.00	82.00
14.5	1	2.00	84.00

14.6	1	2.00	86.00
14.7	3	6.00	92.00
15.5	1	2.00	94.00
18.1	1	2.00	96.00
19.1	1	2.00	98.00
19.3	1	2.00	100.00
Total	50	100.00	

. tab BW_LH_Gap

BW_LH_Gap	Freq.	Percent	Cum.
-7.6	1	2.00	2.00
-7.4	1	2.00	4.00
-5.7	1	2.00	6.00
-5	1	2.00	8.00
-4.6	1	2.00	10.00
-3	2	4.00	14.00
-2.5	1	2.00	16.00
-1.5	1	2.00	18.00
.3	1	2.00	20.00
.8	2	4.00	24.00
.9	1	2.00	26.00
1	1	2.00	28.00
1.8	1	2.00	30.00
2.5	1	2.00	32.00
3.3	2	4.00	36.00
3.5	1	2.00	38.00
3.8	1	2.00	40.00
4.6	1	2.00	42.00
4.9	1	2.00	44.00
5.1	1	2.00	46.00
5.2	1	2.00	48.00
5.4	2	4.00	52.00
5.6	1	2.00	54.00
5.7	1	2.00	56.00
6	1	2.00	58.00
6.2	1	2.00	60.00
6.7	2	4.00	64.00
6.8	1	2.00	66.00
6.9	1	2.00	68.00
7.4	1	2.00	70.00
7.6	1	2.00	72.00
8	1	2.00	74.00
8.2	1	2.00	76.00

8.5	1	2.00	78.00
8.6	1	2.00	80.00
8.8	1	2.00	82.00
8.9	1	2.00	84.00
9	1	2.00	86.00
9.4	1	2.00	88.00
9.9	1	2.00	90.00
11.2	2	4.00	94.00
12.6	1	2.00	96.00
13.8	1	2.00	98.00
15.2	1	2.00	100.00
Total	50	100.00	

. tab Beduc_HS

Beduc_HS	Freq.	Percent	Cum.
19.7	1	2.00	2.00
21.7	1	2.00	4.00
22.1	1	2.00	6.00
22.7	1	2.00	8.00
24.1	1	2.00	10.00
24.5	2	4.00	14.00
24.6	1	2.00	16.00
24.8	1	2.00	18.00
25.4	1	2.00	20.00
26	1	2.00	22.00
26.1	1	2.00	24.00
26.6	1	2.00	26.00
26.7	1	2.00	28.00
27	1	2.00	30.00
28.2	1	2.00	32.00
28.3	2	4.00	36.00
28.5	1	2.00	38.00
28.7	1	2.00	40.00
29.1	1	2.00	42.00
29.2	1	2.00	44.00
29.4	1	2.00	46.00
29.8	1	2.00	48.00
30.1	1	2.00	50.00
30.2	1	2.00	52.00
30.6	2	4.00	56.00
30.7	1	2.00	58.00
30.8	1	2.00	60.00
30.9	1	2.00	62.00

```
       31 |          1        2.00       64.00
     31.3 |          1        2.00       66.00
     31.4 |          1        2.00       68.00
     31.5 |          2        4.00       72.00
       32 |          2        4.00       76.00
     32.2 |          2        4.00       80.00
     32.7 |          1        2.00       82.00
     32.8 |          1        2.00       84.00
     32.9 |          1        2.00       86.00
       33 |          1        2.00       88.00
     33.2 |          1        2.00       90.00
       34 |          1        2.00       92.00
     34.2 |          1        2.00       94.00
     34.5 |          1        2.00       96.00
     36.8 |          1        2.00       98.00
     37.2 |          1        2.00      100.00
------------+-----------------------------------
    Total |         50      100.00
```

. tab Weduc_HS

```
  Weduc_HS |      Freq.     Percent        Cum.
------------+-----------------------------------
     16.4 |          1        2.00        2.00
     16.5 |          1        2.00        4.00
       17 |          1        2.00        6.00
       18 |          1        2.00        8.00
     19.1 |          1        2.00       10.00
     19.5 |          1        2.00       12.00
     20.8 |          1        2.00       14.00
     21.5 |          1        2.00       16.00
     21.7 |          1        2.00       18.00
       22 |          1        2.00       20.00
     22.5 |          1        2.00       22.00
     22.9 |          1        2.00       24.00
     23.2 |          1        2.00       26.00
     23.6 |          1        2.00       28.00
     24.1 |          1        2.00       30.00
     24.7 |          1        2.00       32.00
     24.8 |          1        2.00       34.00
     25.3 |          1        2.00       36.00
     25.6 |          1        2.00       38.00
     25.7 |          1        2.00       40.00
     25.8 |          1        2.00       42.00
     26.1 |          1        2.00       44.00
     26.4 |          1        2.00       46.00
```

26.5	1	2.00	48.00
26.8	1	2.00	50.00
27.1	1	2.00	52.00
27.2	1	2.00	54.00
27.3	2	4.00	58.00
27.5	1	2.00	60.00
27.7	1	2.00	62.00
28	1	2.00	64.00
28.3	1	2.00	66.00
28.4	2	4.00	70.00
28.5	2	4.00	74.00
29.1	1	2.00	76.00
29.2	1	2.00	78.00
29.3	1	2.00	80.00
29.5	1	2.00	82.00
30.2	1	2.00	84.00
30.6	2	4.00	88.00
30.8	1	2.00	90.00
31.3	1	2.00	92.00
31.8	1	2.00	94.00
32.2	1	2.00	96.00
32.6	1	2.00	98.00
36.4	1	2.00	100.00
Total	50	100.00	

.

BWeduc_HS_G |

ap	Freq.	Percent	Cum.
-5.7	1	2.00	2.00
-3.9	1	2.00	4.00
-3	2	4.00	8.00
-1.8	1	2.00	10.00
-1.7	1	2.00	12.00
-1	1	2.00	14.00
-.5	1	2.00	16.00
.1	2	4.00	20.00
.4	1	2.00	22.00
.7	1	2.00	24.00
.8	1	2.00	26.00
1.1	1	2.00	28.00
1.4	1	2.00	30.00
1.7	2	4.00	34.00
2	1	2.00	36.00
2.1	2	4.00	40.00

2.7	1	2.00	42.00
3	1	2.00	44.00
3.1	2	4.00	48.00
3.2	1	2.00	50.00
3.5	1	2.00	52.00
4.3	1	2.00	54.00
4.4	1	2.00	56.00
4.6	2	4.00	60.00
4.7	1	2.00	62.00
5	1	2.00	64.00
5.4	3	6.00	70.00
5.5	2	4.00	74.00
5.6	2	4.00	78.00
5.7	1	2.00	80.00
5.8	1	2.00	82.00
5.9	1	2.00	84.00
6.2	2	4.00	88.00
6.3	1	2.00	90.00
7.1	1	2.00	92.00
8.2	1	2.00	94.00
9	1	2.00	96.00
11.7	2	4.00	100.00
Total	50	100.00	

tab Beduc_Bachelors

Beduc_Bachelors	**Freq.**	**Percent**	**Cum.**
7.6	**1**	**2.00**	**2.00**
7.8	**2**	**4.00**	**6.00**
8.6	**3**	**6.00**	**12.00**
9.7	**1**	**2.00**	**14.00**
10.1	**1**	**2.00**	**16.00**
10.2	**1**	**2.00**	**18.00**
10.3	**1**	**2.00**	**20.00**
10.6	**1**	**2.00**	**22.00**
10.8	**1**	**2.00**	**24.00**
10.9	**2**	**4.00**	**28.00**
11.1	**2**	**4.00**	**32.00**
11.2	**1**	**2.00**	**34.00**
11.3	**1**	**2.00**	**36.00**
11.4	**2**	**4.00**	**40.00**
11.6	**1**	**2.00**	**42.00**
11.7	**1**	**2.00**	**44.00**
11.9	**1**	**2.00**	**46.00**

12.5	4	8.00	54.00
12.6	1	2.00	56.00
12.7	1	2.00	58.00
12.8	1	2.00	60.00
13	1	2.00	62.00
13.1	2	4.00	66.00
14	1	2.00	68.00
14.2	1	2.00	70.00
14.6	2	4.00	74.00
15.1	1	2.00	76.00
15.2	1	2.00	78.00
15.5	3	6.00	84.00
15.6	1	2.00	86.00
15.7	2	4.00	90.00
16.4	1	2.00	92.00
17.7	1	2.00	94.00
17.8	1	2.00	96.00
18.8	1	2.00	98.00
22.3	1	2.00	100.00
Total	50	100.00	

tab Weduc_Bachelors

Weduc_Bachelors	Freq.	Percent	Cum.
12.2	1	2.00	2.00
14.7	1	2.00	4.00
15.2	1	2.00	6.00
16.5	1	2.00	8.00
17.4	1	2.00	10.00
17.6	1	2.00	12.00
17.8	1	2.00	14.00
18.5	1	2.00	16.00
18.9	1	2.00	18.00
19.1	2	4.00	22.00
19.3	2	4.00	26.00
19.5	1	2.00	28.00
19.6	1	2.00	30.00
19.7	2	4.00	34.00
19.8	1	2.00	36.00
20.2	2	4.00	40.00
20.3	1	2.00	42.00
20.4	1	2.00	44.00
20.8	1	2.00	46.00
21.3	1	2.00	48.00

21.5	2	4.00	52.00
21.8	1	2.00	54.00
22.2	1	2.00	56.00
22.6	1	2.00	58.00
22.7	2	4.00	62.00
22.9	2	4.00	66.00
23.2	1	2.00	68.00
23.4	1	2.00	70.00
23.7	1	2.00	72.00
23.9	1	2.00	74.00
24.1	1	2.00	76.00
24.7	2	4.00	80.00
25.3	1	2.00	82.00
25.4	2	4.00	86.00
25.5	1	2.00	88.00
26.9	1	2.00	90.00
27.4	1	2.00	92.00
28	1	2.00	94.00
28.1	1	2.00	96.00
28.6	1	2.00	98.00
28.7	1	2.00	100.00
Total	50	100.00	

. tab BW_BacheGap

BW_BacheGap	Freq.	Percent	Cum.
-17.8	1	2.00	2.00
-16.1	1	2.00	4.00
-15.6	1	2.00	6.00
-14.6	1	2.00	8.00
-13.5	1	2.00	10.00
-13.1	1	2.00	12.00
-12.5	1	2.00	14.00
-12	1	2.00	16.00
-11.8	1	2.00	18.00
-11.6	1	2.00	20.00
-11.4	1	2.00	22.00
-11.2	1	2.00	24.00
-11	1	2.00	26.00
-10.9	3	6.00	32.00
-10.8	1	2.00	34.00
-10.7	1	2.00	36.00
-10.3	1	2.00	38.00
-10.2	2	4.00	42.00

-10.1	1	2.00	44.00
-9.9	2	4.00	48.00
-9.5	1	2.00	50.00
-9.4	1	2.00	52.00
-8.9	1	2.00	54.00
-8.8	1	2.00	56.00
-8.7	1	2.00	58.00
-8.4	1	2.00	60.00
-8.3	1	2.00	62.00
-7.6	2	4.00	66.00
-7.5	1	2.00	68.00
-6.9	1	2.00	70.00
-6.6	1	2.00	72.00
-6.4	1	2.00	74.00
-6.3	1	2.00	76.00
-6.2	1	2.00	78.00
-6	1	2.00	80.00
-5.9	2	4.00	84.00
-5.2	1	2.00	86.00
-5.1	2	4.00	90.00
-4.6	1	2.00	92.00
-3.8	1	2.00	94.00
-1.9	1	2.00	96.00
-.9	1	2.00	98.00
.3	1	2.00	100.00
Total	50	100.00	

. tab Beduc_Grad

Beduc_Grad	Freq.	Percent	Cum.
4.2	1	2.00	2.00
4.8	1	2.00	4.00
4.9	1	2.00	6.00
5	1	2.00	8.00
5.1	1	2.00	10.00
5.3	1	2.00	12.00
5.5	2	4.00	16.00
5.8	1	2.00	18.00
6	2	4.00	22.00
6.1	1	2.00	24.00
6.2	5	10.00	34.00
6.3	3	6.00	40.00
6.5	2	4.00	44.00
6.6	1	2.00	46.00

```
      6.7 |        2       4.00       50.00
      6.8 |        4       8.00       58.00
        7 |        2       4.00       62.00
      7.1 |        1       2.00       64.00
      7.3 |        1       2.00       66.00
      7.4 |        1       2.00       68.00
      7.6 |        1       2.00       70.00
      7.7 |        1       2.00       72.00
      7.9 |        1       2.00       74.00
        8 |        3       6.00       80.00
      8.1 |        2       4.00       84.00
      8.2 |        2       4.00       88.00
      8.8 |        2       4.00       92.00
      9.1 |        1       2.00       94.00
     11.2 |        1       2.00       96.00
     12.6 |        1       2.00       98.00
     12.8 |        1       2.00      100.00
------------+-----------------------------------
    Total |       50     100.00
tab Weduc_Grad

 Weduc_Grad |      Freq.     Percent        Cum.
------------+-----------------------------------
      7.2 |        1       2.00        2.00
      7.8 |        1       2.00        4.00
      8.8 |        1       2.00        6.00
      9.1 |        1       2.00        8.00
      9.7 |        1       2.00       10.00
      9.9 |        1       2.00       12.00
       10 |        1       2.00       14.00
     10.1 |        1       2.00       16.00
     10.2 |        1       2.00       18.00
     10.4 |        2       4.00       22.00
     10.5 |        1       2.00       24.00
     10.6 |        1       2.00       26.00
     10.9 |        1       2.00       28.00
     11.1 |        3       6.00       34.00
     11.2 |        3       6.00       40.00
     11.3 |        1       2.00       42.00
     11.5 |        1       2.00       44.00
     11.6 |        1       2.00       46.00
     11.9 |        1       2.00       48.00
       12 |        1       2.00       50.00
     12.2 |        1       2.00       52.00
     12.3 |        1       2.00       54.00
     12.4 |        1       2.00       56.00
```

13	2	4.00	60.00
13.1	1	2.00	62.00
13.2	1	2.00	64.00
13.3	1	2.00	66.00
13.7	1	2.00	68.00
13.8	1	2.00	70.00
13.9	2	4.00	74.00
14.4	2	4.00	78.00
14.5	2	4.00	82.00
14.9	1	2.00	84.00
16.4	1	2.00	86.00
17	1	2.00	88.00
17.7	1	2.00	90.00
18.3	1	2.00	92.00
19.7	1	2.00	94.00
20	1	2.00	96.00
21.6	1	2.00	98.00
27.3	1	2.00	100.00
Total	50	100.00	

. tab BW_Grad_Gap

BW_Grad_Gap	Freq.	Percent	Cum.
-14.5	2	4.00	4.00
-11.9	1	2.00	6.00
-11.7	1	2.00	8.00
-10.1	1	2.00	10.00
-10	1	2.00	12.00
-9.6	1	2.00	14.00
-9.4	1	2.00	16.00
-8.3	1	2.00	18.00
-8.2	1	2.00	20.00
-7.7	1	2.00	22.00
-7.6	1	2.00	24.00
-7.3	1	2.00	26.00
-7.1	3	6.00	32.00
-6.9	2	4.00	36.00
-6.6	1	2.00	38.00
-6	2	4.00	42.00
-5.7	3	6.00	48.00
-5.6	2	4.00	52.00
-5.5	1	2.00	54.00
-5.3	1	2.00	56.00
-5.1	2	4.00	60.00

-5	3	6.00	66.00
-4.6	1	2.00	68.00
-4.1	3	6.00	74.00
-4	1	2.00	76.00
-3.7	1	2.00	78.00
-3.4	1	2.00	80.00
-2.9	1	2.00	82.00
-2.8	1	2.00	84.00
-2.7	1	2.00	86.00
-2.6	1	2.00	88.00
-2.3	1	2.00	90.00
-2.1	1	2.00	92.00
-1.9	1	2.00	94.00
-1.8	1	2.00	96.00
-.4	1	2.00	98.00
.2	1	2.00	100.00
Total	50	100.00	

. tab Bunemp

Bunemp	Freq.	Percent	Cum.
5	1	2.00	2.00
5.4	1	2.00	4.00
7.7	1	2.00	6.00
8	1	2.00	8.00
8.2	1	2.00	10.00
9	1	2.00	12.00
9.1	1	2.00	14.00
9.5	1	2.00	16.00
10.2	1	2.00	18.00
10.3	1	2.00	20.00
10.6	1	2.00	22.00
10.7	1	2.00	24.00
11.1	1	2.00	26.00
11.3	1	2.00	28.00
11.6	1	2.00	30.00
12.1	1	2.00	32.00
12.4	1	2.00	34.00
12.5	2	4.00	38.00
13	1	2.00	40.00
13.3	1	2.00	42.00
13.5	1	2.00	44.00
13.8	4	8.00	52.00
13.9	2	4.00	56.00

14	1	2.00	58.00
14.2	1	2.00	60.00
14.3	1	2.00	62.00
14.4	1	2.00	64.00
14.5	2	4.00	68.00
14.9	1	2.00	70.00
15.2	1	2.00	72.00
15.6	1	2.00	74.00
15.8	1	2.00	76.00
16.5	1	2.00	78.00
16.6	1	2.00	80.00
16.8	1	2.00	82.00
17	2	4.00	86.00
17.2	2	4.00	90.00
17.9	1	2.00	92.00
18.2	1	2.00	94.00
18.5	1	2.00	96.00
18.9	1	2.00	98.00
21	1	2.00	100.00
Total	50	100.00	

. tab Wunemp

Wunemp	Freq.	Percent	Cum.
3.8	1	2.00	2.00
4.2	1	2.00	4.00
4.9	1	2.00	6.00
5.3	2	4.00	10.00
5.5	5	10.00	20.00
5.7	2	4.00	24.00
5.8	1	2.00	26.00
5.9	1	2.00	28.00
6	4	8.00	36.00
6.1	2	4.00	40.00
6.2	1	2.00	42.00
6.4	1	2.00	44.00
6.7	1	2.00	46.00
6.8	1	2.00	48.00
6.9	2	4.00	52.00
7	1	2.00	54.00
7.1	1	2.00	56.00
7.2	2	4.00	60.00
7.4	1	2.00	62.00
7.5	2	4.00	66.00

7.7	1	2.00	68.00
7.8	1	2.00	70.00
7.9	2	4.00	74.00
8	2	4.00	78.00
8.1	1	2.00	80.00
8.2	2	4.00	84.00
8.7	1	2.00	86.00
9	1	2.00	88.00
9.2	2	4.00	92.00
10.3	1	2.00	94.00
11.4	1	2.00	96.00
11.7	1	2.00	98.00
13.6	1	2.00	100.00
Total	50	100.00	

tab BWunempl_Gap

BWunempl_Gap	Freq.	Percent	Cum.
-.7	1	2.00	2.00
1.1	1	2.00	4.00
1.2	1	2.00	6.00
1.5	1	2.00	8.00
1.9	1	2.00	10.00
2.4	1	2.00	12.00
2.7	2	4.00	16.00
3	1	2.00	18.00
3.2	1	2.00	20.00
3.4	1	2.00	22.00
3.5	1	2.00	24.00
4.2	1	2.00	26.00
4.3	1	2.00	28.00
4.8	1	2.00	30.00
4.9	1	2.00	32.00
5.6	2	4.00	36.00
5.8	1	2.00	38.00
6	2	4.00	42.00
6.3	1	2.00	44.00
6.4	1	2.00	46.00
6.5	1	2.00	48.00
6.6	3	6.00	54.00
6.7	1	2.00	56.00
7	3	6.00	62.00
7.1	1	2.00	64.00
7.3	1	2.00	66.00
7.6	2	4.00	70.00

7.7	1	2.00	72.00
7.8	2	4.00	76.00
8	1	2.00	78.00
8.3	1	2.00	80.00
8.5	3	6.00	86.00
9	1	2.00	88.00
9.3	1	2.00	90.00
9.7	1	2.00	92.00
12.2	1	2.00	94.00
13.2	1	2.00	96.00
13.6	1	2.00	98.00
13.9	1	2.00	100.00
Total	50	100.00	

. tab Bmedian_Inc

Bmedian_Inc	Freq.	Percent	Cum.
18856	1	2.00	2.00
20460	1	2.00	4.00
20830	1	2.00	6.00
21327	1	2.00	8.00
21820	1	2.00	10.00
22011	1	2.00	12.00
22431	1	2.00	14.00
22698	1	2.00	16.00
22962	1	2.00	18.00
23590	1	2.00	20.00
23607	1	2.00	22.00
24127	1	2.00	24.00
24140	1	2.00	26.00
24578	1	2.00	28.00
24815	1	2.00	30.00
25061	1	2.00	32.00
25074	1	2.00	34.00
25077	1	2.00	36.00
25878	1	2.00	38.00
25956	1	2.00	40.00
26229	1	2.00	42.00
26417	1	2.00	44.00
27032	1	2.00	46.00
27090	1	2.00	48.00
27263	1	2.00	50.00
27367	1	2.00	52.00
27466	1	2.00	54.00

27640	1	2.00	56.00
27760	1	2.00	58.00
28037	1	2.00	60.00
28212	1	2.00	62.00
28314	1	2.00	64.00
28482	1	2.00	66.00
28949	1	2.00	68.00
29164	1	2.00	70.00
29184	1	2.00	72.00
29514	1	2.00	74.00
29906	2	4.00	78.00
30479	1	2.00	80.00
30602	1	2.00	82.00
31513	1	2.00	84.00
32076	1	2.00	86.00
32352	1	2.00	88.00
32897	1	2.00	90.00
34155	1	2.00	92.00
36009	1	2.00	94.00
36066	1	2.00	96.00
44919	1	2.00	98.00
49090	1	2.00	100.00
Total	50	100.00	

. tab Wmedian_Inc

Wmedian_Inc	Freq.	Percent	Cum.
23737	1	2.00	2.00
30370	1	2.00	4.00
31265	1	2.00	6.00
31756	1	2.00	8.00
31765	1	2.00	10.00
32105	1	2.00	12.00
32215	1	2.00	14.00
33199	1	2.00	16.00
33398	1	2.00	18.00
33914	1	2.00	20.00
33927	1	2.00	22.00
34199	1	2.00	24.00
34887	1	2.00	26.00
34975	1	2.00	28.00
35046	1	2.00	30.00
35239	1	2.00	32.00
35401	1	2.00	34.00

```
     35522 |        1       2.00      36.00
     35539 |        1       2.00      38.00
     35621 |        1       2.00      40.00
     36179 |        1       2.00      42.00
     36359 |        1       2.00      44.00
     36767 |        1       2.00      46.00
     37014 |        1       2.00      48.00
     37069 |        1       2.00      50.00
     37474 |        1       2.00      52.00
     37562 |        1       2.00      54.00
     37647 |        1       2.00      56.00
     38082 |        1       2.00      58.00
     38175 |        1       2.00      60.00
     39099 |        1       2.00      62.00
     39787 |        1       2.00      64.00
     40007 |        1       2.00      66.00
     40011 |        1       2.00      68.00
     41014 |        1       2.00      70.00
     41129 |        1       2.00      72.00
     41270 |        1       2.00      74.00
     41319 |        1       2.00      76.00
     42612 |        1       2.00      78.00
     42847 |        1       2.00      80.00
     43044 |        1       2.00      82.00
     46913 |        1       2.00      84.00
     47186 |        1       2.00      86.00
     47908 |        1       2.00      88.00
     48595 |        1       2.00      90.00
     49122 |        1       2.00      92.00
     52197 |        1       2.00      94.00
     52576 |        1       2.00      96.00
     54042 |        1       2.00      98.00
     62120 |        1       2.00     100.00
-----------+-----------------------------------
     Total |       50     100.00

. tab BWmedian_Incom_Gap

BWmedian_In |
   com_Gap |      Freq.     Percent        Cum.
-----------+-----------------------------------
    -23013 |        1       2.00       2.00
    -22584 |        1       2.00       4.00
    -22529 |        1       2.00       6.00
    -18684 |        1       2.00       8.00
    -17399 |        1       2.00      10.00
```

-17089	1	2.00	12.00
-16510	1	2.00	14.00
-16383	1	2.00	16.00
-15815	1	2.00	18.00
-15742	1	2.00	20.00
-15011	1	2.00	22.00
-14930	1	2.00	24.00
-14834	1	2.00	26.00
-14229	1	2.00	28.00
-13369	1	2.00	30.00
-13360	1	2.00	32.00
-13217	1	2.00	34.00
-13113	1	2.00	36.00
-13030	1	2.00	38.00
-12700	1	2.00	40.00
-12491	1	2.00	42.00
-12456	1	2.00	44.00
-12188	1	2.00	46.00
-11940	1	2.00	48.00
-11459	1	2.00	50.00
-11261	1	2.00	52.00
-10926	1	2.00	54.00
-10819	1	2.00	56.00
-10536	1	2.00	58.00
-10008	1	2.00	60.00
-9985	1	2.00	62.00
-9942	1	2.00	64.00
-9019	1	2.00	66.00
-8625	1	2.00	68.00
-8036	1	2.00	70.00
-7978	1	2.00	72.00
-7603	1	2.00	74.00
-7327	1	2.00	76.00
-7168	1	2.00	78.00
-7115	1	2.00	80.00
-7040	1	2.00	82.00
-6970	1	2.00	84.00
-6763	1	2.00	86.00
-6031	1	2.00	88.00
-5019	1	2.00	90.00
-4021	1	2.00	92.00
-3728	1	2.00	94.00
-3676	1	2.00	96.00
-2316	1	2.00	98.00
6169	1	2.00	100.00

Total | 50 100.00

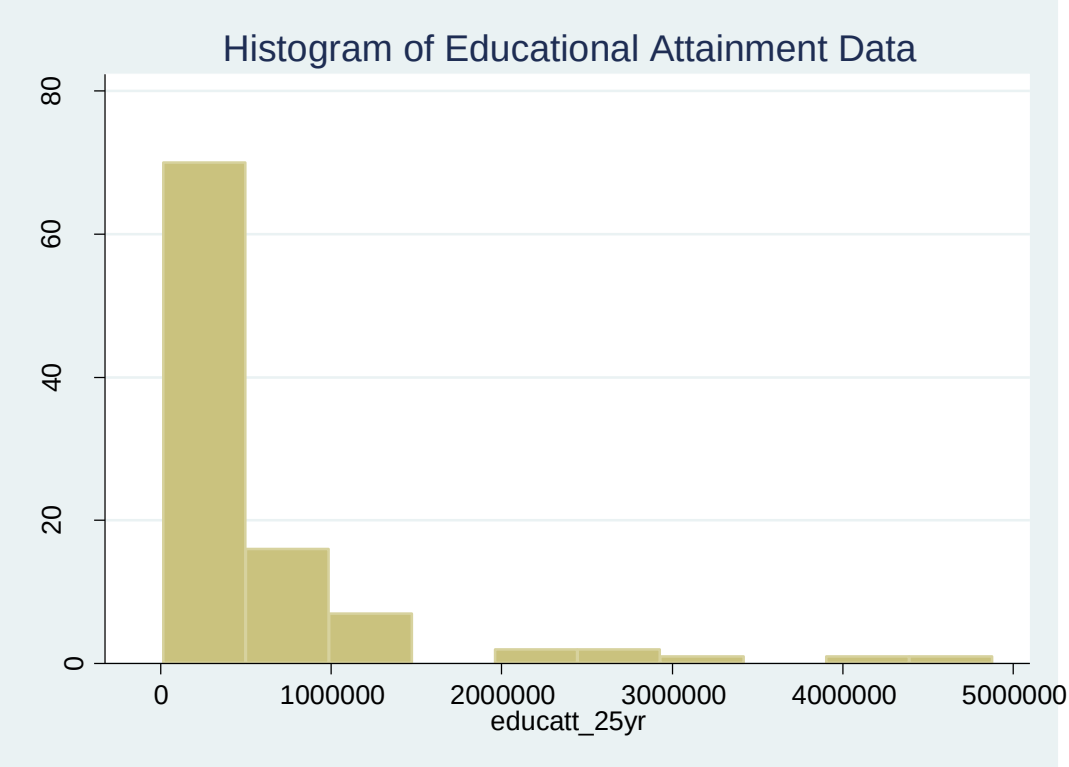
. W_B_Expo_In |

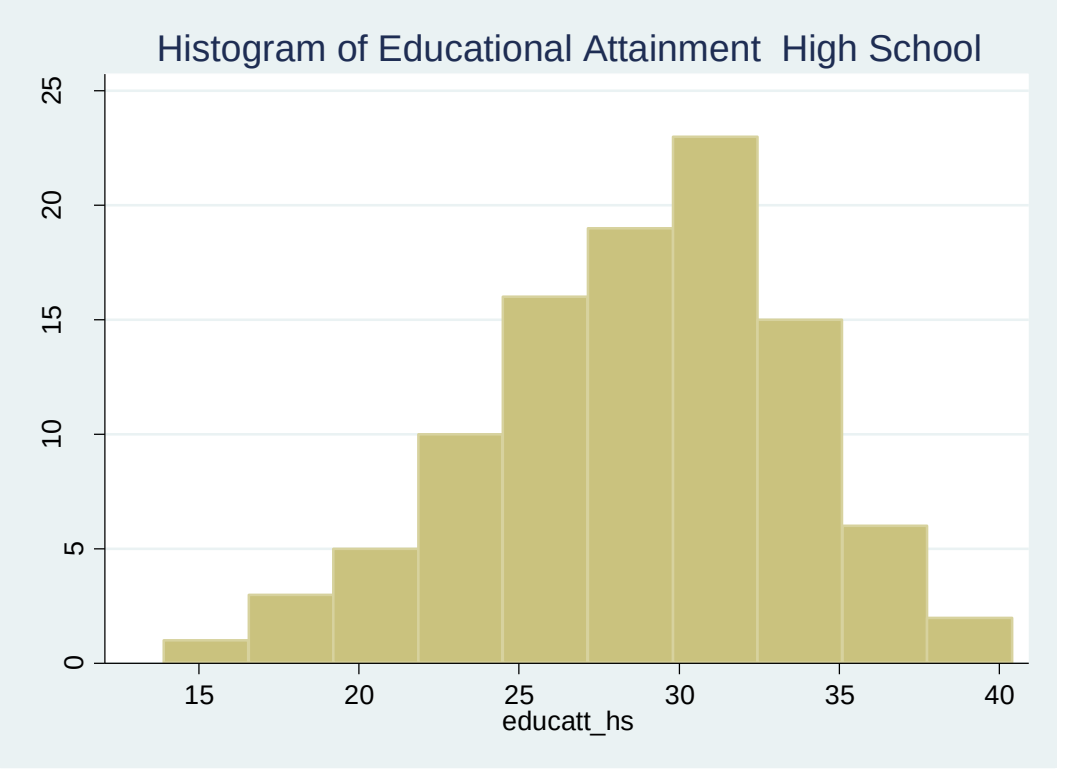
dex_1980	Freq.	Percent	Cum.
1.5	2	4.00	4.00
1.7	1	2.00	6.00
1.8	2	4.00	10.00
2.6	1	2.00	12.00
2.8	2	4.00	16.00
3	1	2.00	18.00
3.1	1	2.00	20.00
3.3	1	2.00	22.00
3.4	1	2.00	24.00
3.5	2	4.00	28.00
3.8	2	4.00	32.00
3.9	1	2.00	34.00
4	1	2.00	36.00
4.2	3	6.00	42.00
4.4	1	2.00	44.00
4.5	2	4.00	48.00
4.6	1	2.00	50.00
4.7	2	4.00	54.00
4.8	1	2.00	56.00
4.9	1	2.00	58.00
5	1	2.00	60.00
5.1	2	4.00	64.00
5.2	1	2.00	66.00
5.3	3	6.00	72.00
6.2	1	2.00	74.00
6.4	1	2.00	76.00
7	1	2.00	78.00
8.3	1	2.00	80.00
8.8	1	2.00	82.00
9	1	2.00	84.00
9.5	1	2.00	86.00
10.7	1	2.00	88.00
11.2	1	2.00	90.00
12	1	2.00	92.00
13.6	1	2.00	94.00
14.8	1	2.00	96.00
15.4	1	2.00	98.00
17	1	2.00	100.00
Total	50	100.00	

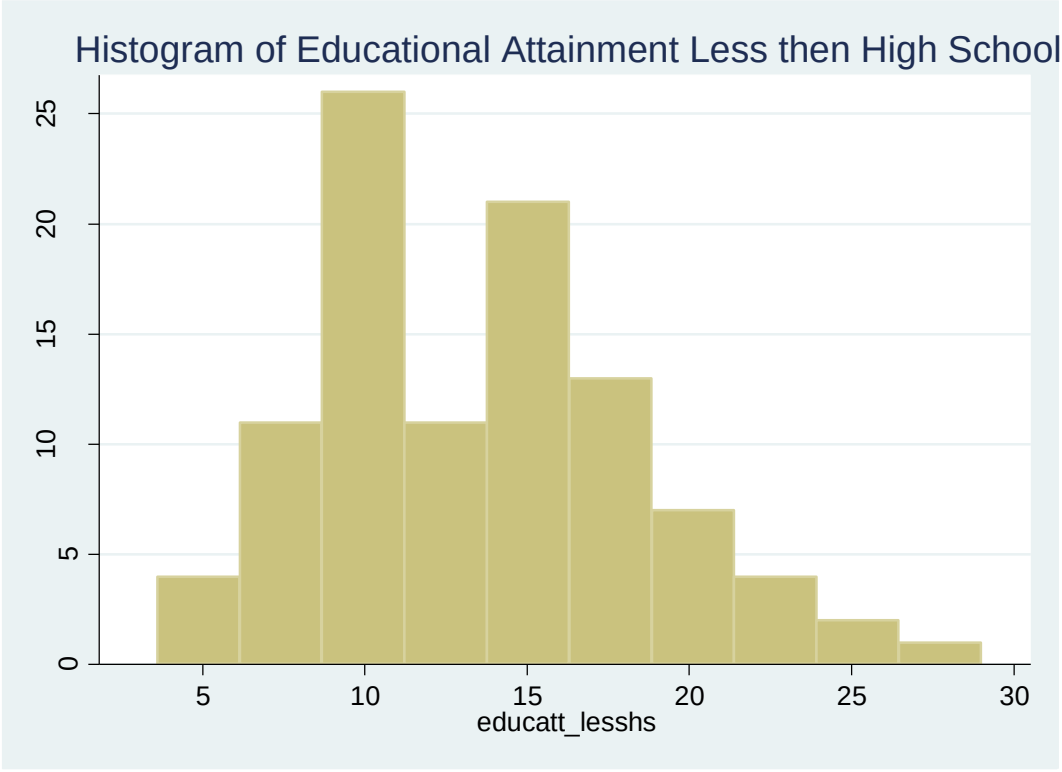
.

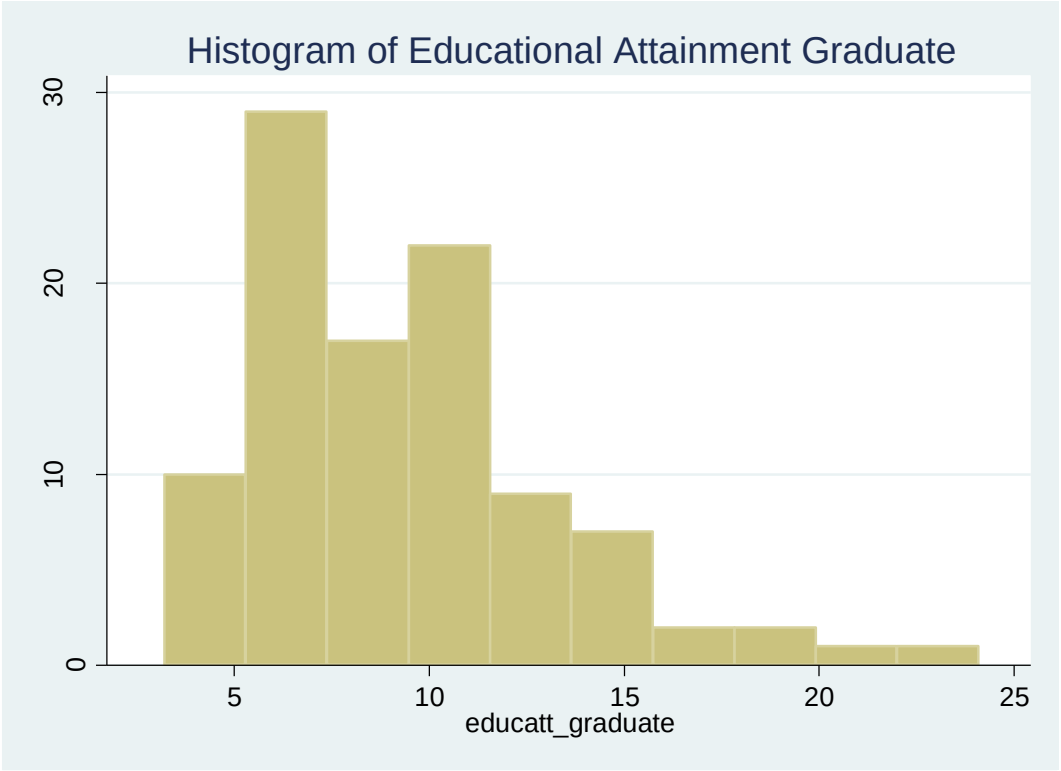
W_B_Expo_In dex_2010	Freq.	Percent	Cum.
2.6	1	2.00	2.00
3.2	1	2.00	4.00
3.9	1	2.00	6.00
4.3	1	2.00	8.00
4.4	2	4.00	12.00
4.8	1	2.00	14.00
5.4	1	2.00	16.00
5.5	2	4.00	20.00
5.7	2	4.00	24.00
5.8	4	8.00	32.00
5.9	2	4.00	36.00
6	1	2.00	38.00
6.2	1	2.00	40.00
6.3	1	2.00	42.00
6.5	1	2.00	44.00
6.6	1	2.00	46.00
7.8	1	2.00	48.00
7.9	1	2.00	50.00
8.4	2	4.00	54.00
8.5	3	6.00	60.00
8.9	1	2.00	62.00
9	1	2.00	64.00
9.5	1	2.00	66.00
9.8	2	4.00	70.00
10	2	4.00	74.00
10.4	1	2.00	76.00
10.9	1	2.00	78.00
12.2	1	2.00	80.00
14	2	4.00	84.00
14.3	2	4.00	88.00
16.1	1	2.00	90.00
17.2	1	2.00	92.00
18.6	1	2.00	94.00
19.1	1	2.00	96.00
22.1	1	2.00	98.00
24.4	1	2.00	100.00
Total	50	100.00	

APENDIX B

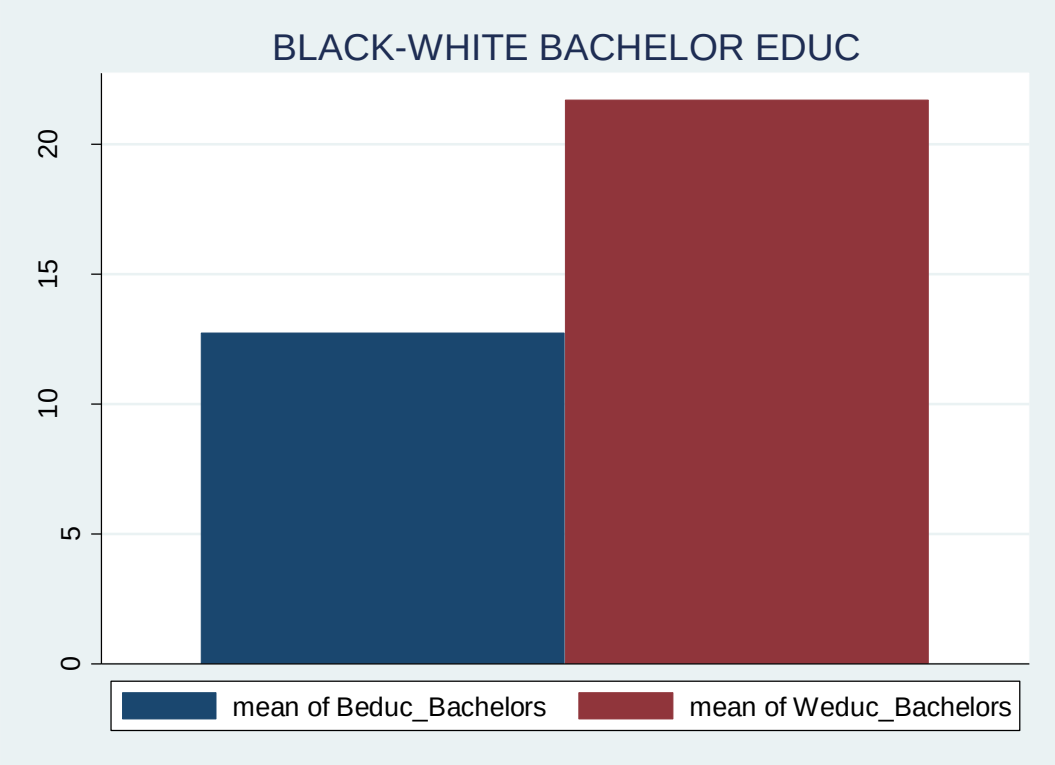

Histogram of Educational Attainment Data
0
20
40
60
80
0
1000000
2000000
3000000
4000000
5000000
educatt_25yr

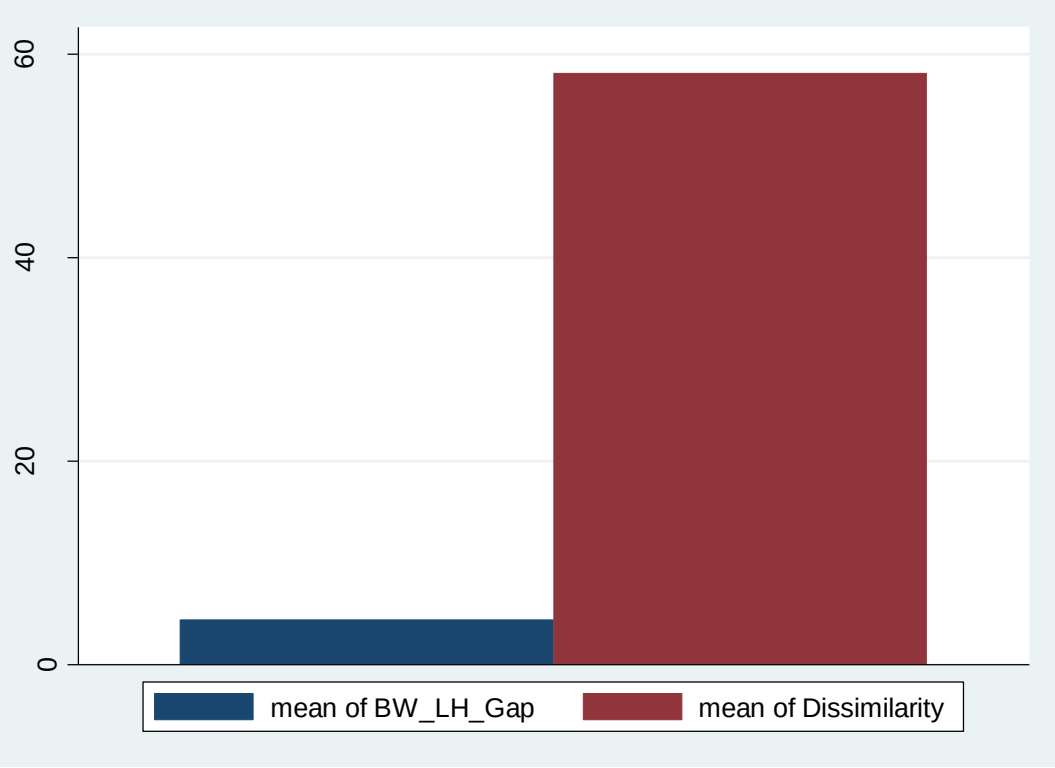

Histogram of Educational Attainment High School
0
5
10
15
20
25
15
20
25
30
35
40
educatt_hs

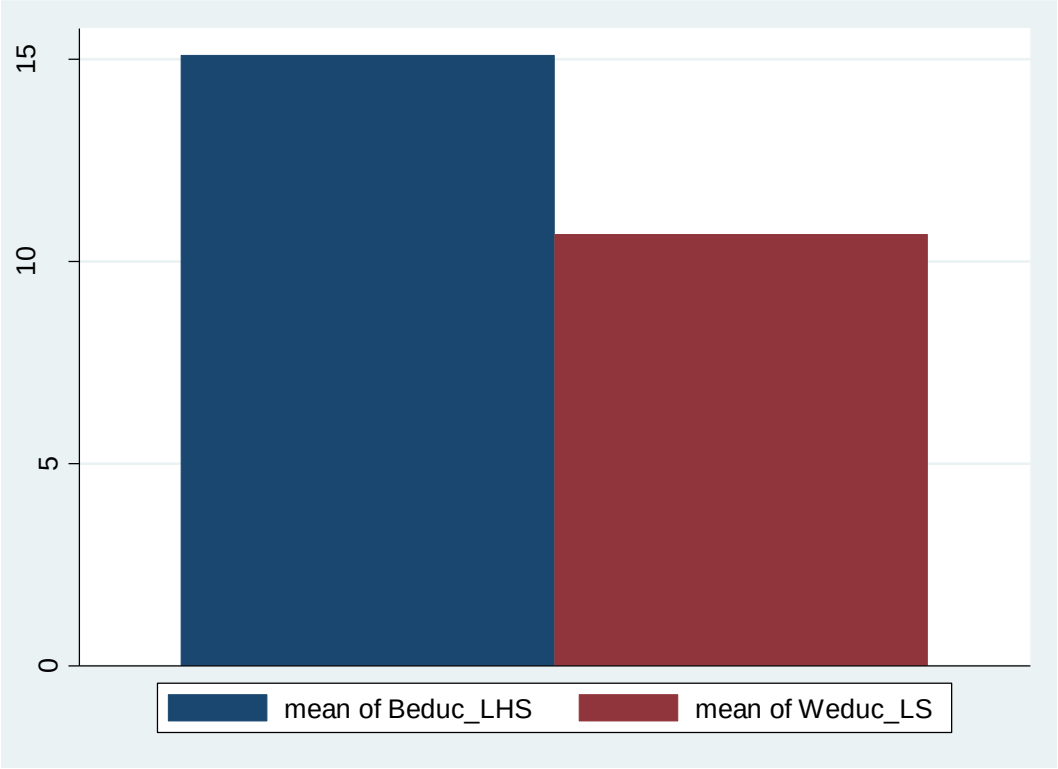

Histogram of Educational Attainment Less then High School
0
5
10
15
20
25
5
10
15
20
25
30
educatt_lesshs

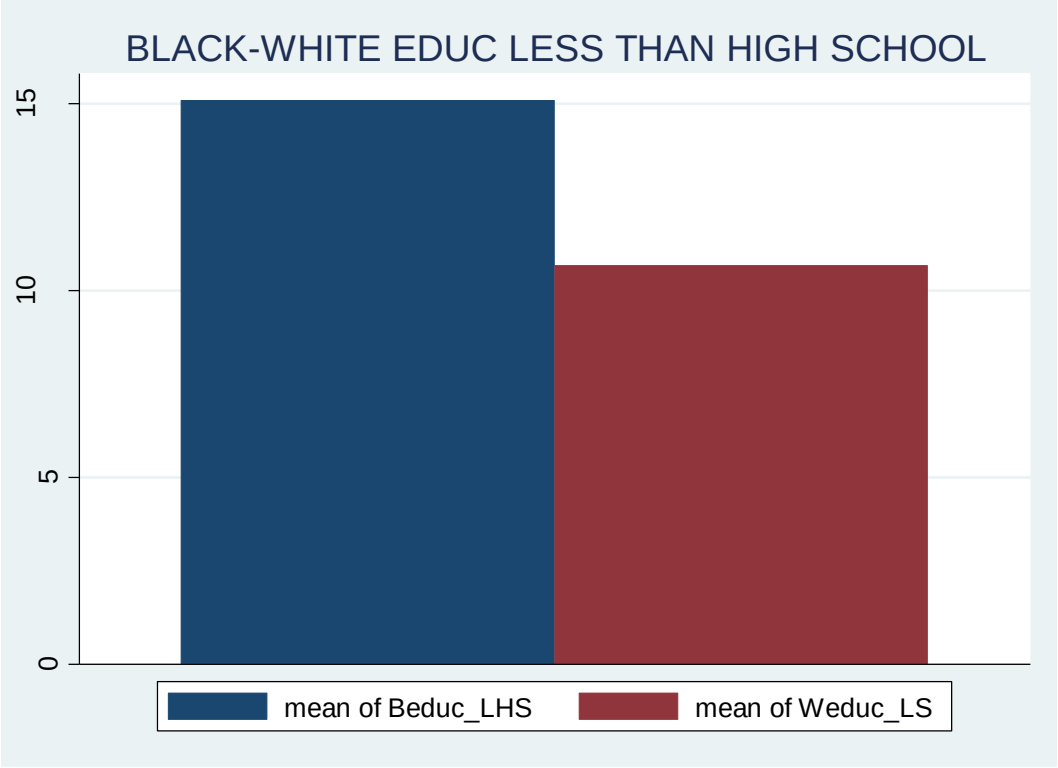

Histogram of Educational Attainment Graduate
0
10
20
30
5
10
15
20
25
educatt_graduate

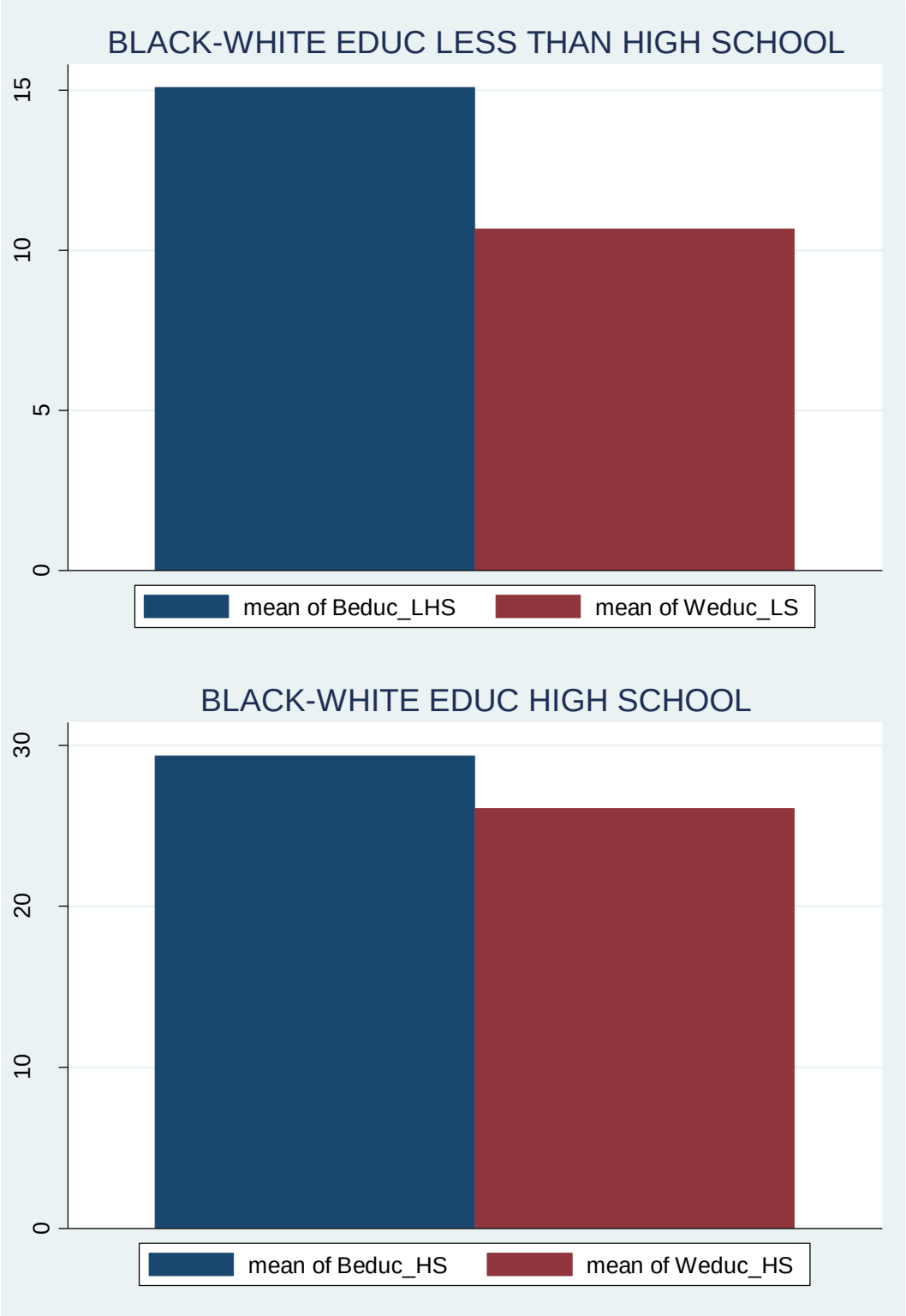
sum race

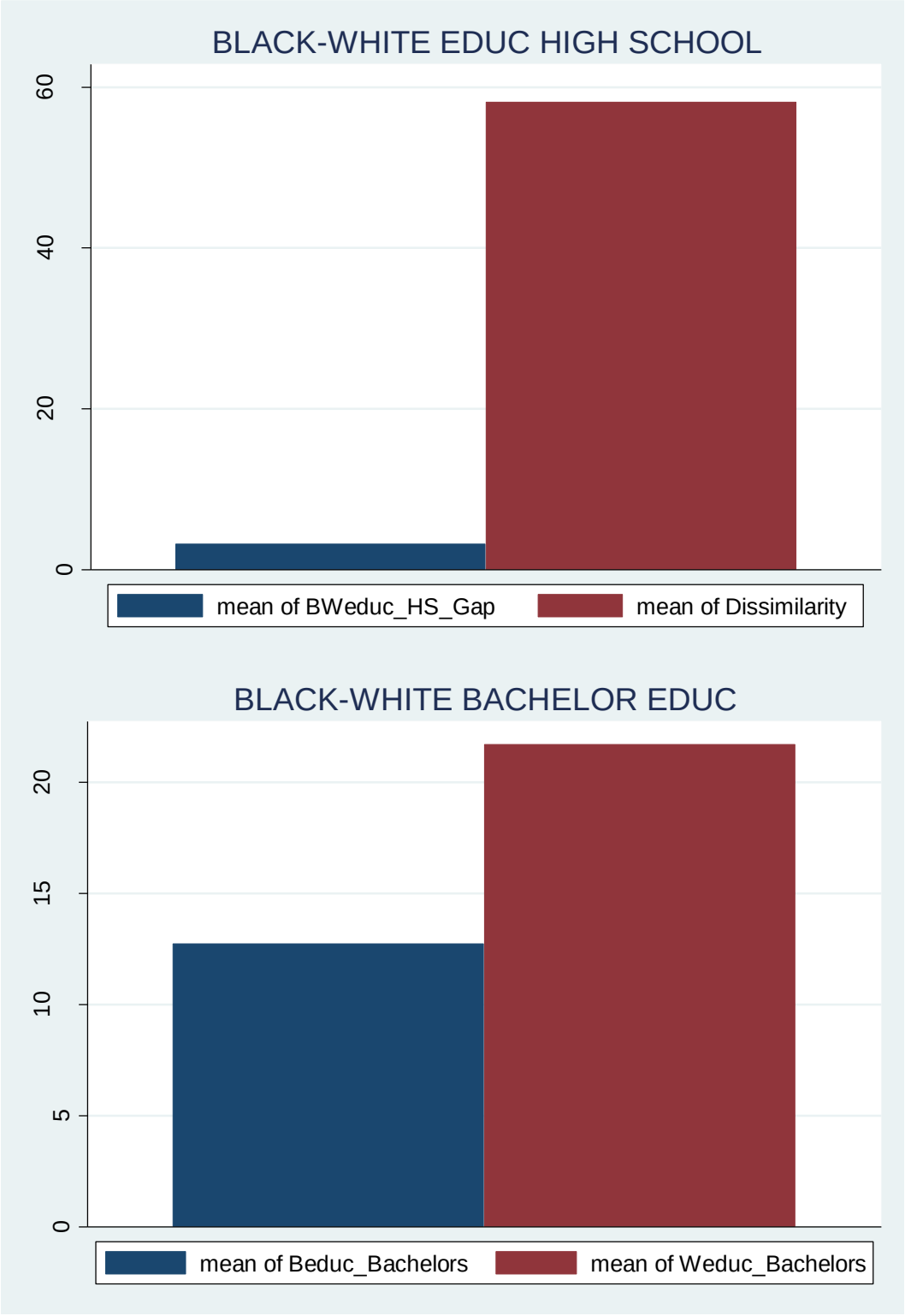

BLACK-WHITE BACHELOR EDUC
0
5
10
15
20
mean of Beduc_Bachelors
mean of Weduc_Bachelors

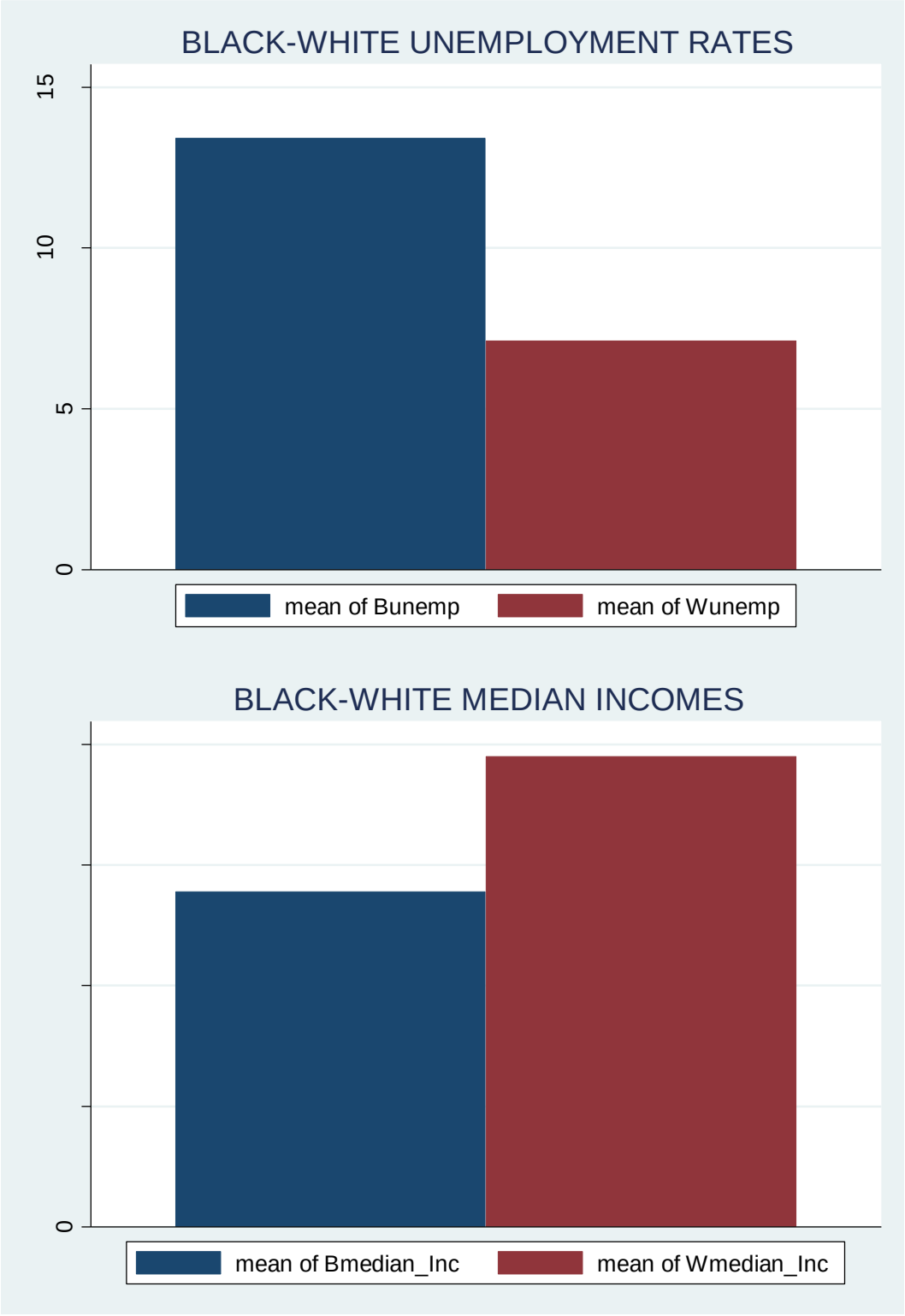

0
20
40
60
mean of BW_LH_Gap
mean of Dissimilarity

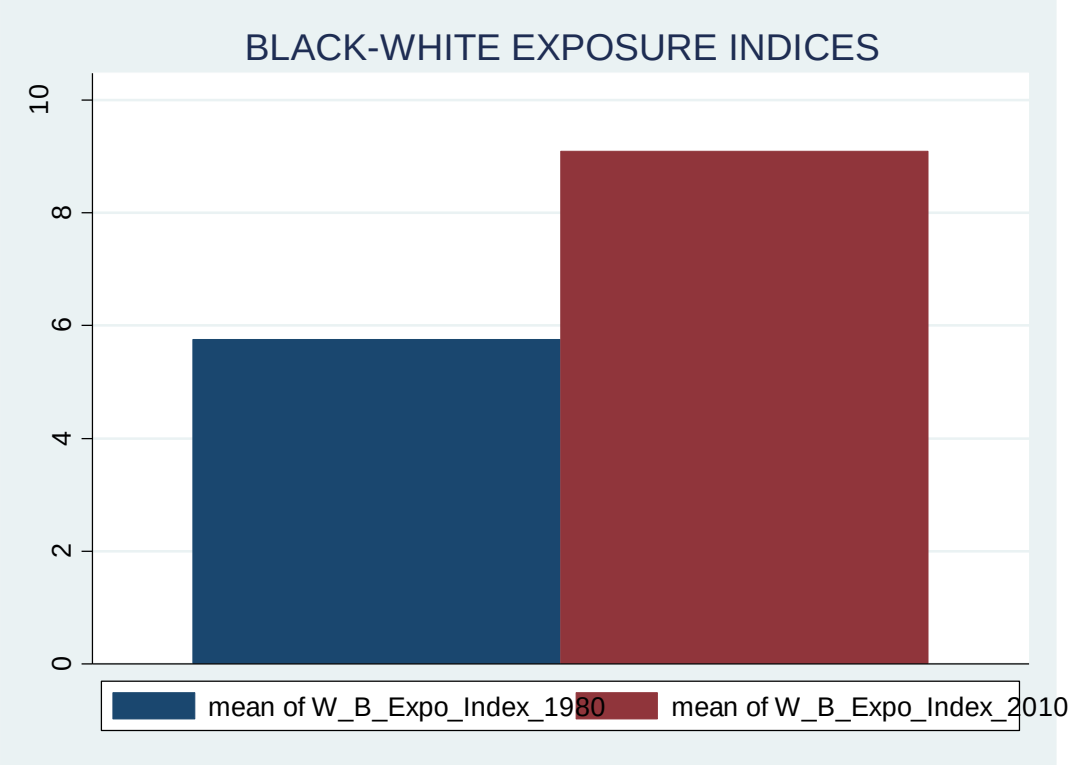

15
10
5
0
mean of Beduc_LHS
mean of Weduc_LS


BLACK-WHITE EDUC LESS THAN HIGH SCHOOL
15
10
5
0
mean of Beduc_LHS
mean of Weduc_LS


BLACK-WHITE EDUC LESS THAN HIGH SCHOOL
15
10
5
0
mean of Beduc_LHS
mean of Weduc_LS
BLACK-WHITE EDUC HIGH SCHOOL
30
20
10
0
mean of Beduc_HS
mean of Weduc_HS


BLACK-WHITE EDUC HIGH SCHOOL
60
40
20
0
mean of BWeduc_HS_Gap
mean of Dissimilarity
BLACK-WHITE BACHELOR EDUC
20
15
10
5
0
mean of Beduc_Bachelors
mean of Weduc_Bachelors


BLACK-WHITE UNEMPLOYMENT RATES
15
10
5
0
mean of Bunemp
mean of Wunemp
BLACK-WHITE MEDIAN INCOMES
0
mean of Bmedian_Inc
mean of Wmedian_Inc


BLACK-WHITE EXPOSURE INDICES
10
8
6
4
2
0
mean of W_B_Expo_Index_1980
mean of W_B_Expo_Index_2010

APPENDIX C

TABLE1

Variable	Obs	Mean	Std. Dev.	Min	Max
Dissimilar~y	50	58.106	10.18156	35.9	79.6

```
. sum Beduc_LHS if Dissimilarity <50
```

Variable	Obs	Mean	Std. Dev.	Min	Max
Beduc_LHS	12	11.50833	2.741087	7.4	17.4

```
. sum Beduc_LHS if Dissimilarity >50
```

Variable	Obs	Mean	Std. Dev.	Min	Max
Beduc_LHS	38	16.23158	3.301442	10.5	23.6

TABLE2

```
    Source |       SS       df       MS              Number of obs =      50
-------------+------------------------------           F(  6,    43) =   15.61
       Model |  975.859965     6  162.643327           Prob > F      =  0.0000
    Residual |  447.931235    43  10.4170055           R-squared     =  0.6854
-------------+------------------------------           Adj R-squared =  0.6415
       Total |   1423.7912    49  29.0569633           Root MSE      =  3.2275

------------------------------------------------------------------------------
  BW_LH_Gap |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Dissimilarity |   .0857808   .0549267     1.56   0.126    -.0249895    .1965512
  Beduc_LHS |   1.064346   .1617081     6.58   0.000     .7382306    1.390462
     Bunemp |  -.0939685   .1517818    -0.62   0.539    -.4000656    .2121285
Bmedian_Inc |  -.0000718   .0000909    -0.79   0.434     -.000255    .0001115
```

W_B_Expo_Index_1980	-.0105638	.4027908	-0.03	0.979	-.8228689	.8017414
W_B_Expo_Index_2010	-.0754645	.3029514	-0.25	0.804	-.6864242	.5354952
_cons	-12.62863	4.230023	-2.99	0.005	-21.15929	-4.097977

TABLE3

Weduc_LS

Percentiles		Smallest		
1%	4.8	4.8		
5%	6.6	6.5		
10%	7.2	6.6	Obs	50
25%	8.5	6.7	Sum of Wgt.	50
50%	10.1		Mean	10.674
		Largest	Std. Dev.	3.209667
75%	12.3	15.5		
90%	14.7	18.1	Variance	10.30196
95%	18.1	19.1	Skewness	.9128936
99%	19.3	19.3	Kurtosis	3.575496

Beduc_LHS

Percentiles		Smallest		
1%	7.4	7.4		
5%	10.3	7.7		
10%	10.7	10.3	Obs	50
25%	11.8	10.5	Sum of Wgt.	50
50%	15.45		Mean	15.098
		Largest	Std. Dev.	3.750891
75%	17.6	20		
90%	19.5	22.1	Variance	14.06918
95%	22.1	22.7	Skewness	.1085512
99%	23.6	23.6	Kurtosis	2.466418

TABLE4

Beduc_HS

Percentiles		Smallest		
1%	19.7	19.7		
5%	22.1	21.7		
10%	24.3	22.1	Obs	50
25%	26.6	22.7	Sum of Wgt.	50
50%	30.15		Mean	29.326
		Largest	Std. Dev.	3.892421
75%	32	34.2		
90%	33.6	34.5	Variance	15.15094
95%	34.5	36.8	Skewness	-.3905479
99%	37.2	37.2	Kurtosis	2.711594

. sum Weduc_HS, detail

Weduc_HS

Percentiles		Smallest		
1%	16.4	16.4		
5%	17	16.5		
10%	19.3	17	Obs	50
25%	23.2	18	Sum of Wgt.	50
50%	26.95		Mean	26.086
		Largest	Std. Dev.	4.437963
75%	29.1	31.8		
90%	31.05	32.2	Variance	19.69551
95%	32.2	32.6	Skewness	-.405493
99%	36.4	36.4	Kurtosis	2.866698

Table.5

Variable	Obs	Mean	Std. Dev.	Min	Max
Weduc_HS	50	26.086	4.437963	16.4	36.4
Beduc_HS	50	29.326	3.892421	19.7	37.2

Variable	Obs	Mean	Std. Dev.	Min	Max
Beduc_HS	12	26.53333	4.465083	19.7	34.5

. sum Beduc_HS if Dissimilarity >50

Variable	Obs	Mean	Std. Dev.	Min	Max
Beduc_HS	38	30.20789	3.287765	22.1	37.2

TABLE6

Source	SS	df	MS	Number of obs =	50
Model	263.772252	6	43.962042	F(6, 43) =	4.81
Residual	393.407748	43	9.1490174	Prob > F =	0.0008
Total	657.18	49	13.4118367	R-squared =	0.4014
				Adj R-squared =	0.3178
				Root MSE =	3.0247

BWeduc_HS_Gap	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
Dissimilarity	.0542782	.0510275	1.06	0.293	-.0486285	.1571849
Beduc_HS	.397119	.1425496	2.79	0.008	.1096404	.6845977
Bunemp	-.1271777	.1402259	-0.91	0.369	-.4099701	.1556148
Bmedian_Inc	.0003139	.0000834	3.77	0.001	.0001458	.0004821
W_B_Expo_Index_1980	.3250203	.3803318	0.85	0.398	-.4419919	1.092032
W_B_Expo_Index_2010	-.3032462	.289982	-1.05	0.302	-.8880507	.2815583
_cons	-17.69139	4.802334	-3.68	0.001	-27.37622	-8.006561

TABLE 7

Variable	Obs	Mean	Std. Dev.	Min	Max
Beduc_Bach~s	38	12.27632	2.707391	7.6	17.8

. sum Beduc_Bachelors if Dissimilarity <50

Variable	Obs	Mean	Std. Dev.	Min	Max
Beduc_Bach~s	12	14.18333	3.63839	8.6	22.3

Variable	Obs	Mean	Std. Dev.	Min	Max
Beduc_Bach~s	50	12.734	3.030431	7.6	22.3

Variable	Obs	Mean	Std. Dev.	Min	Max
Weduc_Bach~s	50	21.698	3.690832	12.2	28.7

TABLE 8

Source | SS df MS Number of obs = 50

----------+---------- F (6, 43) = 3.91

Model | 238.534771 6 39.7557951 Prob > F = 0.0034

Residual | 437.660429 43 10.1781495 R-squared = 0.3528

----------+---------- Adj R-squared = 0.2624

Total | 676.1952 49 13.799902 Root MSE = 3.1903

BW_BacheGap | Coef. Std. Err. t P>|t| [95% Conf. Interval]

----------+---

Dissimilarity | -.1432579 .0521604 -2.75 0.009 -.2484493 -.0380664

Beduc_Bachelors | .3580656 .1940643 1.85 0.072 -.0333024 .7494337

Bunemp | .1750962 .1479374 1.18 0.243 -.1232481 .4734405

Bmedian_Inc | -.0000133 .0000971 -0.14 0.892 -.0002091 .0001826

W_B_Expo_Index_1980 | -.4391951 .3954698 -1.11 0.273 -1.236736 .3583459

W_B_Expo_Index_2010 | .246863 .2943231 0.84 0.406 -.346696 .840422

_cons | -6.895423 4.908407 -1.40 0.167 -16.79417 3.003323

TABLE 9

Variable	Obs	Mean	Std. Dev.	Min	Max
Beduc_Grad	50	7.064	1.723518	4.2	12.8

Variable	Obs	Mean	Std. Dev.	Min	Max
Weduc_Grad	50	12.986	3.685493	7.2	27.3

TABLE 10

Source | SS df MS Number of obs = 50

----------+---------- F(6, 43) = 5.72

Model | 222.73893 6 37.123155 Prob > F = 0.0002

Residual | 279.20687 43 6.49318302 R-squared = 0.4438

----------+---------- Adj R-squared = 0.3661

Total | 501.9458 49 10.2437918 Root MSE = 2.5482

BW_Grad_Gap | Coef. Std. Err. t P>|t| [95% Conf. Interval]

----------+---

Dissimilarity | -.126919 .038919 -3.26 0.002 -.2054066 -.0484315

Beduc_Grad | .3818188 .2788812 1.37 0.178 -.1805987 .9442362

Bunemp | .019343 .1192661 0.16 0.872 -.2211801 .259866

Bmedian_Inc | -.0002893 .0000815 -3.55 0.001 -.0004536 -.0001249

W_B_Expo_Index_1980 | -.5579437 .3167312 -1.76 0.085 -1.196693 .0808056

W_B_Expo_Index_2010 | .4331876 .2376795 1.82 0.075 -.0461388 .9125139

_cons | 5.805923 3.665745 1.58 0.121 -1.586757 13.1986

TABLE 11

Bmedian_Inc

Percentiles		Smallest		
1%	18856	18856		
5%	20830	20460		
10%	21915.5	20830	Obs	50
25%	24140	21327	Sum of Wgt.	50
50%	27315		Mean	27787.76
		Largest	Std. Dev.	5575.05
75%	29906	36009		
90%	33526	36066	Variance	3.11e+07
95%	36066	44919	Skewness	1.618897
99%	49090	49090	Kurtosis	6.981941

Wmedian_Inc

Percentiles		Smallest		
1%	23737	23737		
5%	31265	30370		
10%	31935	31265	Obs	50
25%	34887	31756	Sum of Wgt.	50
50%	37271.5		Mean	38984.12
		Largest	Std. Dev.	7057.735
75%	41319	52197		
90%	48858.5	52576	Variance	4.98e+07
95%	52576	54042	Skewness	1.012413
99%	62120	62120	Kurtosis	4.328759

TABLE12

Source | SS df MS Number of obs = 50

----------+---------- F(5, 44) = 1.50

Model | 212698047 5 42539609.3 Prob > F = 0.2107

Residual | 1.2514e+09 44 28441994.6 R-squared = 0.1453

----------+---------- Adj R-squared = 0.0481

Total | 1.4641e+09 49 29880526.7 Root MSE = 5333.1

--

BWmedian_Incom_Gap | Coef. Std. Err. t P>|t| [95% Conf. Interval]

-------------------+--

Dissimilarity | -111.8174 89.50169 -1.25 0.218 -292.1962 68.56138

Beduc_HS | -177.5219 245.3701 -0.72 0.473 -672.0328 316.9889

Bunemp | -183.9123 244.5578 -0.75 0.456 -676.7863 308.9616

W_B_Expo_Index_1980 | -977.299 660.3544 -1.48 0.146 -2308.156 353.5578

W_B_Expo_Index_2010 | 790.0649 506.6615 1.56 0.126 -231.0443 1811.174

_cons | 1412.181 6361.406 0.22 0.825 -11408.39 14232.75

--

TABLE 13

Bunemp

Percentiles		Smallest		
1%	5	5		
5%	7.7	5.4		
10%	8.6	7.7	Obs	50
25%	11.1	8	Sum of Wgt.	50
50%	13.8		Mean	13.404
		Largest	Std. Dev.	3.483779
75%	15.8	18.2		
90%	17.55	18.5	Variance	12.13672
95%	18.5	18.9	Skewness	-.3273299
99%	21	21	Kurtosis	2.838185

Wunemp

Percentiles		Smallest		
1%	3.8	3.8		
5%	4.9	4.2		
10%	5.4	4.9	Obs	50
25%	5.8	5.3	Sum of Wgt.	50
50%	6.9		Mean	7.12
		Largest	Std. Dev.	1.882573
75%	8	10.3		
90%	9.2	11.4	Variance	3.544082
95%	11.4	11.7	Skewness	1.20231
99%	13.6	13.6	Kurtosis	4.9753

Variable	Obs	Mean	Std. Dev.	Min	Max
Bunemp	50	13.404	3.483779	5	21

Variable	Obs	Mean	Std. Dev.	Min	Max
Wunemp	50	7.12	1.882573	3.8	13.6

TABLE 14

Source | SS df MS Number of obs = 50

----------+---------- F(7, 42) = 22.31

Model | 388.150431 7 55.4500616 Prob > F = 0.0000

Residual | 104.366369 42 2.48491354 R-squared = 0.7881

----------+---------- Adj R-squared = 0.7528

Total | 492.5168 49 10.0513633 Root MSE = 1.5764

--

BWunempl_Gap | Coef. Std. Err. t P>|t| [95% Conf. Interval]

-------------------+--

Dissimilarity | .0616586 .0270177 2.28 0.028 .0071346 .1161825

Beduc_HS | .128898 .0871113 1.48 0.146 -.0468996 .3046957

Beduc_Bachelors | .178808 .1124364 1.59 0.119 -.0480979 .4057138

Bunemp | .7007975 .0730979 9.59 0.000 .55328 .848315

Bmedian_Inc | -.0000729 .0000481 -1.52 0.137 -.0001699 .0000241

W_B_Expo_Index_1980 | -.1203253 .1990403 -0.60 0.549 -.5220049 .2813543

W_B_Expo_Index_2010 | .1499602 .1514358 0.99 0.328 -.1556496 .4555699

_cons | -11.37084 3.544687 -3.21 0.003 -18.52431 -4.21737

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