STRUCTURAL DETERMINANTS OF BIRACIAL IDENTIFICATION

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A DISSERTATAION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

Sociology—Doctor of Philosophy

2016

ABSTRACT

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This study borrows from Peter Blau's opportunity-structure theory and interracial marriage empirical scholarship to assess the effects of macrostructural variables on the likelihood of black and Asian Americans reporting biracial identification with whites and each other in the 2010 US Census. To evaluate whether social forces known to influence interracial marriage also influence biracial identification, macrostructural parameters across 363 metropolitan areas were examined. Residential segregation, racial equality and minority group size were found to affect the likelihood racial minorities report biracial identification over mono-racial identification in much the same way these macrostructural variables affect the likelihood of interracial marriage in other studies.

To Elijah. I adopted you when I graduated from high school and now more than twenty years later you are laid to rest on the eve of the defense of this dissertation. This work could not have been completed without your relentless affections and emotional nurturing through both the most tumultuous and triumphant of times. May v2.0 marking your resting place flourish with the most lavish of roses ‘till the end of days.

ACKNOWLEDGEMENTS

"In an ideal world, your advisor would be a mentor, an expert in your field, a coach, and editor and a career counselor; someone to guide, teach and encourage you from the first glimmer… There are, however, very few human beings who can fill that entire job description." Joan Bolker, author of *Writing Your Dissertation in Fifteen Minutes a Day*, obviously never met Dr. Clifford Broman. My advisor, my coach, my therapist and my friend: your patience, dedication, wisdom and graceful honesty is fully accountable for getting this manuscript over the finish line. I will always be grateful for the kindred spirit I found in you.

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CHAPTER 1: INTRODUCTION TO STRUCTURAL DETERMINANTS OF BIRACIAL IDENTIFICATION

INTRODUCTION

The 2000 US Census allowed respondents to indicate more than one race for the first time in history. Approximately 6.8 million chose this option. This figure grew by 32.0% (to 9.0 million) by 2010, despite a total American population increase of only 9.7%. Among 42.0 million blacks (13.6% of the American population), nearly 2.7 million identified as biracial (see

Table 1. 2010 US Census Racial Frequencies

	Total Population	**308,745,538**	**100.00%**
One Race	**Total One Race**	**299,736,465**	**97.10%**
	White	223,553,265	72.40%
	Black or African American	38,929,319	12.60%
	Asian	14,674,252	4.80%
	American Indian and Alaska Native	2,932,248	1.00%
	Native Hawaiian and Other Pacific Islander	540,013	0.20%
	Other Race	19,107,368	6.20%
Two Races	**Total Two Races**	**8,265,318**	**2.70%**
	White; Black or African American	1,834,212	0.60%
	White; Asian	1,623,234	0.50%
	White; Other Racial Groups	3,343,224	1.10%
	Black or African American; Asian	185,595	0.10%
	Black or African American; Other Racial Groups	634,300	0.20%
	Asian; Other Racial Groups	458,981	0.20%
	Other Biracial Groups	185,772	0.00%
Three+ Races	**Total Three or More Races**	**743,755**	**0.24%**

Source: Summary File 1 (SF1), Prefixed Table 8 (P8), Census 2010, Census Bureau.

Table 1). Over 1.8 million, or 4.4% of the total black population, specifically identified as also white (doubled from 2.2% in 2000). This is much smaller than what would be expected due to chance with the ratio of blacks to whites at .182. In contrast, the ratio of Asians to whites is .075, yet 9.4% of the total Asian American population identified as also white. Responses to the

census race question confirm that racial identification is indeed a choice (Hirschman 2004; Masuoka 2011). Now the question becomes which factors influence that choice and why.

RESEARCH QUESTION

There is considerable geographic variation in the proportion of racial minorities that identify as biracial (Farley 2002; Hoeffel et al. 2012). Drastic variation in the 2010 Census ranges from 0.6% in Jackson, Mississippi to 42.2% in Coeur d'Alene, Idaho among biracial blacks identifying as also white for example. Ironically, greater biracial populations skew toward areas where minorities represent a relatively small proportion of the population (Butts 2008). This and other distinctions across metropolitan areas suggests underlying structural differences affecting the likelihood of biracial identification. Borrowing from prior theoretical and empirical scholarship on mixed-race marriage, this study explores how urban structural factors affecting intergroup relations impact the likelihood Americans report biracial identification. The central research question is therefore:

RQ: Do macrostructural forces known to influence biracial marriage also influence biracial identification?

THEORETICAL FRAMEWORK

Peter Blau (1977) introduced his macrostructural theory in 1977. His first full test of the theory accompanied a slight theoretical revision a few years later (Blau and Schwartz 1984). Blau and colleagues then retested the theory in different ways (Blau, Beeker and Fitzpatrick 1984; Blau and Blau 1982; Blau, Blum and Schwarz 1982; Blum 1984, 1985; Rytina et al. 1988). Other empiricists followed suit (Anderson and Saenz 1994; Fitzpatrick and Hwang 1992; Hwang, Saenz and Aguirre 1994; Messner and South 1986; Sampson 1984; Skvoretz 1983, 1990; South and Messner 1986; Tucker and Mitchell-Kernan 1990). Blau (1994) revised and

simplified the theory in 1994. Additional empiricism followed (Heaton and Jacobson 2000; Hwang, Saenz Aguirre 1997) but has tapered in recent years, perhaps due to saturation from generally strong empirical support within the context of interracial marriage, and occasionally other topics such as interracial crime.

The basic premise of the theory contends that the probability of intergroup relations depends on key environmental factors evident in a city's social structure that govern people's social opportunities. First and most importantly, the number of characteristics in common between members of two different groups affects the likelihood of relationship development. The more characteristics in common, the less the one unshared characteristic matters. Second, the numerical availability of in-group associates that share other characteristics affects the likelihood of intergroup relations. When there are less in-group individuals of otherwise similar status on other characteristics, there are proportionately more out-group individuals of otherwise similar status. A third element, group size, plays a role within each of these two key factors. Numerically large minority groups tend to be geographically and socially segregated (Blalock 1967; Massey and Denton 1993; Waters 1999; Wilson 1980). These groups become homogenous and delineated, limiting contact and the extent any characteristics are shared with the out-group (Blau 1980; Castles and Miller 2003; Qian, Glick and Batson 2012; Sassen 2001, 2006; Waters 1999). In contrast, equality creates conditions that provide adequately sized in-group relationship opportunities with members of similar status, unless the minority group is small. In both cases, the theory maintains that intergroup relations are more likely among members of small groups.

In summary, cities where the minority group has greater exposure to the majority group have higher rates of intergroup relations between the minority group and the majority group. Cities with smaller minority groups have higher rates of intergroup relations between the

minority and majority group. But cities with greater equality between groups actually have lower rates of intergroup relations because people presumably prefer relations within their own group when there is an adequately sized selection pool of same-status others.

An examination of these processes depends on the comparison of groups unevenly distributed across a social hierarchy of some kind. The theory lends itself to 'race' as the demographic characteristic defining group membership. The interracial phenomena examined through this lens by scholars in the past include interracial contact, conflict/crime, friendship and most often, marriage. Published empiricism has not yet tested the extent to which macrostructural theory can be extended beyond explaining the likelihood persons from two different races will have relations to the likelihood persons in one group will identify with two different races.

METHODOLOGICAL OVERVIEW

To evaluate whether social forces known to influence interracial relations also influence interracial identification, the three key environmental factors outlined in Blau's theory are examined across 363 metropolitan areas in the continental US. Metropolitan statistical areas are compared on the basis of whites, blacks, and Asian biracial identification rates. Such a comparison requires a quantitative approach. The ultimate source of racial identification rates aggregated at the city level in the US is the census. Both the 2000 Census and the 2010 Census allowed respondents to self-identify with as many racial categories as desired. The pilot for this study utilized the 2000 Census while this study utilizes the 2010 Census. The decennial census also provides aggregated racial data for two of the three primary independent variables and one of the two control variables incorporated into this analysis. Those not available through the decennial census are available from the Census Bureau's American Community Survey (ACS).

The central question asks why some cities have higher proportions of biracial identification than others. To answer this question, I regress residential segregation, racial equality and minority group size on biracial identification rates among black-whites, Asian-whites, and black-Asians in three separate chapters. These methods and a pilot for this study are discussed in further detail in the next chapter.

DISSERTATION OUTLINE

Blau's theory depends on the comparison of two groups in which one is a minority group and the other is a majority group. Empirical studies testing the theory within the context of race most consistently choose whites as the majority group and either non-whites (Blau 1994; Blau et al. 1984; Blau and Schwartz 1984; Blum 1984; South and Messner 1986) or blacks (Blau and Blau 1982; Fitzpatrick and Hwang 1992) as the minority group. A small handful of some of the more recent tests of Blau's theory have begun to examine other racial groups such as Asians (Heaton and Jacobson 2000; Hwang, Saenz Aguirre 1994, 1997; Qian 1997, 1999) or Hispanics (Heaton and Jacobson 2000; Qian 1997, 1999).

Much like empiricism on biracial marriage and other forms of interracial relations, biracial identification empiricism gravitates toward black-white individuals. Methodological convenience aside, blacks and whites are important groups to study together for many reasons. These two groups experience more social, cultural and spatial distance than any other racial pairing (Massey and Denton 1993; Qian 1999). For example, blacks and whites are the least likely groups to marry each other (Edmonston, Lee and Passel 2002; Heaton and Jacobson 2000; Qian 1997). Yet biracial blacks are more likely to share heritage with whites than any other racial group (see Table 1). Nonetheless, blacks with recent multiracial heritage are the least likely multiracial group to claim any multiracial identification (Bratter 2007; Lee and Bean

2007b; Loveman and Muniz 2007). The iconoclasts claiming black-white biracial identification are therefore of considerable substantive interest, hence the preponderance of quality empiricism analyzing these individuals. And because the purpose of this research is to determine the degree to which Blau's macrostructural theory of intergroup relations (which is most often tested on blacks and whites) can be extended to intergroup identification, the first model examines black biracial identification with whites in Chapter 3.

Chapter 4 examines the applicability of Blau's macrostructural theory of intergroup relations to Asian biracial identification with whites to determine if the theory's explanatory value remains steadfast beyond the realm of black and white. With the relationships between blacks and whites, and then Asians and whites tested, the relevance of Blau's macrostructural theory to non-white biracial groups, such as blacks and Asians, is tested with two different models in Chapter 5 to better understand inter-minority dynamics. The meaning of 'minority' as a numerical construct is contrasted with the idea of 'minority' defined by oppression.

As the two largest biracial groups today, black-whites and Asian-whites are of particular interest because they are thought to represent two rather different social standings in the American racial hierarchy. The degree to which these two groups are dissimilarly supported by macrostructural theory will shed light on the degree to which non-black minorities are subjected to consequences of hypodescents. To complete the trifecta, however, the black-Asian biracial group will help to better understand inter-minority dynamics often overlooked by a predisposition toward white/non-white studies in the literature (with the exception of Qian 1997, 1999).

Blau's theory explains the likelihood of intergroup relations and therefore rests on the assumption that there is some degree of social distance between the two groups. Indeed, if the

two groups lacked social distance, there would be no sociological phenomenon worth explaining because relationships among members from the two groups would not be noteworthy. As such, the extent to which the theory accounts for two groups coming together arguably alludes to the extent to which the two groups stand apart from one another. Under this line of reasoning, this research concludes by assuming that the stronger the explanatory power of each of these four models, the greater the social distance between the two racial groups incorporated into that model.

CONTRIBUTION

Understanding predictors of interracial relations is important because they shed light on environmental dynamics affecting the degree of social distance between two groups. Interracial marriage has by far been the most common type of interracial phenomena tested by scholars of Blau's macrostructural theory over the past several decades. Contemporary American society, however, is characterized by widespread cohabitation, partnerships not legally recognized as marriage, divorce and non-marital childbearing. The flexibility of the multiple-response allowed race question, new as of the 2000 Census, more accurately tallies variations in racial groups than ever before. This gives demographers the opportunity to utilize data on biracial *people*, rather than biracial *marriage*, as an emerging social distance indicator (Bean and Stevens 2003; Bratter 2007; Lee and Bean 2004). In the same way interracial marriage has reflected racial integration in the past, biracial identification may represent a more salient indicator of integration in today's society (Kalmijn 1993).

CONCLUSION

Because of major differences between blacks and Asians in immigration timing and push/pull factors (Castles and Miller 2003), historical oppression and relationship to whites over

time (Wilson 1980), social standing in today's racial hierarchy (Lee and Bean 2004, 2007a, 2007b), phenotypical dissimilarity with whites (Townsend et al. 2012) and patterns and processes of identity selection (Lou, Lalonde and Wilson 2011), this analysis is divided into three separate chapters highlighting the unique nature of each group. In the first analysis chapter, blacks are hypothesized to be more likely to biracially identify with whites when (1) there is higher black residential exposure to whites, (2) educational equality between blacks and whites is minimized and (3) blacks account for a small proportion of the population relative to whites. In the second analysis, Asians are hypothesized to biracially identify with whites under similar circumstances but perhaps with softer magnitude. In the final analysis, blacks are hypothesized to biracially identify with Asians under similar circumstances as they biracially identify with whites, but the reverse is not expected to be true.

CHAPTER 2: A METHODOLOGICAL APPROACH TO THE EVALUATION OF STRUCTURAL DETERMINANTS OF BIRACIAL IDENTIFICATION

This chapter presents a detailed account of the methodology used to evaluate structural determinants of biracial identification in subsequent chapters. The research rationale, general approach, dependent and independent variables and procedures exercised in preparation for the analysis are outlined. The technique used for the analysis is explained. Benefits and limitations of each component of the research design are discussed as appropriate. The pilot study preceding the current study is also summarized.

INTRODUCTION

This study assesses the effects of macrostructural variables on the likelihood of white, black, and Asian Americans reporting biracial identification with one another on the 2010 US Census. This chapter outlines the various components of the research design chosen to evaluate this process, including a discussion of applicable advantages and disadvantages of each.

By evaluating the extent social forces known to influence other interracial phenomena such as interracial marriage influence interracial identification, this study tests the extent to which macrostructural theory can be extended beyond explaining the likelihood two different-race people will have relations to the likelihood one person will identify with two different races. Macrostructural theory (Blau 1977, 1994) contends three key factors influence the likelihood of interracial phenomena. First and most importantly, the number of characteristics in common between members of two different races affects the likelihood of relationship development. Second, the availability of same-race, same-status associates affects the likelihood of intergroup relations. A third element, group size, plays a role within each of these two key factors.

Similar to prior macrostructural theory research, I operationalize these factors using residential segregation, racial equality and minority group size, respectively, for each of 363 metropolitan areas in the continental US. I then regress these factors onto biracial identification rates among black-whites, Asian-whites and black-Asians in three separate chapters using data from the 2010 US Census which allowed respondents the freedom to choose multiple racial identifications. A preliminary study of similar inquiry and structure was conducted using data from the prior decennial census (Butts 2008). Invaluable peer and dissertation committee guidance, coupled with a rereading of the latest revision of the theory (Blau 1994), supported minor research design revisions implemented in the current study.

RESEARCH RATIONALE

Intergroup phenomena are often investigated through the lens of exchange (Blau 1964; Homans 1958), assimilation (Gordon 1964; Park 1926) or opportunity-structure (Blau 1977, 1994; Simmel 1908) perspectives. Both exchange theory and assimilation theory have been criticized as being Anglo-conformist and over-reliant on economic motivations (Bean and Stevens 2003; Blau 1994). That is, both would only be able to explain why a black person would identify as also white, but not why a white person would identify as also black or why a black person would identify as also Asian, for example.

Opportunity-structure theory, on the other hand, examines the distribution of a multitude of social positions (Blau 1977), thereby welcoming any group defined by any type of demographic categorization of sufficient sample size into the analysis. Furthermore, the opportunity-structure approach has the macro-level ability of examining the environmental constraints within which intergroup social processes are permitted. These constraints are believed to wield a greater degree of influence on social life than micro- and meso-level

approaches (Blau 1977). Therefore, the effect of macrostructural forces on the likelihood of meaningful social interaction between members of different groups is examined through the opportunity-structure perspective.

This perspective rests on Simmel's (1908) notion of 'over-lapping social circles' where each social circle is based on a demographic or lifestyle characteristic. The characteristic that is most salient is the social circle in which the person feels the most belonging and therefore becomes their core identity *group*. People generally prefer to interact within their own group.

However, Simmel argues that meaningful social relationships can happen between people from different groups if they are similar in many other ways (i.e., if their other social circles intersect substantially). These commonalities become the grounds on which social relationships can be formed in spite of belonging to different core groups. Peter Blau (1977, 1994) operationalized the opportunity-structure perspective, referred to hereafter as macrostructural theory, by contending that various structural factors facilitate this process. That is, certain macrostructural parameters have the ability to hinder opportunities of fulfilling in-group relationship preferences. Examples of these parameters include demographic consolidation (i.e., the extent group membership is correlated with several other demographic and lifestyle characteristics at once resulting in different groups having very little in common), inequality between groups and group size relative to one another.

An examination of this process depends on the comparison of groups unevenly distributed across a social hierarchy of some kind. The theory lends itself to 'race' as the demographic characteristic defining group membership. The interracial phenomena examined through this lens by scholars in the past include interracial contact, conflict, friendship and most often, marriage. Published empiricism has not yet tested the extent to which macrostructural

theory can be extended beyond explaining the likelihood persons from two different races will have relations to the likelihood persons in one group will identify with two different races.

The goal of this research is to examine whether the same social forces known to influence interracial relations, and interracial marriage in particular, also influence interracial identification. The central research question is therefore:

RQ: Do macrostructural forces known to influence biracial marriage also influence biracial identification?

Understanding predictors of interracial relations is important because it sheds lights on environmental dynamics affecting the degree of social distance between two groups. Interracial marriage has by far been the most common type of interracial phenomena tested by scholars of Blau's macrostructural theory over the past several decades. Contemporary American society, however, is characterized by widespread cohabitation, partnerships not legally recognized as marriage, divorce and non-marital childbearing. The flexibility of the multiple-response allowed race question, new as of the 2000 Census, more accurately tallies variations in racial groups than ever before. This gives demographers the opportunity to utilize data on biracial *people*, rather than biracial *marriage*, as an emerging social distance indicator (Bean and Stevens 2003; Bratter 2007; Lee and Bean 2004). In the same way interracial marriage has reflected racial integration in the past, biracial identification may represent a more salient indicator of integration in today's society (Kalmijn 1993).

GENERAL APPROACH

To test whether macrostructural forces known to influence other interracial phenomena also influence interracial identification, this study examines cities, rather than individuals. Metropolitan statistical areas are compared on the basis of white, black and Asian biracial

identification rates. Such a comparison requires a quantitative approach. The ultimate source of racial identification rates aggregated at the city level in the US is the Census. Both the 2000 Census and the 2010 Census allowed respondents to self-identify with as many racial categories as desired. The pilot for this study utilized the 2000 Census, while this study utilizes the 2010 Census. The decennial census also provides aggregated racial data for two of the three primary independent variables and one of the two control variables incorporated into this analysis. Those not available through the decennial census are available from the Census Bureau's American Community Survey (ACS).

Unit of Analysis

Social structure is embodied by multi-dimensional social arrangements between groups within proximity of one another. "…Population structures and their effects on rates of social relations… must be based on a sample of populations, not of individuals" (Blau 1994:53). In the US, urban centers are characterized by diverse populations living in close proximity (McPherson, Smith-Lovin and Cook 2001). Metropolitan areas have been the primary pallet for examining interracial contact since the antebellum period (Wilson 1980). Metropolitan statistical areas (MSAs) are defined by the census as urban centers with at least 50,000 residents (US Office of Management and Budget 2013). Metropolitan areas present natural units of analysis for comparing geographical differences in macrostructural forces and biracial identification rates.

Analysis Type

The emphasis on a macro-level unit of analysis in this manuscript directly affects the analysis type. A qualitative approach has the advantage of explaining how individuals make sense of their social environments and internalize interpretations (Glesne 2006). This is appropriate when the unit of analysis is the individual (rather than the environment). Most prior

research on biracial identity utilizes this approach for these reasons (see Chideya 1999; Root 1992; Waters 1999; Wright et al. 2003; Zack 1995).

A quantitative approach on the other hand is common when variables are not difficult to measure or are already readily available through credible sources (Glesne 2006). Quantitative methods are necessary for the analysis of large-scale social structures and processes, such as those that may influence interracial identification. The comparison of racial identification rates across metropolitan areas requires a quantitative approach. Therefore, quantitative analysis is utilized in this study of biracial identification rates.

DATA SOURCES

The 2010 Census reports on 363 continental US metropolitan areas[1], all of which are used. Racial identification and most of the explanatory macrostructural phenomena expected to vary with racial identification are available from the 2010 Census. Others are available from 5-year estimates of the American Community Survey (ACS).

Census

The ultimate source of racial identification counts is the decennial census. Because the census comprehensively counts the total US population, it provides greater sample size than any other source of racial identification.

There are some concerns about census data. Brunsma (2006) argues that the census should not be used for studies of biracial identity because it reflects social and cultural discourse. Ergo, it is an indicator of our overall radicalized social macro-structure (and therefore captures structural variables quite well). Harris and Sim (2002) argue the census does not count the biracial population, it counts *a* biracial population.

[1] Metropolitan areas in Hawaii, Alaska, and Puerto Rico were removed because the nature of their geographical confinement and isolation arguably interferes with the structural forces expected to affect interracial identification.

However, this very phenomenon is precisely what is under investigation: If racial diversity across metropolitan areas is greater than biracial identification rates, then there is a predisposition toward mono-racial identification. Indeed, the ratio of blacks to whites, for example is .182, yet the proportion of blacks identifying as biracial with whites is only 4.4%. This indicates that the rate of mono-racial identification exceeds what is expected by chance alone – for blacks at least. Given mono-racial identification is the default, the social conditions under which iconoclasts choose biracial identification are therefore of considerable substantive interest. And the degree to which different minority groups exercise this option may speak to different degrees of social distance between different racial groups.

Method. Since 1790, the US Census Bureau counts the entire American population once a decade. Today, the census questionnaire is in most cases delivered by mail and completion is required. Each household receives a letter in March of the census year preparing recipients for the forthcoming questionnaire arriving shortly thereafter via the US Postal Service (US Census Bureau 2010). Heads of households are asked to complete a single mail survey on behalf of their entire household as of April 1. Census Bureau representatives follow up on non-responsive households in May, which at the end of April totaled 28% in each of the past two censuses (Justis 2010). Completed questionnaires are returned to processing offices where responses are digitally recorded. In 2010, nearly 309 million persons were counted. The data is rigorously cleansed. Missing data and problematic or questionable responses to individual questions are handled by directly contacting the household for clarification. Data is then aggregated for all areas and reported to governmental leaders by December 31 of the census year.

Participants. The person completing the questionnaire is asked to count and briefly describe every single person of any age living and sleeping in the household most of the time.

Family members in college, prison, nursing home, military, etc. are not to be counted by the permanent address respondent because they will be counted on the questionnaire delivered to their temporary address as of April 1. Respondents are however asked to count and describe anyone temporarily staying at the address on April 1 if they lack a permanent address.

Householders are assured that information gathered by the census will remain confidential by law. That is, individual responses provided to the Census Bureau cannot be used for any purpose other than for counting the population and summarizing population counts by sex, age, ethnicity and race. Furthermore, data on each person must be aggregated enough such that specific individuals cannot be identified in published data files or reports.

Instrument. After reading the instructions described above, 2010 Census respondents were asked how many people stayed at the address on April 1, 2010. For validity, respondents were then asked if additional people (such as children, relatives, non-relatives, or transients) not indicated in the response to the first question stayed at the dwelling place on April 1. Next, the respondent was asked if the dwelling is owned, rented, or neither, and then the phone number where the respondent could be reached in the event that certain responses require clarity.

Respondents were then asked to describe each person counted in the first question sequentially. Descriptions include last name, first name, gender, age on April 1, and birthday for validity. Instructions precede the next section: "NOTE: Please answer BOTH Question 8 about Hispanic origin and Question 9 about race. For this census, Hispanic origins are not races." Question 8 asked whether the person being described is of Hispanic, Latino or Spanish origin. Question 9 asked the respondent to describe the race of the person being described. (The details of this key question will be explained in further detail below.) Finally, for validity, respondents were asked whether the person being described was staying somewhere else on April 1 (such as

at college, in prison, a nursing home or military quarters). The respondent completed this battery for up to six people. If seven or more people resided in the household on April 1, only their name, sex, age, and whether they are related to person 1 were asked. Census Bureau representatives may have followed up to inquire about Hispanic ethnicity and race of these individuals afterward.

American Community Survey

The instrument described above was referred to as the 'short form' until the 2010 Census. In prior censuses, one in every six households received a much longer form. This form, referred to as the 'long form', asked the same questions as the short form with the addition of many more questions on topics such as work commute, income, education, housing, citizenship, ancestry, language spoken at home, etc. With the 2010 Census however, every household received the short form. Data on topics from what had been the long form is now collected through the American Community Survey (ACS).

The ACS was developed to allow the census to focus on its fundamental priority: to count the population (US Census Bureau 2010). The ACS has two advantages over the prior census long form (US Census Bureau 2009). First, demographic data is collected on an ongoing basis. More current data means analyses are more current and therefore more relevant. Additionally, continuously collected data is arguably more sensitive to the detection of change and trends. Second, more detailed information about people living in sparse geographic areas can be released without violating the promise of confidentially described earlier because time periods can be aggregated such that specific individuals cannot be identified. ACS findings are published annually using rolling data aggregated at 1-year, 3-year, and 5-year levels depending on the

granularity necessary to maintain confidentiality[2].

Although general metropolitan area-level data is often releasable in single-year increments, slicing the data by demographic characteristics, such as race and education or race and nativity as in the current study, makes data on some metropolitan areas not releasable in increments of less than five years. The ACS data used in this study is based on 5-year estimates for data collected 2007 to 2011. This data became available in 2012 at the same time 2010 Census data was published and the data file for this study was compiled.

Method. Nearly 300,000 addresses are randomly selected each month from the Master Address File (MAF) of over 180 million residences in the US, giving each a 1-in-480 chance of selection in a given month (US Census Bureau 2013). The ACS is completed by at least 175,000 households and persons in group quarters each month, all year long, every year. Each household receives a notification letter through the US Postal Service. Soon afterward, instructions for completing the survey online are mailed. Non-responsive households are then mailed a reminder postcard, followed by a paper questionnaire. Remaining non-responsive households are sent a second reminder postcard before they are contacted by telephone. A random sample of persistent non-responsive households are then visited by a Census Bureau representative. Completed questionnaires are returned to processing offices where responses are digitally recorded. The data is rigorously cleansed. Missing data and problematic or questionable responses to individual questions are handled by directly contacting the household for clarification. Data is then aggregated to varying geographic granularities.

Participants. Similar to the census, a single person at the residence completes a single

[2] For example, whereas data on areas or groups of more than 65,000 people are available in single-year increments because it would be impossible to identify specific individuals, areas or groups of less than 20,000 people are aggregated at the 5-year level. Data on areas or groups of 20,000 to 64,999 people are aggregated at the 3-year level.

survey on behalf of all individuals in the household. The person completing the questionnaire is asked to describe in detail the dwelling and every single person of any age living or staying at the address for at least 2 months, as well as individuals staying at the address less than 2 months if they have no other residence. Family members away in college, prison, nursing home, military, etc. for at least 2 months are not to be described by the respondent at the permanent address.

Instrument. The 2007-2011 ACS gathered data on personal and housing characteristics, rather than just population counts. Demographic, social, economic and housing topics were covered. After reading the instructions described above, respondents were asked to indicate the current date, their name, phone number and the number of people staying at the address. Respondents were asked to describe each person counted in the previous question sequentially. Descriptions included last name, first name, relation to respondent, gender, age and birthday for validity. Instructions preceded the next section: "NOTE: Please answer BOTH Question 5 about Hispanic origin and Question 6 about race. For this census, Hispanic origins are not races". Question 5 asked whether the person being described is of Hispanic, Latino or Spanish origin. Question 6 asked the respondent to describe the race of the person being described.

After the next section covering housing characteristics, the respondent returned to describing each person in the household in further detail beginning with nativity, citizenship and migration year, and proceeding with details on education before covering ancestry, language spoken at home, English proficiency, prior residence, health insurance coverage, health, marital history, kin, military involvement, employment, commuting for work and income. The respondent completed this battery for each person in the household.

For data collected 2007 to 2011, completed sample size, coverage rates, response rates and allocation rates for questions utilized in this study are shown in Table 2.

Table 2. ACS 2007-2011 Sample Size & Data Quality Figures

		2011	2010	2009	2008	2007
Completed Surveys	Housing Units	2,128,104	1,917,799	1,917,748	1,931,955	1,937,659
	Group Quarters People	148,486	144,948	146,716	145,974	142,468
Response Rate	Housing Units	97.6	97.5	98.0	97.9	97.7
	Group Quarters People	96.9	97.6	98.0	98.0	97.8
Coverage Rate	Housing Units	98.6	99.1	98.9	98.7	98.5
	Group Quarters People	99.8	81.0	79.1	80.8	79.6
Allocation Rate	Place of Birth	6.2	6.5	5.7	7.0	5.5
	Educational Attainment	5.4	5.6	4.6	5.3	3.6

Source: US Census Bureau, Economics and Statistics Administration, US Department of Commerce.

Nearly 10.6 million surveys were completed between 2007 and 2011. The response rate was above 97%, indicating strong data quality. Household coverage rates exceeded 98% and group quarters coverage rates exceeded 79%. The latter indicates that people living in group quarters such as those in college, prison, nursing homes or military barracks have about a 20% chance of not being selected to complete the survey when they should have been. Because this error is associated with bias, ACS estimates are adjusted to align with independent population controls (i.e., sex, age, race, Hispanic ethnicity) produced by the decennial census (US Census Bureau 2008). Allocation rates will be discussed below.

STRUCTURAL FACTORS

The data sources just described provide data that fit nicely with Peter Blau's macrostructural theory. Blau lays out the way his theory should be tested in a fairly straightforward way (Blau and Schwartz 1984; Blau 1994). The dependent variable is a rate or proportion a metropolitan area residents exercising intergroup relations. The most important independent variable is the degree to which groups are socially, culturally, and geographically isolated from one another (i.e., 'consolidation' or its inverse, 'intersection'). A second independent variable measures group differences in distribution across social positions on a status-oriented demographic dimension such as income or education (i.e., inequality). A third

independent variable plays a role in the first two and therefore must be controlled (i.e., relative group size). But because it is substantively interesting on its own standing, it is not categorized in this analysis with other control variables such as foreign-born population rates by race and geographic region.

The central research question discussed earlier asks whether these structural factors theorized to affect intergroup relationships and empirically shown to influence biracial marriage also influence biracial identification. Hence,

H_1. The more social circles between members of two different races intersect, the greater the likelihood minorities will report biracial identification with the majority group.

H_2. The greater the educational equality between two racial groups, the greater the likelihood minorities will report mono-racial identification.

H_3. The smaller the minority group size relative to the majority group size, the greater the likelihood minorities will report biracial identification with the majority group.

Dependent Variable

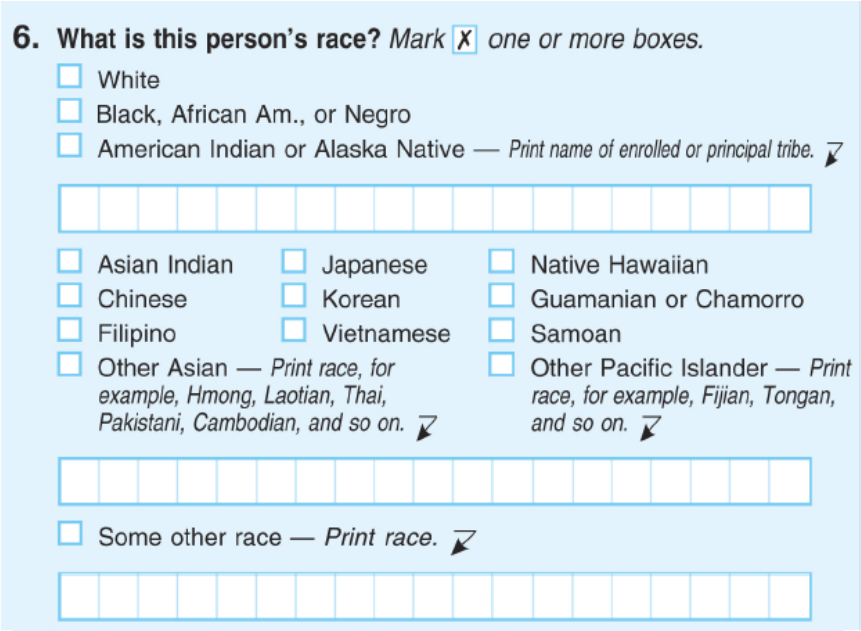
Blau's theory asks, "Why do some groups have more extensive intergroup relations than others?" (Blau 1977:20). The theory contends that macrostructural forces such as demographic consolidation, inequality, and relative group size work together to facilitate or constrain opportunities for relationship development between members of two different groups (e.g., races). "The criterion of intergroup relations is the rate of dyadic relations of persons in one social position with those in other social positions, for example, the proportion of Catholics whose best friend is a Protestant" (Blau 1994:22). Blau operationalizes the dependent variable with a rate of intermarriage defined as the proportion of members of one group whose spouse is not a member of the same group (Blau and Schwartz 1984). Subsequent empiricism follows suit

(e.g., Anderson and Saenz 1994; Blau 1994; Blau, Beeker and Fitzpatrick 1984; Rytina et al. 1988). For example, Anderson and Saenz (1994) calculate the Mexican American intermarriage rate with whites by counting the number of 'mixed' Mexican American-white marriages in a certain time period, and then dividing by the total number of Mexican American marriages in the same time period.

In this study, the dependent variable is a count of individuals identifying with two particular racial groups, divided by a count of all the individuals identifying with the minority of those two groups. That is, the dependent variable for Chapter 3 is the count of biracial individuals who indicate both black and white, divided by the count of the entire black population. This is interpreted as the proportion of blacks who are half white. Chapter 4 examines the proportion of Asians who are half white by counting biracial individuals who indicate both Asian and white, and dividing by a count of the entire Asian population. Chapter 5 examines both the proportion of Asians who are half black and the proportion of blacks who are half Asian to compare and contrast the meaning of minority as numeric (as is the case with Asians) with the meaning of minority as sustained oppression (as is the case with blacks).

For each city, the number of blacks and Asians reporting mono-racial and biracial identification with each other and with whites is available from Census Summary File 1. As shown in Figure 1, the 2010 US Census race question offered several options for self-identification: White; Black, African American, or Negro; American Indian or Alaska Native; multiple Asian ethnicities; multiple Pacific Islander ethnicities; and 'Some Other Race'. Respondents checked as many categories as they wished. The Bureau then collapsed counts from the many Asian ethnicities into one category called 'Asian', and collapsed counts from the many Islander'. The Bureau then tabulated and reported on these six racial categories: White; Black,

Figure 1. The 2010 Census Race Question



Source: U.S. Census Bureau, 2010 Census questionnaire.

African American, or Negro; American Indian or Alaska Native; Asian; Native Hawaiian and Other Pacific Islander; and 'Some Other Race'. Respondents are considered mono-racial if they identified with only one of these six categories and biracial if they identified with two of these six categories. (Respondents indicating three or more of these six categories are also tabulated by the Bureau but are outside the scope of this study.)

Although the ratio of blacks to whites is .182, only 4.4% of blacks claim biracial identification with whites. Metropolitan areas range from 0.6% claiming black-white identification in Jackson, Mississippi (where blacks represent 48.2% of the population) to 42.2% in Coeur d'Alene, Idaho (where blacks represent 0.7%). The ratio of Asians to whites is .075, yet as many as 9.4% of Asians claim biracial identification with whites. Metropolitan areas range from 4.5% claiming Asian-white identification in New York City (where Asians represent 10.9% of the population) to 35.4% in Coeur d'Alene, Idaho (where Asians represent 1.3% of the

population). Compared to 13.0% of Americans that are black in any racial combination, 0.4% of blacks claim black-Asian biracial identification. Metropolitan areas range from 0.1% claiming black-Asian identification in Pine Bluff, AR (where blacks represent 48.4% of the population) to 3.1% in Salinas, California (where blacks represent 4.0% of the population). In contrast, the percentage of the Asian population claiming biracial black is only 1.1%, as compared to 5.6% of Americans that are Asian in any racial combination. Metropolitan areas range from 0.1% in Sheboygan, Wisconsin (where Asians are nearly proportionately represented, 5.0%) to 7.1% in Hinesville-Fort Steward, Georgia (where Asians represent 2.8% of the population).

In addition to the six major racial groups, the census also acknowledges two ethnicities: Hispanic, and non-Hispanic. This analysis focuses on biracial individuals without consideration of Hispanicity for two reasons. First, this study combines Hispanic and non-Hispanic for the sake of analytical consistency because data for all primary independent variables are not available by both race and Hispanicity. Second, separating Hispanic from Non-Hispanic biracial groups would compromise sample size among smaller biracial groups in certain metropolitan areas.

Another potential limitation of this study is that the approach implies self-identification despite the sample including underage Americans whose parent or guardian fills out the census form on their behalf. Rather than decreasing the sample size by limiting the analysis to adults, this study assumes that the self-identification process and the structural dynamics influencing that decision extends to the process of adults identifying the race of minors in their household. This study also assumes that the way minors are identified by guardians is closely related to the way those minors identify now and how they will identify themselves as adults (Rockquemore and Brunsma 2002; Roth 2005; Xie and Goyette 1997).

Additionally, the census categories themselves are inherently and terminally flawed.

Attempts to package the human experience into a category arguably based on the combination of appearance and ancestry is an imperfect science. The United States is known for being the melting pot of the world which makes clean and neat categorization impossible. Additionally, the census revises the race question every decade in an attempt to accommodate a changing population but still fails to completely capture the ever-evolving composition of US society. For example, the census considers those of middle eastern descent to identify as white, but those respondents may not consider themselves as such, especially given today's racial climate.

Independent Variables

Blau (1977) theorizes that key macrostructural variables explain why some racial groups have higher rates of interracial relations than others. This study tests whether those same variables can also explain why some racial groups have higher rates of biracial identification than others.

Demographic Consolidation. Blau (1977) assumes that the probability of intergroup relations depends on the spatial and social distance between two groups and their opportunities for contact with one another. Simply put, the number of characteristics in common between members of two different groups affects the likelihood of relationship development. This is because the more characteristics in common, which Blau calls *intersection*, the less the one unshared characteristic (i.e., race) matters. *Consolidation*, which is the inverse of intersection, is the degree to which race is correlated with several other demographic characteristics at once. Blau and Schwartz (1984) operationalize this concept by calculating consolidation as the average of correlations between race and other demographic characteristics such as occupation, industry, birth region, mother tongue, etc. Small average correlations mean that racial groups intersect; they have multiple characteristics in common. Large average correlations mean that racial groups

are consolidated; they have little in common with other racial groups. Blau et al. (1984), Blau and Schwartz (1984), and Blau (1994) find that interracial relations decrease with consolidation and increase with intersection.

Based on Blau's (1977) theoretical assumption that the probability of intergroup relations depends on the spatial and social distance between two groups and their opportunities for contact with one another, many empiricists have recommended replacing the multiple correlation measure employed by Blau with a single measure of segregation (Anderson and Saenz 1994; Blum 1984; Fitzpatrick and Hwang 1992; Heaton and Jacobson 2000; Kalmijn 1998; Kalmijn and Van Tubergen 2010; Lieberson and Waters 1988; Peach 1980; South and Messner 1986; Stevens and Swicegood 1987). Racial segregation affects the number of characteristics members of two different racial groups have in common because it stifles the extent to which demographic and lifestyle characteristics are free to vary. This homogenization of characteristics, coupled with geographic, cultural, and social delineation from the rest of society, severely limits the likelihood of interracial relationships. In this study, it is similarly expected that characteristics in common with multiple racial groups affect identification with multiple races. That is, if racial segregation hinders interracial relationships, it may also hinder interracial identification.

Racial segregation can be measured multiple ways such as by examining evenness of racial group distribution across a residential area or through degree of exposure one racial group has to another (Massey and Denton 1988, 1989). Fitzpatrick and Hwang (1992) argue that the exposure dimension of segregation follows the spirit of Blau's theory much more closely than the evenness dimension and Anderson and Saenz (1994) subsequently concur. Indeed, Hwang, Saenz and Aguirre (1994) and South and Messner (1986) use the dissimilarity index to measure the evenness dimension of segregation but end up with non-statistically significant results.

In this study, the exposure index of segregation is used to measure the probability of interaction between members of two racial groups. The calculation takes the average percentage of an area that is made up of one racial group within the neighborhood (census tract) of a member of a second racial group. More specifically, this index measures the probability of interaction between blacks and whites in Chapter 3 by taking the average percentage of an area that is white, within the neighborhood (census tract) of a black person. In Chapter 4, the probability of interaction between Asians and whites is calculated by taking the average percentage of an area that is white, within the census tract of an Asian person. In Chapter 5, both the average percentage of an area that is Asian within the census tract of a black person and the average percentage of an area that is black within the census tract of an Asian person are calculated to understand the extent to which Asian exposure to blacks and black exposure to Asians affects biracial identification between Asians and blacks.

An exposure score calculated from 2010 census data for each metropolitan area is available from the University of Michigan (Population Studies Center 2013). The exposure index for each metropolitan area can theoretically range from 0 (indicating no exposure between the minority and majority group), to a number equal to the proportion of the population that is in the majority group in a city with only one minority group member. Scores for black exposure to whites range from 4.8 in Laredo, Texas to 94.2 in Parkersburg-Marietta-Vienna, West Virginia-Ohio. Scores for Asian exposure to whites range from 5.7, also in Laredo, Texas to 95.4 in Altoona, Pennsylvania. Scores for black exposure to Asians range from 0.3 in Muskegon-Norton Shores, Michigan to 30.2 in San Jose-Sunnyvale-Santa Clara, California. Scores for Asian exposure to blacks range from 0.2 in Wenatchee, Washington to 40.6 in Hinesville-Fort Steward, Georgia.

(In)equality. As explained, Blau (1977) assumes that the probability of intergroup relations depends on the social distance between two groups and their opportunities for contact with one another. The inverse of this would assume that the probability of intergroup relations also depends on social stratification within the group. That is, the availability of within-group associates that share other characteristics (i.e., status) decreases the likelihood of interracial relations. In contrast, when there are less same-race individuals of similar status, there are proportionately more different-race individuals of similar status.

Similarly, it is expected in this study that the same phenomenon affects an individual's likelihood to identify with multiple races and will therefore affect the proportion of minorities identifying biracially in each city. When there are fewer minorities of otherwise similar status, there are proportionately more majority race individuals of similar status; this preponderance of different-race but same-status individuals arguably affects the likelihood a minority would identify with that second race.

This difference in distribution between two groups across social positions is measured on a status-predicting demographic dimension such as income or education (Blau 1977). Blau and Schwartz (1984) operationalize inequality using education, family income, personal income, earnings, and occupational status or socioeconomic status (SEI). However, Rytina, Blau et al. (1988) argue that education is the best measure for quantifying structural inequality because income is volatile; once educational credentials are acquired, they cannot be lost. Blau stands by this position in the final revision of the theory (1994). This empiricism finds that as educational inequality between races increases, so too do interracial relations (Blau 1994; Blau and Schwartz 1984; Rytina, Blau et al. 1988).

Blau and Schwartz (1984) recommend relative measures of inequality rather than

absolute measures of inequality because proportionate differences are independent of the mean which assuredly differs between racial groups. Empiricists generally follow this advice but the specific calculation tends to depend on the data set used. For example, Blau and Schwartz (1984), Rytina, Blau et al. (1988) and Blau (1994) use the Gini coefficient because their data count years of education on a ratio scale.

In this study, educational attainment is available from the 2007-2011 ACS Table C15002. The respondent was asked "What is the highest degree or level of school this person has completed?" Response categories included: no schooling completed, nursery school, kindergarten, grade 1-11, 12th grade, no diploma, regular high school diploma, GED or alternative credential, some college credit, but less than 1 year of college credit, 1 or more years of college credit, no degree, associate's degree, bachelor's degree, master's degree, professional degree and doctorate degree. Population counts by race are provided in the following categories for adults 25 years of age and older in each metropolitan area: less than high school diploma, high school graduate/GED, some college or Associate's Degree, and Bachelor's Degree or higher. Allocation rates (e.g., percent of educational attainment questions with missing data or bearing invalid answers for which statistical imputation procedures were performed) is shown in Table 2. Between 2007 and 2011, 5.6% or fewer education attainment responses had to be statistically imputed. This figure is considered reasonable; reliability is not generally called into question until missing data exceeds 10% (Dong and Peng 2013).

Because race and education are both categorical variables, chi-square is used to test the independence between the two. For each metropolitan area, the number of Race A persons observed in each category is listed in one column, and the number of Race B persons observed in each of the four categories is listed in a second column. The columns are summed as well as the

rows, and a grand total is computed. A second table of expected frequencies is calculated by multiplying each observed column total by each observed row total and dividing by the observed grand total for each of the 8 cells (2 racial categories X 4 educational categories). The difference between the observed value and expected value of each cell is squared and then divided by the expected value for each cell. The difference between the observed grand total and the sum of these 8 cells is the raw chi-square term, which is then divided by the maximum chi-square value and multiplied by 100. Because chi-square indicates the extent census frequencies deviate from what would be expected if race and education were independent, higher scores indicate greater deviation from independence between race and education, indicating that educational attainment is more dependent upon race. In order to convert this value to a measure of equality, the calculated expression is subtracted from 100 to reverse the scale such that higher scores indicate greater educational equality (i.e., education is less dependent on race) between two racial groups.

In Chapter 3, educational equality between blacks and whites is computed. Scores range from 0.00 in Coeur d'Alene, Idaho, where race and education among blacks and whites are highly dependent on one another, to 8.65 in Greenville, North Carolina, where race and education are more independent. In Chapter 4, educational equality between Asians and whites is computed. Scores range from 0.02 in Anderson, Indiana to 5.35 in Columbus, Indiana for Asians and whites. In Chapter 5, educational equality between Asians and blacks is computed. Scores range from 0.06 in Anderson, Indiana to 43.37 in Morgantown, West Virginia.

Group Size. According to the theory, a third element, group size, plays a role within each of the two structural factors just discussed (Blau 1977, 1994). In regards to interracial exposure, numerically large minority groups tend to be geographically and socially segregated (Blalock 1967; Massey and Denton 1993; Waters 1999; Wilson 1980). These groups become homogenous

and delineated, limiting contact and the extent any characteristics are shared with another racial group (Blau 1980; Castles and Miller 2003; Qian, Glick and Batson 2012; Sassen 2001, 2006; Waters 1999). In contrast, equality creates conditions that provide adequately sized same-race relationship opportunities with members of similar status unless the minority group is small (Blau 1977, 1994). In both cases, interracial relations are more likely among members of small groups.

Because Blau's theory explains intergroup relations, Blau operationalizes structural components in tests explaining interracial marriage where a white person is in union with a non-white person (Blau and Schwartz 1984, Blau 1994). His calculation takes the proportion of non-whites relative to the total population in each metropolitan area (Blau and Schwartz 1984; Blau 1994). Group size is the single most tested component of Blau's theory. Empiricism almost unanimously finds relative group size statistically significant and negatively related to interracial marriage as theorized (Fitzpatrick and Hwang 1992; Heaton and Jacobson 2000; Hwang et al. 1994, 1997; Qian 1999; Qian et al. 2012). Clearly, interracial relations are more likely among members of small groups.

Similarly, I expect interracial identification to also be more likely among members of small groups. Because my research examines proportions of biracial persons rather than mono-racial persons in biracial relationships, I measure relative group size by calculating the proportion of mono- and multi-racial minorities associated with one racial group to 1,000 mono-racial majority group members. That is, relative black group size examined in Chapter 3 is the ratio of a count of all blacks to 1,000 mono-racial whites in each city. Asian relative group size in Chapter 4 is measured by the number of Asians per thousand mono-racial whites. Chapter 5 uses the ratio of all Asians to 1,000 mono-racial blacks and the ratio of all blacks to 1,000 mono-

racial Asians, depending on which group is positioned as the minority in the model.

Data for this calculation is available for each metropolitan area in Census Summary File 1. The ratio of blacks to 1,000 whites ranges from 5.8 in Laredo, Texas to 535.1 in Albany, Georgia. The ratio of Asians to 1,000 whites ranges from 6.1 in Steubenville-Weirton, Ohio-West Virginia to 711.8 in San Jose-Sunnyvale-Santa Clara, California. The ratio of blacks to 1,000 Asians ranges from 106.0 in San Jose-Sunnyvale-Santa Clara, California to 80,729.1 in Rocky Mount, North Carolina. The ratio of blacks to 1,000 Asians ranges from 15.9 in Pine Bluff, Arkansas to 13,227.3 in San Jose-Sunnyvale-Santa Clara, California.

Control Variables

Control variables help isolate the effects of the macrostructural forces just discussed. These include immigrant population and geographic region.

Foreign-Born Minorities. Blau (1977) acknowledges that foreign-born persons likely intermarry at a different rate than native-born persons and therefore must be controlled. Indeed, foreign-born racial minorities immigrate to the US with different understandings of what it means to be a minority than American-born minorities, and whites regard them differently as well (Waters 1999). He operationalizes 'foreign stock' by summing all native-born persons in each metropolitan area and dividing by the total number of non-white persons in the city (Blau and Schwartz 1984; Blau 1999). This is meant to be a proportion of minorities that are foreign born (although his calculation technically includes foreign-born whites). Qian (1999) confirms that foreign-born minorities are less likely to intermarry.

Similarly, foreign-born presence affects interracial identification (Lee and Bean 2004; Wright et al. 2003). The calculation is the proportion of each minority group that is foreign born. It is calculated as the proportion of total mono-racial blacks that are foreign-born for Chapters 3

and 5, and the proportion of total mono-racial Asians that are foreign-born for Chapters 4 and 5.

Five-year estimates of the number of foreign-born blacks and Asians are available from the 2007-2011 ACS Table B16005. Question 7 asked "Where was this person born" with two response options: "In the United States" with a space to indicate the state, or "Outside the United States" with a space to indicate foreign country. Allocation rates (e.g., percent of place of birth questions with missing data or bearing invalid answers for which statistical imputation procedures were performed) are shown in Table 2. Between 2007 and 2011, 7.0% or fewer responses were statistically imputed. This figure is considered reasonable; reliability is not generally called into question until missing data exceeds 10% (Dong and Peng 2013).

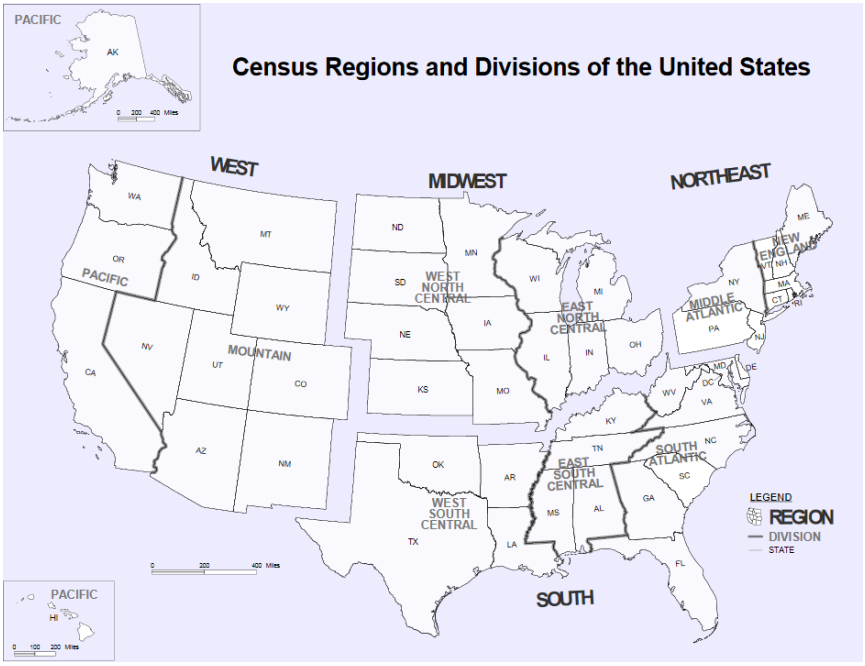
For each city, the percentage of a minority group that is foreign-born is calculated by dividing a count of foreign-born minorities in a given racial group and dividing by a count of the total population in that minority group. Proportions can theoretically range from 0 to 100. For blacks, this proportion ranges from 0.0% where are there no reported foreign-born blacks in Sandusky, Ohio, Kokomo, Indiana, and Coeur d'Alene, Idaho, to 60.4% in Fargo, North Dakota-Minnesota. The proportion of Asians that are foreign-born ranges from 46.3% in Idaho Falls, Idaho to 91.3% in Anderson, Indiana.

Geographic Region. Blau (1977) acknowledges that regional variations shape interracial relations and therefore must be controlled. Regional variation effects on interracial relations persist beyond the effects of exposure, equality and group size due to racial identification strength, group allegiance and solidarity (Blum 1984; Brunsma 2005; Croll 2007; Fitzpatrick and Hwang 1992; Heaton and Jacobson 2000; Hochschild and Weaver 2007; Qian 1999; Tucker and Mitchell-Kernan 1990). Racial salience often is more influential than other variables, especially on intimate interracial relationship tolerance (Blum 1984; Heaton and Jacobson 2000;

McPherson et al. 2001; Schwartz 1990).

This study assumes the same may be true of interracial identification, therefore region must be controlled. The regional classification of each metropolitan area is available from Census Summary File 1 (see Figure 2). Regions are coded into dummy variables. When blacks are the minority group in the model (Chapters 3 and 5), the West, Midwest and Northeast are coded as 1 and the South is coded as the reference group with a value of 0. In cases where Asians

Figure 2. Census-Defined U.S. Regional Divisions



are positioned as the minority group in the model (Chapters 4 and 5), the South, Midwest and Northeast are coded as 1 and the West is the reference coded as 0.

I designated South as the comparison group for blacks and West as the comparison group for Asians for several reasons. First, the literature supports South as 'different' for blacks. For example, the South is particularly distinguished for blacks from non-South regions in its means of production, politico-cultural institutions and other contemporary ramifications of historical impact (Wilson 1980). The same might be said about Asian history in the West. Second, the

Exposure Index of segregation says blacks are most separated from both whites and Asians in the South. Asians are most separated from both whites and blacks in the West. Third, the majority of blacks live in the South (50.9%). Additionally, the average size of the black population relative to whites and Asians across metropolitan areas in each region is greatest in the South. A plurality of Asians live in the West (44.2%). Additionally, the average relative size of the Asian population in comparison to whites across metropolitan areas in each region is greatest in the West. The same is true of the relative Asian group size in comparison to Blacks. Lastly, the percentage of blacks claiming biracial white and the percentage of blacks claiming biracial Asian is lowest in the South. The percentage of Asians claiming biracial black is lowest in the West. However, the percentage of Asians claiming biracial white is lowest in the Northeast. I chose to keep West as the comparison region when Asians are the minority despite this single inconsistency.

ANALYSIS TECHNIQUE

Because macrostructural forces are inherently correlated, the effects of each independent variable must be isolated with multiple regression (Rytina 1987). In order to test the simultaneous effect of demographic consolidation, educational inequality, relative group size, foreign-born population and geographic region on the likelihood of biracial identification on the census, OLS regression is performed. Four separate regressions are presented between three chapters. In the first analysis, the effect of black segregation, educational inequality between blacks and whites, black group size relative to whites, the proportion of the black population foreign born and geographic region of each metropolitan area is regressed on black-white biracial identification rates of each metropolitan area. In the second, the effect of Asian segregation, educational inequality between Asians and whites, Asian group size relative to

whites, the proportion of the Asian population foreign born and geographic region of each metropolitan area is regressed on Asian-white biracial identification rates of each metropolitan area. In the third analysis, the same macrostructural parameters are examined to test their impact on the likelihood blacks identify as half Asian, and then on the likelihood Asians identify as half black. This final analysis includes two regression models in order to be able to position each of these two racial groups as the minority in the model.

Multiple regression analysis is a statistical technique estimating the relationship between several independent variables and a single dependent variable. Multiple regression analysis was developed as a way to estimate the relative importance of multiple independent variables simultaneously in predicting a given independent variable (Knoke, Bohrnstedt and Mee 2002). Ordinary Least Squares regression (OLS) estimates the relative importance of each predictor in a way that minimizes the sum of squared residuals (Wooldridge 2006).

Regression is arguably the most commonly used statistical technique in social research (Fox 1991). One advantage lies in its versatility. It can be used in econometric analysis, consumer behavior research, program evaluation, feasibility studies and of course traditional social research such as in this study (Hair et al. 2006). Another advantage is that it allows for the explicit control of any number of factors, which is often necessary when using non-experimental data (Wooldridge 2006). Furthermore, multiple regression can accommodate any number of predictors (within reason), which not only allows for more comprehensive explanatory power than other techniques but also allows for some degree of causal inference (Woodridge 2006).

The earliest conceptualization of multiple regression concepts is traced back to Sir Francis Galton (Ellis 1994). A cousin of Charles Darwin, Galton's seminal work in this area arose out of his study on sweet peas. By finding himself in need of a way to simultaneously

evaluate the independent contributions of multiple genetic sources on a given pea's characteristics, he laid the groundwork for what would become modern regression by implementing a multivariate experimental design planting seeds, plotting the resulting data, and discovering the regression line (Stanton 2001).

The regression equation is written as:

$$Y = \alpha + \beta_1(X_1) + \beta_2(X_2) + \beta_3(X_3) + \beta_4(X_4) + \beta_5(X_5)$$

where Y is the dependent variable, X is each independent variable, α is the value of the dependent variable when all independent variables are equal to zero (the intercept), and β indicates the regression coefficient associated with each independent variable. The equation represents the line best representing the relationship between Y and the simultaneous, independent effects of the Xs.

As mentioned, ordinary least squares regression estimates the relative importance of each predictor in a way that minimizes the sum of squared residuals (Wooldridge 2006). The sum of squared residuals can be derived by comparing observed values of Y from the data to predicted values of Y given the regression equation. Logically, the difference between the two indicates how well the model fits each data point. The difference between the observed and predicted value of each data point is squared to eliminate negative values. Then the squared deviation of all data points is summed. This sum of squared residuals is an indicator of overall model fit. With lower values indicating better model fit, a perfect model will have a sum of squared residuals of 0, indicating no difference between actual and predicted values of the dependent variable (Hutcheson 2011). With these technical underpinnings in mind, OLS regression coefficients are solved using a series of linear equations that set derivatives to 0 for each record in the sample (Wooldridge 2006). This computation is arduous with even the smallest of sample sizes.

Fortunately, statistical software can solve for β by minimizing the sum of squared residuals in an instant. The regression models are calculated in this study using IBM SPSS Professional 23.0.

The regression coefficient of each independent variable is described as the change in the dependent variable that is associated with a one-unit change in that independent variable, while holding all other independent variables in the model constant. This statistic is useful for explaining the impact of each independent variable on the dependent variable but cannot be easily used to compare the effect of each independent variable on the dependent variable to each other. When independent variables are measured on different scales, as is the case in this study, *standardized* regression coefficients can also be useful in determining the relative impact each independent variable has on the dependent variable. In this study, the statistical significance of the effect of each independent variable on the dependent variable is reported at the 0.01 level unless otherwise noted. This indicates that we can be 99% sure that a given statistic is true.

The model as a whole is also evaluated for statistical significance. In addition, both model fit and explanatory power describe the model. As explained, the sum of squares is an indicator of model fit. As the sum of squared residuals decreases, R^2 increases. R^2 is percentage of variation in Y explained by the Xs in the model. Higher R^2 indicates greater explanatory power of the model. But because R^2 always increases with each additional X added to the model, *adjusted* R^2 is recommended over R^2 as a model explanatory power indicator because it does not automatically increase with each additional X (Hutcheson 2011).

Outliers can be problematic in OLS (Fox 1991). One type of outlier is defined as an extreme value relative to most other values of a variable (that is, falling outside 3 standard deviations of the mean). This type of outlier can disproportionately sway OLS results. Another type of outlier is defined as a record with an unusual dependent variable given the independent

variables. Whereas identifying either type of outlier is fairly clear-cut, deciding what to do about them is not so. Fox (2002) recommends taking note of outliers and investigating why they are unusual but generally advises against deleting them because doing so deviates the analysis from reality. In this analysis, outliers are identified and discussed.

Having too many explanatory variables in an OLS model is also problematic. Although it would seem that the more explanatory variables the better the model, over-specification limits the degree to which the data can vary, thereby restraining the model equation. Wooldridge (2006) recommends only including explanatory variables theorized or previously proven to affect the dependent variable in the model. Fortunately, a careful study of macrostructural theory and its revisions provided a fairly straightforward guide on which variables to include (Blau 1977, 1994). A pilot study, which will be described in more detail shortly, tested the full range of explanatory variables theorized to affect interracial relations. However, it was concluded that a more parsimonious model was empirically advantageous and a closer fit to the spirit of the theoretical underpinnings. Therefore, this study reduces explanatory variables (including controls) from 8 to 5 without losing substantial explanatory power.

Dependence among explanatory variables can also cause problems with OLS by leading to poor predictions (Fox 1991). When some of the independent variables are strongly correlated with one another, it creates a condition in which there are several potential solutions, rather than a single, best-fitting line. Some degree of multicollinearity is inherent among structural variables (Blau 1994), however multicollinearity statistics performed on these data indicate that thresholds are not violated (see Appendix B).

Other quantitative studies of metropolitan areas sometimes utilize multi-level analyses. However, Blau (1994) insists this is unnecessary because the variable capturing overlapping

social circles (i.e., demographic consolidation), is itself equivalent to multi-level differentiation. "The theorem of multiple intersection's influence on intergroup relations is the very core of macrostructural opportunity theory" (Blau 1994:69). This macrostructural force, Blau argues, already captures ramifications penetrating multiple ecological levels, thereby discouraging the use of hierarchical linear modeling (HLM).

As mentioned, a plurality of empiricism testing Blau's macrostructural theory examines rates of interracial marriage as the dependent variable. This is because marriage was the only type of relation in which the census collected data on both members (Blau 1994). These examine the number of young couples that intermarry across metropolitan areas. Because differences in the case base inherent in intermarriage rates violate OLS's assumption of homoscedasticity, these studies most often use weighted least squares (WLS) regression to correct heteroscedasticity (see Blau and Schwartz 1984; Blau et al. 1984; Blau 1994 for examples). With the exception of the pilot study preceding this analysis (discussed at the end of this chapter), this study marks the first time Blau's theory will be used to examine interracial identification[3]. Because the dependent variable in this study is based on interracial identification among individuals, rather than interracial marriage between individuals, the assumption of homoscedasticity is not violated. This will be discussed in further detail shortly.

Other quantitative studies of intergroup relations occasionally incorporate techniques associated with a social network approach. Whereas macrostructure includes rates of intergroup relations of members of various groups, microstructure includes a network of social ties between individuals within a group. Blau (1994) describes how Giddens (1986) and Coleman (1990)

[3] Other quantitative studies of biracial identification (which do not employ macrostructural theory) utilize logit or multinomial logit models. However, the unit of analysis in those studies is at the individual level, not the metropolitan area level. That is, independent variables describe the actual people identifying as biracial which is not the case here.

recommend complementing any analysis of macrostructural influence on intergroup relations with an analysis of actor/network influence on this social structure. However, Blau responds to these critiques of his theory by insisting his conceptualization of population structure is not produced by the deliberate actions of present-day individuals, dismissing the necessity of incorporating social network-level tests.

The majority of prior research on biracial identity has been qualitative, as mentioned (see Chideya 1999; Root 1992; Waters 1999; Wright, Serin, Ellis, Holloway, and Hudson 2003; Zack 1995). Most quantitative studies examining factors influencing racial identity are typically conducted at the micro level. These studies often make good use of exploratory factor analysis (EFA) and/or confirmatory factor analysis (CFA) on occasion (Cortes, Deren, Andia and Robles 2003).

For these reasons, this research devises four separate OLS regression models presented in three chapters. Each model can be written as:

$$\text{Proportion of Race A Claiming Biracial Identification with Race B in Each Metropolitan Area} = \alpha + \beta_{ex}(\text{Exposure of Race A to Race B}) + \beta_{eq}(\text{Equality Between Race A and Race B}) + \beta_{gs}(\text{Group Size of Race A Relative to Race B}) + \beta_{fb}(\text{Proportion of Race A Foreign Born}) + \beta_{gr}(\text{Geographic Region Dummy Variable})$$

where α is the value of the dependent variable when all independent variables are equal to zero (the intercept), and β indicates the regression coefficient associated with each independent variable. The equation represents the line best representing the relationship between the proportion of a minority group claiming biracial identification and the simultaneous, independent effects of exposure, equality, group size, foreign born presence, and geography.

PREPARATORY PROCEDURES

Procedures exercised in preparation for the analysis are outlined here. This includes a discussion of outliers, regression assumptions, transformations and post-transformation regression diagnostics. There are several data requirements that must be met when using regression; not doing so calls into question the reliability and validity of regression as a suitable technique given the data. Before addressing each of these in turn, it is important to state that these requirements are applicable to both the individual variables as well as the modeled relationship as a whole (Hair et al. 2006).

Outliers

Outliers are cases with unusual values given a particular variable or combination of multiple variables.

Univariate Outliers. Hair et al. (2006) recommends standardizing values of each variable such that the mean is set to 0 and the standard deviation 1. In data sets with sample sizes greater than 80, as is the case here, cases with values greater than 4.0 or less than -4.0 are considered outliers. In the case of blacks identifying as half white, there are two equality outliers (i.e., Gainesville, Florida; Greenville, North Carolina), both in the South. In the case of Asians identifying as half white, there is one segregation outlier (i.e., Laredo, Texas), three equality outliers all in California (i.e., Trenton-Ewing, New Jersey; Lafayette, Indiana; Columbus, Indiana), and five group size outliers (i.e., San Jose-Sunnyvale-Santa Clara, Stockton, Los Angeles-Long Beach-Santa Ana, San Francisco-Oakland-Fremont, Vallejo-Fairfield). Among Asians identifying as half black, there are two biracial proportion outliers both in the South (i.e., Sumter, South Carolina; Hinesville-Fort Stewart, Georgia) and three group size outliers (i.e., San Jose-Sunnyvale-Santa Clara, California; Corvallis, Oregon; Wausau, Wisconsin). Among blacks

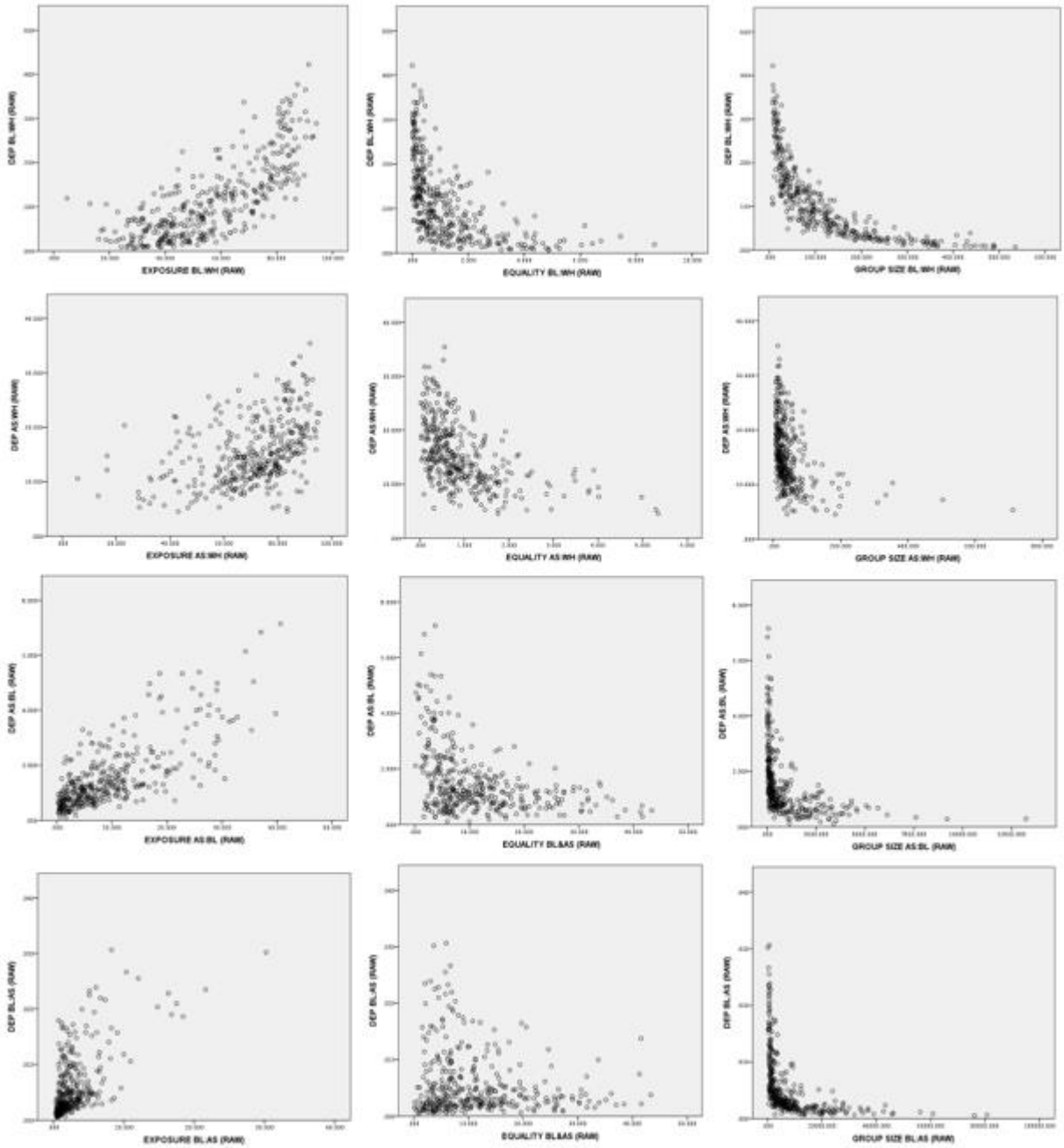
identifying as half Asian, there are several segregation outliers all in California (i.e., San Jose-Sunnyvale-Santa Clara, San Francisco-Oakland-Fremont, Vallejo-Fairfield, Sacramento-Arden Arcade-Roseville, Napa, Stockton) and a handful of group size outliers all in the South (i.e., Danville, Virginia; Albany, Georgia; Pine Bluff, Arkansas; Rocky Mount, North Carolina).

It is important to note that outliers can be beneficial if they are "indicative of characteristics of the population that would not be discovered in the normal course of analysis" (Hair et al. 2006:73). Outliers are problematic if they are anomalies contradicting characteristics consistent across all other cases in the data set. Neutral outliers are extreme cases consistent with characteristics common in all other cases. The cases identified above are generally of the neutral variety with some exception. For example, Asian education far exceeds whites in Columbus, Indiana which is not a college town like the other two outliers in this group. Furthermore, it is unclear why Asian group size would far exceed blacks in Wausau, Wisconsin. Methods scholars generally agree that outliers should not be omitted "unless demonstrable proof indicates that they are truly aberrant and not representative of any observations in the population" (Hair et al. 2006:76). While omission may improve subsequent regression models, it runs the risk of limiting the generalizability. Furthermore, although I have no explanation for these two extraordinary observations, I retain them for the sake of consistency across models.

Bivariate Outliers. In addition to the identification of outlying cases for each variable, outliers emerging from paired variables should also be identified. Scatterplots depicting each pairwise comparison are useful in this endeavor. But because this would require a fairly large number of graphs (i.e., 24 in this case), Hair et al. (2006) recommends limiting scatterplots to relationships between the dependent variable and each independent variable, as in Figures 3 and 4 discussed in the next section. Here, 12 scatterplots do reveal some bivariate outliers. However,

these outliers are not likely to have a strong impact on regression coefficients because y-axis outliers are generally near the mean of the x-axis or in line with the x-axis as opposed to cases in which both the x and y are unusual (Fox 1991).

Figure 3. Scatterplots Testing Linearity Assumption



model and the Asian-black model. Group size shows evidence of curvature in all four models.

Regression Assumptions

All the variables used as model inputs were checked for linearity, independence of errors, homoscedasticity and normality (Berry 1993).

Linearity. A linear relationship between the dependent variable and each independent variable assures consistency in the data and accurate estimation of relationship strength. The most common way of testing this assumption is through the use of scatterplots (Hair et al. 2006). Scatterplots depicting curved data, rather than linear data, indicate problematic relationships. As shown in Figure 3, there is some evidence of curvature in the equality measure in the black-white

Independence of Errors. Regression requires that error from model inputs cannot be correlated in order to ensure that the relationships that emerge are due to the inputs rather than to omissions. This assumption is most commonly violated in the data collection process or when using time series data (Hair et al. 2006). As such, identifying correlated errors at the univariate level is limited to investigating possible causes. Because this research uses census data collected on a single date, it is unlikely this assumption is violated. Nonetheless, independence of errors will be tested on the multivariate relationship later in this chapter.

Homoscedasticity. Equally distributed variance from the dependent variable across the range of each independent variable ensures hypotheses tests are neither too stringent nor too insensitive (Hair et al. 2006). Homoscedasticity can be tested visually with scatterplots of the dependent variable against each independent variable. Diamond- or coned-shaped distributions indicate heteroscedasticity. As shown in Figure 3, there is evidence of heteroscedasticity in multiple variables. Heteroscedasticity is often the result of normality violations.

Normality. A normal distribution of each variable assures validity in subsequent statistical tests (Hair et al. 2006). Normality can be tested visually with histograms, or with

normal probability plots for a more reliable test. Statistical tests, such as a comparison of skewness and kurtosis estimates against the critical value of ±2.58 (.01 significance level), can also assess normality. Because normality is sensitive to sample size, data sets with less than 30 records or more than 1,000 should be tested graphically and statistically. The sample size in this analysis is 363 so I examine skewness and kurtosis estimates here. As shown in Table 3, there is some evidence of skewness in the black exposure to Asian measure, as well as in all group size measures except blacks relative to whites. Half of all variables also show evidence of kurtosis.

Table 3. Statistics Testing Normality Assumption

	Skewness	Kurtosis
Pct of Blacks Claiming Half White	.969	.329
Pct of Asians Claiming Half White	.638	.073
Pct of Asians Claiming Half Black	1.830	3.879
Pct of Blacks Claimin Half Asian	1.925	3.721
Black Exposure to Whites	-.018	-.980
Asian Exposure to Whites	-1.091	1.354
Asian Exposure to Blacks	1.337	1.349
Black Exposure to Asians	4.000	23.169
Black White Equality	1.941	4.324
Asian White Equality	2.279	7.032
Black Asian Equality	1.334	1.553
Black Group Size Relative to Whites	1.398	1.529
Asian Group Size Relative to Whites	5.932	49.399
Asian Group Size Relative to Blacks	3.531	19.801
Black Group Size Relative to Asians	2.985	12.268

Transformations

Transformations correct data issues discovered by examining data, as just exercised. As shown, the data reveal that different model inputs violate different regression assumptions. There are issues with normality, heteroscedasticity and linearity. Fortunately, transformations correcting normality violations often correct other types of violations at the same time (Hair et al. 2006). As normality tests revealed, the data are plagued by positive skew and leptokurtic

(peaked, rather than flat) kurtosis. Hair et al. (2006) recommends log transformations for variables with positive skew but without platykurtic (flat, rather than peaked) kurtosis. Log transformations are also recommended for data evidencing linearity problems when the curvature is shaped like the letter 'c' tilted backward toward the intersection of the axes, as in Figure 3.

Theory may also suggest transformations given the nature of the data (Hair et al. 2006). Blau's (1994) theory suggests transforming all variables by taking the natural log for several reasons. Transforming variables helps statistical tests like OLS accommodate different sized metropolitan areas, making WLS regression, or controlling for population size in OLS, unnecessary. Logged transformation also has the advantage of standardizing scales of different variables to aid in their comparison. Lastly, transformations circumvent the need for interaction terms because both produce multiplicative effects[4] (Blau 1994). Blau (1994:76) argues interaction terms are unnecessary. "There is no advantage in substituting the use of product terms. Logarithmic transformations, multivariate intersection and controlling possible other influences provide adequate procedures for testing the theorems."

Given the data and the theory, natural log transformations were performed on all variables[5] (except region[6]). Natural log is the power to which *e* would have to be raised to equal x. Once transformations were completed, transformed data were tested to determine whether the desired remedies were achieved. As reliably shown in the normal probability plots in Figure 4, normality is generally achieved, possibly with the exception of one of the four exposure measures. Because three of the four exposure measures are repaired, I chose not to further

[4] The multiplicative effect from log transformations "leaves insufficient departures for the product term to correct" (Blau 1994:74).

[5] Transformations are typically only applied to independent variables unless heteroscedasticity is also an issue; heteroscedasticity requires the dependent variable to also be transformed (Hair et al. 2006).

[6] As a dummy variable with value of 0 and 1, region cannot be transformed because ln(0) is undefined.

meddle with the remaining offender for the sake of model consistency. Figure 4 shows improved linearity and homoscedasticity.

Regression Diagnostics

As mentioned, regression requirements apply to both the individual variables, now

Figure 4. Normal Probability Plots Testing Normality Assumption on Transformed Data

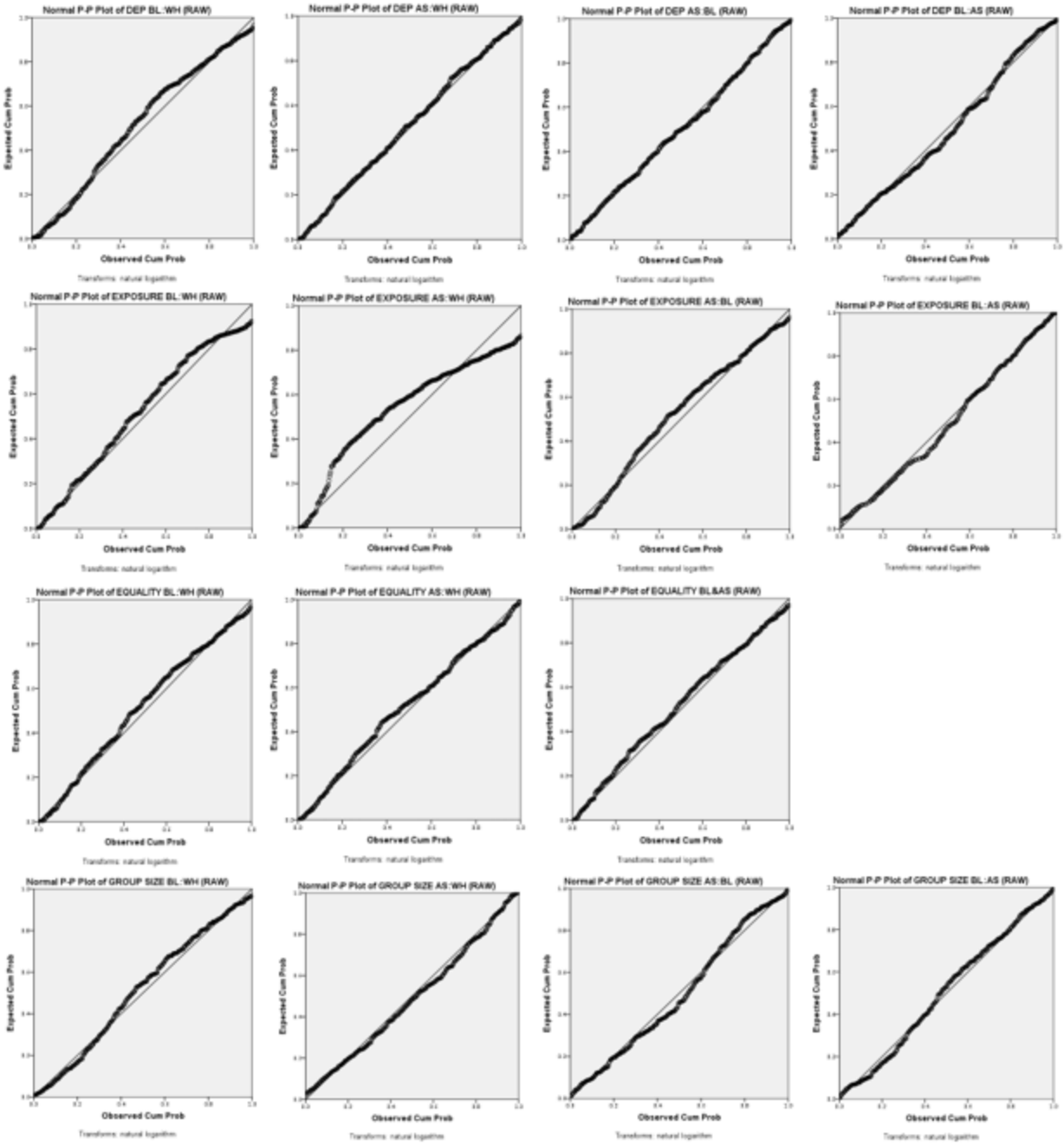
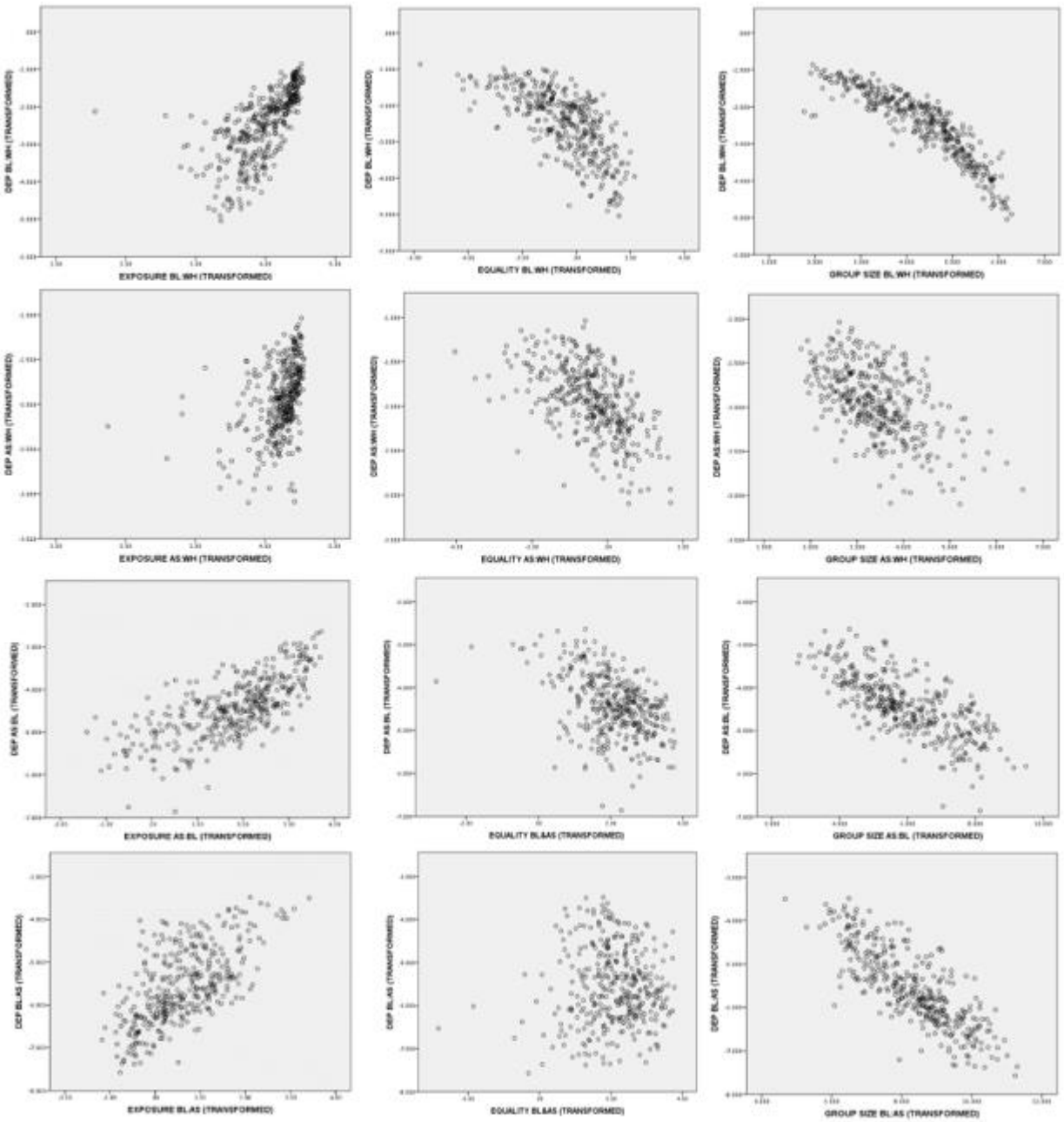


Figure 5. Scatterplots Testing Linearity and Homoscedasticity Assumptions on Transformed Data



corrected, as well as the modeled relationship as a whole (Hair et al. 2006). Once transformations were completed, these data meet regression assumptions modeled at the multivariate level (see Appendix B). Scatterplots of predicted values to observed values for each biracial combination

group verify clear linearity. Scatterplots of residuals to observed values indicate independence of the errors. Scatterplots of residuals to predicted values indicate homoscedasticity. Normal P-P plots of observed values to expected values indicate normal distributions of errors.

Other considerations. Multiple regression assumes that independent variables are somewhat related and therefore have to be isolated in order to assess the independent effects of each explanatory variable on the dependent variable. However, too much correlation between independent variables can be misleading in the interpretation of statistically significant results (Hair et al. 2006). Some degree of multicollinearity is inherent among structural variables (Blau 1994), however multicollinearity statistics performed on these data indicate that thresholds are not violated (see Appendix B). In summary, post-transformational regression assumptions are not violated at the univariate or multivariate level, supporting the use of OLS.

An earlier pilot study testing the viability of a similar (but less parsimonious) research design also supports the methodology just described.

PILOT STUDY

A preliminary study of similar inquiry and structure was conducted using data from the prior decennial census (Butts 2008). With population-level biracial identification rates available for the first time in US history, macrostructural parameters across 330 metropolitan areas were examined to evaluate whether social forces historically shown to influence black-white marriage rates also influenced black-white biracial identification rates among blacks. This study concluded that black exposure to whites (segregation), racial inequality (in higher education), black group size relative to whites, percent of blacks foreign-born and geographic region affected the likelihood blacks reported black-white biracial identification on the 2000 Census ($R^2 = 93.3\%$).

Results were well-received at the annual meeting of the Population Association of

America (Butts 2009) and subsequently submitted to Social Forces (unpublished). Peer feedback from both sources helped refine the approach proposed to my dissertation committee in May, 2015. Invaluable guidance from the committee, coupled with a rereading of the latest revision of the theory (Blau 1994), supported minor research design revisions utilized in the current study replacing 2000 Census data with 2010.

APPENDICES

APPENDIX A: RESEARCHER BACKGROUND

A researcher's personal characteristics are considerably more relevant in qualitative research and quantitative research involving primary data collection than in quantitative analysis of secondary data. Nonetheless, the influence of these characteristics is never completely removed from the research process. Personal characteristics arguably affect the design, analysis, interpretation, and the topic chosen in the first place. My background is briefly outlined here.

I am from a rural area in Michigan approximately 10 miles from a village of only 500 people, yet still a relatively easy commute from the city of Detroit. My township is largely agricultural and is made up of working class white and black households. The racial minority group is larger here than in otherwise similar rural communities, yet relations are amenable.

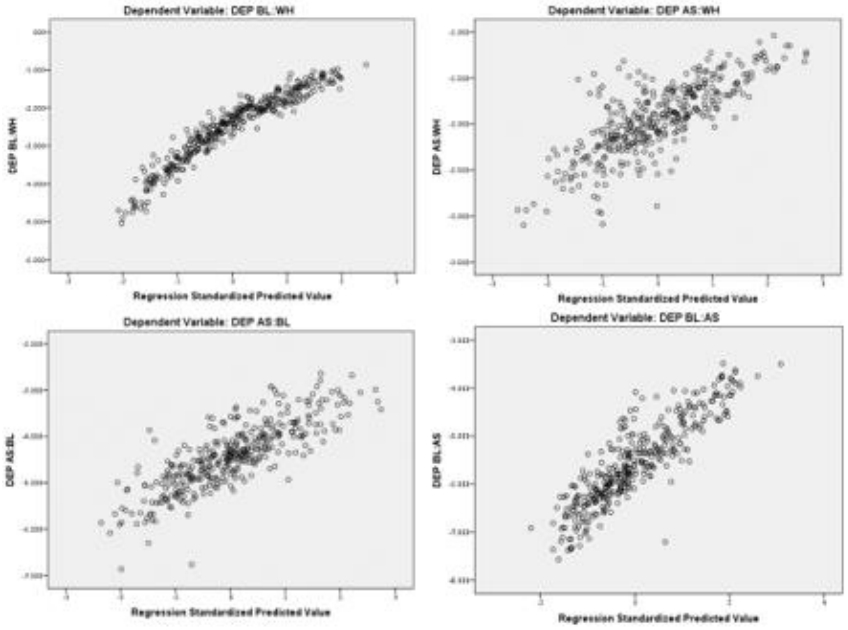
I graduated from Indiana University Kelley School of Business with a Bachelor's of Science in 2001. I worked for a syndicated data supplier in Chicago, New York and Cincinnati. I then worked in market research in Oklahoma City before becoming the Director of Marketing Sciences for a large telecommunications provider. (This field couples statistical modeling of secondary data with primary research methods to predict or explain consumer behavior.)

To update my quantitative skillset, I concurrently pursued a Master's of Art in Sociology at the University of Oklahoma where the pilot study for this manuscript was conducted in fulfillment of my thesis requirement. In 2008, I launched a survey research firm and pursued a PhD at Michigan State University. Specialties included survey methodology, demography, and effects of race and class on basic human subsistence. I have since moved back to the neighborhood in Michigan where I was raised. I presently work for a Fortune 500 corporation as a consumer behavior statistician.

APPENDIX B: REGRESSION DIAGNOSTICS

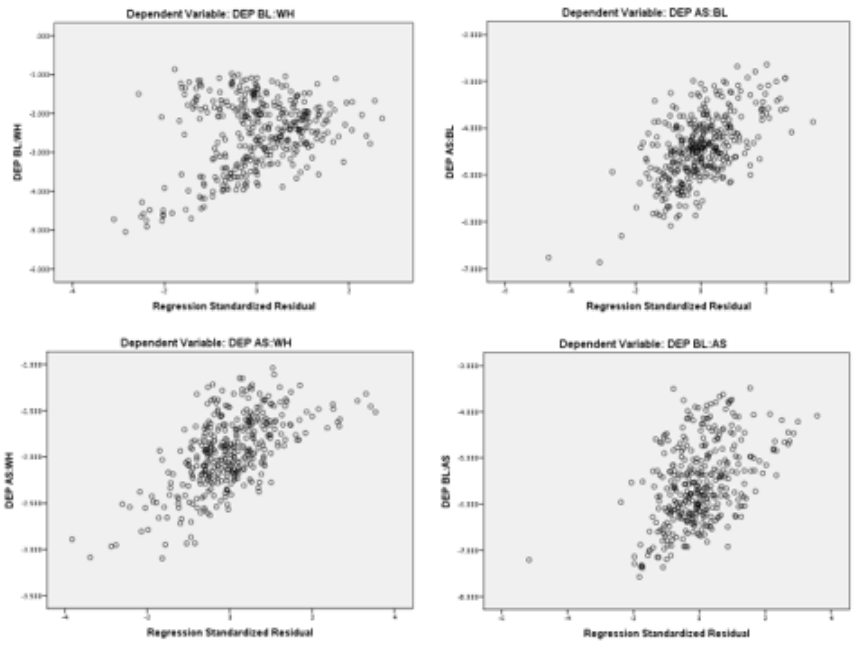
1. Linearity. The predicted values are linearly related to the observed values after the transformations specified, as shown in Figure 6.

Figure 6. Linearity Diagnostics



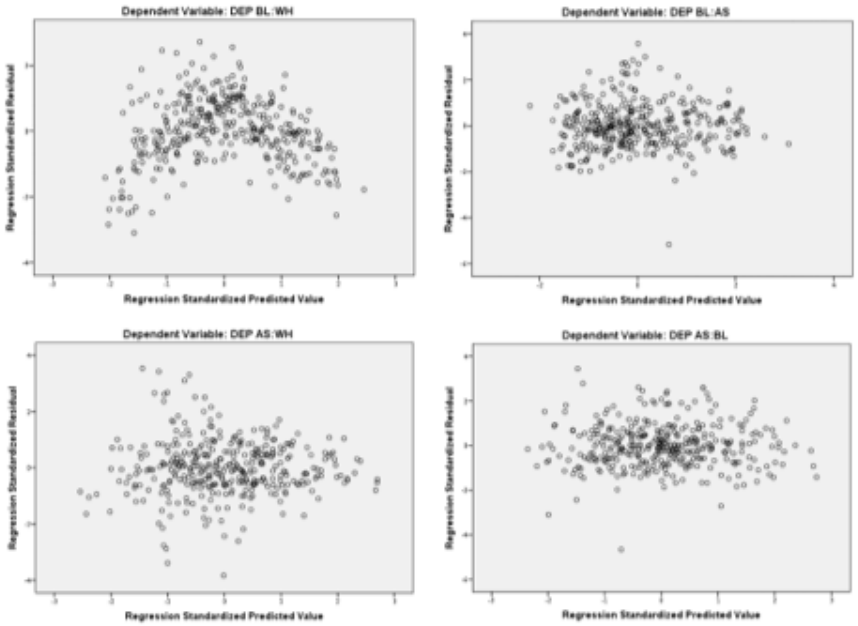
2. *Independence* (of the errors; no serial correlation). Residuals do not appear to be linearly related to the dependent variable, as shown in Figure 7.

Figure 7. Independence Diagnostics



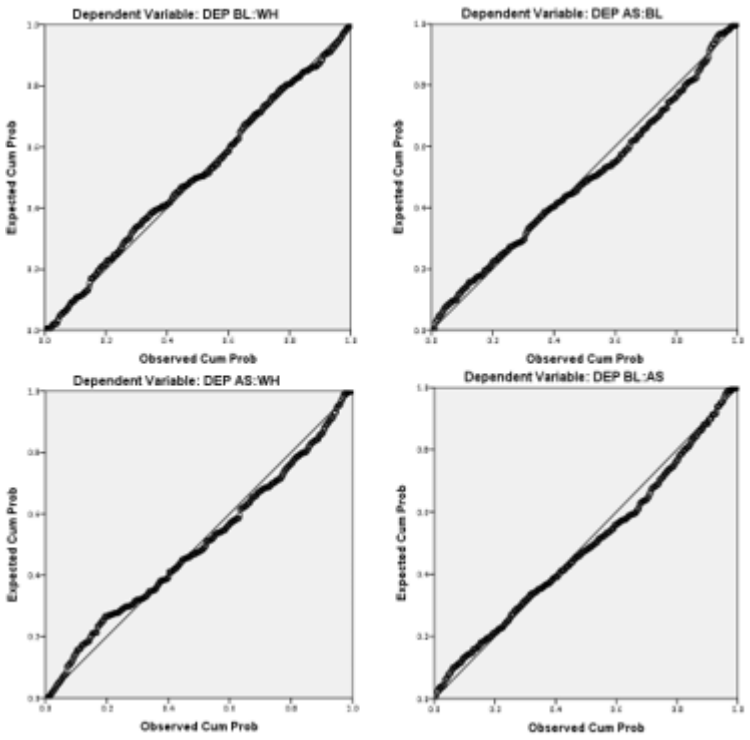
3. *Homoscedasticity* (constant variance of the errors versus the predictions). Residuals are not getting more spread out, as shown in Figure 8.

Figure 8. Homoscedasticity Diagnostics



4. Normality (of the error distribution). The residuals are plotted close to the diagonal line, as shown in Figure 9.

Figure 9. Normality Diagnostics



5. *Multicollinearity*. Tolerance and the variance inflation factor indicate multicollinearity thresholds are not violated, as shown in Table 4.

Table 4. Multicollinearity Diagnostics

	Black-White Model		Asian-White Model		Asian-Black Model		Black-Asian Model	
Independent Variables	TOL	VIF	TOL	VIF	TOL	VIF	TOL	VIF
Log Interracial Exposure	0.758	1.318	0.783	1.277	0.315	3.174	0.467	2.141
Log Racial Equality	0.372	2.689	0.684	1.461	0.769	1.300	0.761	1.314
Log Relative Group Size	0.238	4.196	0.544	1.840	0.272	3.672	0.209	4.795
Log Foreign-Born	0.684	1.463	0.749	1.336	0.725	1.379	0.554	1.804
Region ǂ	0.682	1.466	0.653	1.532	0.452	2.212	0.499	2.003

ǂ Reference is South when blacks are minority and West when Asians are minority.

CHAPTER 3: STRUCTURAL DETERMINANTS OF BLACK BIRACIAL IDENTIFICATION WITH WHITES

This study borrows from Peter Blau's opportunity-structure theory and interracial marriage empirical scholarship to assess the effects of macrostructural variables on the likelihood of black Americans reporting biracial identification with whites in the 2010 US Census. To evaluate whether social forces known to influence interracial marriage also influence biracial identification, macrostructural parameters across 363 metropolitan areas were examined. Residential segregation, racial equality and minority group size were found to affect the likelihood blacks report biracial identification with whites over single-race black identification in much the same way these macrostructural variables affect the likelihood of interracial marriage in other studies.

INTRODUCTION

The 2000 US Census allowed respondents to describe themselves with more than one race for the first time in history. Approximately 6.8 million chose this option. This figure grew by 32.0% (to 9.0 million) by 2010, despite a total American population increase of only 9.7%. Among 42.0 million blacks (13.6% of the American population), nearly 2.7 million identified as biracial (see Table 1). Over 1.8 million, or 4.4% of the total black population, specifically identified as also white. Although doubled from 2.2% in 2000, this is much smaller than what would be expected due to chance with the ratio of blacks to whites at .182. In contrast, the ratio of Asians to whites is .075, yet 9.4% of the total Asian American population identified as also white. Responses to the census race question confirm that racial identification is indeed a choice

(Harris and Sim 2002; Hirschman 2004; Masuoka 2011). Now the question becomes which factors influence that choice and why.

One factor influencing the racial identification choice is often overlooked: racial identity (Brunsma 2006). Identity is based on one's self-understanding through lived experience (Rockquemore and Brunsma 2008). Because it is an internalized process perpetually in flux, it often does not, or cannot, match forced-choice classifications on institutional forms (Hirschman, Alba and Farley 2000; Hitlin, Brown and Elder 2006; Saperstein 2006). Nonetheless, empiricists rely on racial identification when research depends on quantitative analysis of significant sample size across multiple racial groups and geographies (Brown, Hitlin and Elder 2006; Renn 2008).

There is considerable geographic variation in the proportion of racial minorities that identify as biracial (Farley 2002; Hoeffel et al. 2012). Drastic variation in the 2010 Census ranges from 0.6% in Jackson, Mississippi to 42.2% in Coeur d'Alene, Idaho among biracial blacks identifying as also white for example. Ironically, greater biracial populations skew toward areas where blacks represent a relatively small proportion of the population (Butts 2008). This and other distinctions across metropolitan areas suggests underlying structural differences affecting the likelihood of biracial identification. Borrowing from prior theoretical and empirical scholarship on mixed-race marriage, this study explores how urban structural factors affecting intergroup relations impact the likelihood black Americans report biracial identification with whites.

STRUCTURAL FACTORS AFFECTING INTERGROUP RELATIONS

Intergroup relations are often investigated through the lens of exchange, assimilation or opportunity-structure perspectives. Peter Blau's macrostructural theory develops the opportunity-structure perspective (Blau 1977, 1994). This perspective rests on Simmel's (1908) notion of

'over-lapping social circles' where each social circle is based on a demographic or lifestyle characteristic. The characteristic that is most salient is the social circle in which the person feels the most belonging and therefore becomes their core *group*. People generally prefer to interact with members of their own group. However, Simmel argues that meaningful social relationships can happen between people from different groups if they are similar in many other ways (that is, if their other social circles intersect). These shared commonalities become the grounds on which social relationships can be formed in spite of belonging to different groups. Blau adds to Simmel's concept by arguing that various structural factors hinder opportunities to fulfill in-group preferences, making intergroup relations more likely under certain conditions.

Blau assumes the probability of intergroup relations depends on two key factors. First and most importantly, the number of characteristics in common between members of two different groups affects the likelihood of relationship development. The more characteristics in common, the less the one unshared characteristic matters. Second, the numerical availability of in-group associates that share other characteristics affects the likelihood of intergroup relations. When there are less in-group individuals of similar status on other characteristics, there are proportionately more out-group individuals of otherwise similar status.

A third element, group size, plays a role within each of these two key factors. Numerically large minority groups tend to be geographically and socially segregated (Blalock 1967; Massey and Denton 1993; Waters 1999; Wilson 1980). These groups become homogenous and delineated, limiting contact and the extent any characteristics are shared with the out-group (Blau 1980; Castles and Miller 2003; Qian, Glick and Batson 2012; Sassen 2001, 2006; Waters 1999). In contrast, equality creates conditions that provide adequately sized in-group relationship opportunities with members of similar status unless the minority group is small. In both cases,

the theory maintains that intergroup relations are more likely among members of small groups.

Blau's macrostructural theory of intergroup relations can utilize most any demographic variable to delineate groups (e.g., religion, class, age). In the 21st century US, the theory clearly lends itself to race as a salient characteristic defining in-group and out-group. The theory can then be used to explain the probability of several different types of interracial relations including interracial contact, conflict, and marriage. The postulates tested include those centered on demographic consolidation (i.e., the extent race is correlated with several other characteristics at once), inequality, and group size.

Demographic Consolidation

The theory contends that relations can happen between members of different races if most of their other social circles intersect. Race, however, tends to have strong correlations with many other characteristics, thereby inhibiting the chances that members of two racial groups share the social circles on which these characteristics are formed. Heightened racial salience, intolerance of dissimilar others, and antagonistic allegiance in opposition to institutional and interpersonal racism has a way of consolidating socio-demographic characteristics and homogenizing the minority group (Blau 1980; Castles and Miller 2003; Qian et al. 2012; Sassen 2001, 2006; Waters 1999). Under these conditions, interracial relations is less likely because social circles for members of different racial groups do not often intersect.

Residential segregation best operationalizes this concept (Anderson and Saenz 1994; Kalmijn 1998; Kalmijn and Van Tubergen 2010). Segregation limits the number of similarities between racial groups because geographical confinement also creates cultural and social barriers by consolidating characteristics that would otherwise vary (e.g., employment opportunities, healthcare system access, religious denomination attendance). That is, residential segregation has

a way of completely segregating two racial groups in a multitude of ways beyond simply separating domiciles (Massey and Denton 1993; Qian et al. 2012). The effect is especially compounded in cities where the minority group is numerically large enough to pose a threat to the majority group (Blalock 1967; Massey and Denton 1993; Waters 1999; Wilson 1980).

When segregation limits minority social operations to immediate neighborhoods, quality contact with the majority group is rare (Fitzpatrick and Hwang 1992). Without regular opportunities for contact, commonalities, or interpersonal respect, interracial relations is arguably less likely (Blau 1994). But when race is less correlated with the distribution of other socio-demographic characteristics, the minority group is more exposed to the majority group on common ground and interracial relations is consistently found to be more likely (Anderson and Saenz 1994; Blau 1994; Blau, Beeker and Fitzpatrick 1984; Blau and Schwartz 1984; Blum 1984, 1985; Fitzpatrick and Hwang 1992; Heaton and Jacobson 2000; Lichter 2013; Qian 1999; Qian et al. 2012; Skvoretz 1990).

Inequality

The theory assumes people prefer to interact with members of their own racial group so long as they are similar in most other ways (Blau 1977; see also Kalmijn and Van Tubergen 2010; Simmel 1908). However, there are certain conditions limiting the numerical availability of same-race associates who also share other characteristics. The likelihood of interracial relations is increased when the proportion of same-status, different-race options is considerably larger than the proportion of same-status, same-race suitors.

The effect of one's status, or station in life, is often operationalized through inequality measurements because relationships depend on commonalities forged on the basis of equality (Blau 1977; Lichter 2013). Blau (1977) defines inequality as the relative difference between two

groups on an interval-measured variable. The theory implies preference for education (over income or socioeconomic status indicators such as SEI) for this role. Rytina et al. (1988) statistically confirm that education is the most suitable inequality measure for use in this theory, arguing the volatility of income can't compete with the stable status associated with education.

The relative difference between racial groups on educational attainment affects interracial relations in different ways. On the one hand, as more minorities have access to higher education, the salience of race is reduced (Blau 1977, 1994; Broman, Neighbors and Jackson 1998; Croll 2007; Kalmijn 1993; Qian et al. 2012). Shared non-race characteristics and interests become more interpersonally relevant, making interracial relationships more likely (Blum 1984; Gans 2007; Harris 2002; Heaton and Jacobson 2000; Lichter 2013; McPherson, Smith-Lovin and Cook 2001; Qian 1997, 1999). On the other hand, increased upward mobility puts greater proportions of minorities in higher wrung positions and, assuming the minority group size is adequate, increases the pool of same-status, same-race availability (Blau 1977, 1994). As such, decreasing racial inequality at the macro level actually decreases interracial relation likelihood despite decreased social distance between racial groups at the interpersonal level (Blau 1994; Blau et al. 1984; Blau et al. 1982; Rytina et al. 1988).

Group Size

The theory concludes that interracial relations are more likely among members of groups that are numerically small relative to the majority group because numerically limited in-group options makes out-group options statistically more probable. The effect is particularly apparent in race applications because smaller racial groups tend to be more heterogeneous and therefore more distributed across various social dimensions than larger racial groups.

Because smaller racial groups are more likely to share multiple non-race characteristics,

interests and activities in common venues with members of other racial groups, interracial relations are more likely (Blau 1977, 1994; Blau and Schwartz 1984; Frey and Farley 1996; Heaton and Jacobson 2000; Qian 1999). Furthermore, upwardly mobile minorities from smaller racial groups are more likely to intermarry despite greater educational equality because the selection pool of same-status, same-race suitors is still numerically limited (Blau 1994; Heaton and Jacobson 2000; Kalmijn 1998; Qian et al. 2012; St. John and Clymer 2000). That is, small groups are an exception to the argument that increasing equality decreases interracial relations.

Structural factors such as demographic consolidation, inequality and group size have repeatedly been shown to affect the likelihood of relations with different-race others. Most tests have focused on interracial marriage in particular because of the availability of large-scale, quantitative data of sufficient sample size (Blau 1994). Indeed, over 13% of today's legal marriages are interracial (Lee and Bean 2007b). "Marriage is undoubtedly the most profound and lasting human relation of all those voluntarily established" (Blau et al. 1984:591). This implies interracial marriage is more suitable than other forms of contact for measuring structural influences on racial integration because of its durability and longevity.

Contemporary American society, however, is characterized by widespread cohabitation, partnerships not legally recognized as marriage, divorce and non-marital childbearing. Black-white biracial couples are 1.7 times more likely to cohabitate than marry (Kalmijn 1993; Lichter and Qian 2005; Qian et al. 2012), more likely to divorce (Zhang and Van Hook 2009), and more likely to produce children out of wedlock (Kalmijn 1993), than same-race couples. Although biracial blacks are more likely to share heritage with whites than any other race, blacks and whites are the least likely groups to marry each other (Edmonston, Lee and Passel 2002; Heaton and Jacobson 2000; Qian 1997) and experience more social distance than any other racial pairing

(Qian 1999). Although intermarriage incidence has commonly been used to indicate social distance (Fu and Heaton 2000; Kalmijn 1998; Kalmijn and Van Tubergen 2010; Lee and Bean 2004; Lichter and Qian 2005; Qian et al. 2012; Suro 1999; Zhang and Vanhook 2009), its footing as a preferred racial integration indicator is becoming less steady (Brunsma 2005).

The flexibility of the new census race question more accurately tallies variations in racial groups than ever before. This gives demographers the opportunity to utilize data on biracial *people*, rather than biracial *marriage*, as an emerging social distance indicator (Bean and Stevens 2003; Bratter 2007; Lee and Bean 2004). In the same way interracial marriage has reflected racial integration in the past, biracial identification may represent a more salient indicator of integration in today's society (Kalmijn 1993).

FACTORS AFFECTING INTERRACIAL IDENTIFICATION

Considerable quantitative advancements have been made in recent years identifying various determinants of multiracial identification. These studies examine the influence of sociodemographic and social psychological factors and contexts on individual-level units of analysis. Educational attainment generally encourages multiracial identification (Brunsma 2005; Croll 2007; Masuoka 2011; Roth 2005; Tafoya, Johnson and Hill 2005) with some exception (Bratter 2007; Hochschild and Weaver 2007). Immigrant status tends to discourage multiracial identification (Bean and Stevens 2003; Masuoka 2011; Roth 2005; Tafoya et al. 2005). Whereas contextual factors such as discrimination and segregation discourage multiracial identification (Brunsma 2005; Harris 2002; Hochschild and Weaver 2007; Masuoka 2011; Tafoya 2002; Tafoya et al. 2005), neighborhood diversity encourages multiracial identification (Bratter 2007; Croll 2007; Harris 2002; Masuoka 2011; Tafoya et al. 2005). Trends vary by region (Bean and Stevens 2003; Croll 2007; Harris and Sim 2002; Masuoka 2011; Rockquemore and Brunsma

2008; Roth 2005) and racial group (Bratter 2007; Campbell 2007; Masuoka 2011; Roth 2005).

Much like empiricism on biracial marriage and other forms of interracial relations, biracial identification empiricism gravitates toward the black-white divide. Methodological convenience aside, blacks and whites are important groups to study together for many reasons. These two groups experience more social, cultural and spatial distance than any other racial pairing (Bean and Stevens 2003; Bratter 2007; Gans 2007; Lee and Bean 2004, 2007a, 2007b; Lichter and Qian 2005; Massey and Denton 1993; Qian 1997, 1999). For example, blacks and whites are the least likely groups to marry each other (Edmonston et al. 2002; Heaton and Jacobson 2000; Lichter and Qian 2005; Masuoka 2011; Qian 1997). Yet biracial blacks are more likely to share heritage with whites than any other racial group (see Table 1).

Nonetheless, blacks with recent multiracial heritage are the least likely multiracial group to claim multiracial identification in the first place (Bratter 2007; Lee and Bean 2007b; Loveman and Muniz 2007; Parker et al. 2004; Roth 2005). Despite ancestral awareness (Davis 1991; Spencer 1997), blacks are more likely to rely on social construction (e.g., the legacy of slavery in the US, the 'one-drop rule', systematic and persistent discrimination) than genealogy in the self-identification process (Lee and Bean 2007a, 2007b). Blacks also wield black mono-racial identification to show solidarity in the face of racism (Hochschild and Weaver 2007). As a result, blacks are more likely to identify mono-racially than any other minority group (as shown in Table 1).

The iconoclasts claiming black-white biracial identification are therefore of considerable substantive interest, hence the preponderance of quality empiricism analyzing these individuals. There is uncharted opportunity, however, for analyzing differences between macrostructural contexts influencing these individuals. Knowing that structural constraints affect intimate social

relationship choices, and trends in biracial identification mirror biracial marriage patterns, this study applies concepts drawn from Blau's macrostructural theory on interracial marriage to black biracial identification with whites.

HYPOTHESES

In summary, the theory assumes that smaller groups experience less discrimination and inequality and proposes two key postulates. First, cities with less discrimination facilitate opportunities for healthy interracial exposure. Second, cities with less inequality increase social mobility for minorities. This decreases racial salience and helps to close the social distance gap between racial groups. However, increased upward mobility puts greater proportions of minorities in higher wrung positions and, assuming adequate group size, actually increases the pool of same-status, same-race marriage partner options, facilitating healthy interracial exposure but increasing the likelihood of same-race intimate relations.

Factors facilitating interracial marriage may also encourage interracial identification. This feedback loop supports testing the aptness of biracial identification in demonstrating the effects of structural parameters on social distances between racial groups. It is hypothesized that the same parameters influencing interracial marriage will also influence interracial identification. Hence,

H_1. The more social circles between blacks and whites intersect, the greater the likelihood blacks will report biracial identification with whites.

H_2. The greater the educational equality between blacks and whites, the greater the likelihood blacks will report mono-racial black identification.

H_3. The smaller the black group size relative to whites, the greater the likelihood blacks will report biracial identification with whites.

DATA & METHODS

Social structure is embodied by multi-dimensional social arrangements between proximal groups (Blau 1994). In the US, diverse populations living in close proximity characterize urban centers (McPherson et al. 2001). Metropolitan areas have been the primary pallet for interracial contact since the antebellum period (Wilson 1980). Therefore, metropolitan areas including metropolitan statistical areas (MSAs) and metropolitan New England city and town areas (NECTAs) are the natural units of analysis for measuring interracial contact and, conceivably, interracial identification. There are 363 metropolitan areas in the continental US. All are used in this analysis.

Dependent Variable

For the first time in US history, the 2000 Census allowed residents to mark more than one choice and this policy was continued in 2010. As shown in Figure 1, the 2010 US Census race question offers several categories: White; Black, African American, or Negro; American Indian or Alaska Native; Asian; Native Hawaiian and Other Pacific Islander; and 'Some Other Race'. For each city, the proportion of all blacks identifying as half white is calculated using data reported in Census Summary File 1. Although the ratio of blacks to whites is .182, only 4.4% of blacks claim biracial identification with whites. Metropolitan areas range from 0.6% claiming black-white identification in Jackson, Mississippi (where blacks represent 48.2% of the population) to 42.2% in Coeur d'Alene, Idaho (where blacks represent but 0.7%).

Independent Variables

Several structural variables are hypothesized to explain the variance in biracial identification prevalence across geographies. These include interracial exposure (as the opposite of the demographic consolidation characteristic of racial segregation), racial equality (as the

opposite of inequality), and black group size relative to whites.

Exposure. Racial segregation stifles the extent to which demographic and lifestyle characteristics are free to vary. This homogenization of characteristics, coupled with geographic, cultural and social delineation from the rest of society, severely limits black exposure to whites. Neighborhood exposure, on the other hand, influences opportunities for interracial interaction (Marsden 1990; Peach 1996; St. John and Clymer 2000), interracial marriage (Anderson and Saenz 1994; Blau et al. 1984; Blau and Schwartz 1984; Blum 1984, 1985; Fitzpatrick and Hwang 1992; Heaton and Jacobson 2000; Lichter 2013; Qian 1999; Qian et al. 2012) and biracial identification (Xie and Goyette 1997).

Exposure of one racial group to another is measured by the exposure index (Population Studies Center 2013). This index measures the probability of interaction between blacks and whites by taking the average percentage of an area that is white, within the neighborhood (i.e., census tract) of a black person. The exposure index for each metropolitan area can theoretically range from 0 (indicating no exposure between blacks and whites), to a number equal to the proportion of the population that is white in a city with only one black person. An exposure score calculated from 2010 Census data for each metropolitan area is available from the University of Michigan Population Studies Center. Scores for black exposure to whites range from 4.8 in Laredo, Texas to 94.2 in Parkersburg-Marietta-Vienna, West Virginia-Ohio.

Equality. Equality in college education has consistently been shown to influence interracial marriage (Lichter 2013; Qian et al. 2012) and could therefore affect interracial identification in a similar manner. For each metropolitan area in the 2007-2011 ACS, chi-square is calculated for the relationship between race and education by dividing the raw chi-square term by the maximum chi-square value (and then multiplying by 100). Because chi-square indicates

the extent census frequencies deviate from what would be expected if race and education were independent, higher scores indicate greater deviation from independence between race and education, implying educational attainment is more dependent upon race. Therefore, the calculated expression is subtracted from 100 to reverse the scale such that higher scores indicate greater educational parity (i.e., education is less dependent on race) between two racial groups. Scores range from 0.00 in Coeur d'Alene, Idaho, where race and education are highly dependent on one another, to 8.65 in Greenville, North Carolina, where race and education are more independent among blacks and whites.

Group Size. Blau's theory assumes relative group size affects both exposure and equality (Blau 1977, 1994; Blau and Schwartz 1984). Because it is assumed, Blau doesn't explicitly test group size alongside the two key theorems (i.e., consolidation/exposure and inequality/equality) in his final model (1994). However, most empirical tests of Blau's theory not only control group size, but consider it a key theorem (Anderson and Saenz 1994; Butts 2008; Fitzpatrick and Hwang 1992; Heaton and Jacobson 2000; Qian 1999). Relative group size is measured by the number of blacks per thousand single-race whites. Data for this calculation is available for each metropolitan area in Census Summary File 1. The ratio of blacks to 1,000 whites ranges from 5.8 in Laredo, Texas to 535.1 in Albany, Georgia.

Controls. Other variables isolate structural features borrowed from Blau's theory and subsequent empirical tests. These include the percentage of the black population foreign-born and geographic region.

The proportion of the black population foreign-born is controlled because areas with larger foreign-born populations tend to have more interracial marriage (Blau 1994) and larger biracial populations (Wright et al. 2003). Immigrants can be more likely to intermarry than their

ancestral counterparts in the origin (Qian 1999), though this may not be the case among those who immigrate in pursuit of higher education as they often arrive with focal families (Castles and Miller 2003). Furthermore, immigrant presence can enhance diversity tolerance and further immigrant influx (Lee and Bean 2004). Additionally, differing race classification constructions (Masuoka 2011; Tafoya, Johnson and Hill 2005) and racial identities among foreign-born populations in reaction to American-born people of color (Waters 1999) must be isolated.

Additionally, foreign-born racial minorities immigrate to the US with different understandings of what it means to be a racial minority than American-born minorities and second-generation immigrants of color (Waters 1999). Indeed, immigrant status tends to discourage multiracial identification (Bean and Stevens 2003; Masuoka 2011; Roth 2005; Tafoya et al. 2005). Higher employment (Wilson 1980) and immigration effects on inequality (Blau 1977, 1994) can set foreign-born blacks in particular apart from their native-born racial counterparts. Controlling foreign-born presence helps avoid confounding effects from differing exposure opportunities (Peach 1996), as well as contrasting historical contexts between whites and blacks.

Five-year estimates of the number of foreign-born blacks are available from the 2007-2011 ACS Table B16005, A-I. This measure is calculated as the proportion of total single-race blacks that are foreign-born, and ranges from 0.0% where are there no reported foreign-born blacks in Sandusky, Ohio, Kokomo, Indiana and Coeur d'Alene, Idaho, to 60.4% in Fargo, North Dakota-Minnesota.

Regional variations also shape interracial relations and may affect which particular demographic variable is most salient in choosing a spouse or racial identification, as well as affect racial tolerance as a whole. The South is particularly distinguished from non-South regions

in its means of production, politico-cultural institutions and other contemporary ramifications of historical impact on blacks (Wilson 1980). The same might be said about Asian history in the West. Regional variation effects on interpersonal interaction persist beyond the effects of exposure, equality and group size due to racial identification strength, group allegiance and solidarity (Brunsma 2005; Croll 2007; Hochschild and Weaver 2007). Racial salience is more influential than other variables, especially on intimate interracial relationship tolerance (Blum 1984; Heaton and Jacobson 2000; McPherson, Smith-Lovin and Cook 2001; Schwartz 1990).

Consistent with prior theory and empirical work, regions are coded into a dummy variable where the West, Midwest and Northeast are coded as 1, and the South is coded as the reference group. This makes sense for an analysis of the geographic dispersion of black-white biracials considering that 15 of the 16 states observing anti-miscegenation laws as late as 1967 were in the South.

Analytic Design

OLS regression is used to analyze these data once natural log transformations are performed on all variables except region[7]. Blau's final (1994) model logs all variables to correct for non-linearity and skewness to the right, help standardize the effects of different sized metropolitan areas in the sample and different test variable scales in the model, and circumvent the need for interaction terms.

Once transformations were completed, these data met regression assumptions (as shown in Chapter 2). A scatterplot of predicted values to observed values verifies clear linearity. A scatterplot of residuals to observed values indicates independence of the errors. A scatterplot of residuals to predicted values indicates homoscedasticity. A normal P-P plot of observed to

[7] As a dummy variable, region cannot be transformed because ln(0) is undefined.

expected values indicates normal distribution of errors. Some multicollinearity is typical of among structural parameters (Blau 1994). Similar to prior studies, bivariate correlations between explanatory variables are high but do not violate multicollinearity tests.

FINDINGS

The correlation matrix and descriptive statistics for 363 metropolitan areas in the continental US are shown in Table 5. The average percentage of blacks reporting black-white biracial identification (untransformed) across these cities is 11.5% with 8.7 standard deviations, up from 7.1%, with 6.9 standard deviations in 2000 (Butts 2008). Coeur d'Alene, Idaho and Bend, Oregon have percentages greater than 3 standard deviations (means of 37.6% or greater). Both cities are in the West where 19.7% of blacks claim black-white biracial identification, up from 12.8% in 2000 (Butts 2008). Nationally, 5.6% (up from 2.3%) of blacks in the South, 12.6% (up from 8.1%) in the Northeast and 13.7% (up from 8.8%) in the Midwest report biracial identification with whites.

Table 5. Correlations and Descriptive Statistics

Variable	(1)	(2)	(3)	(4)	(5)	(6)	Mean	Standard Deviation
(1) Log Black-White Identification	1.000	-	-	-	-	-	-2.503	0.911
(2) Log Black Exposure to Whites	0.655	1.000	-	-	-	-	3.967	0.403
(3) Log Racial Equality	-0.699	-0.365	1.000	-	-	-	-0.456	1.345
(4) Log Black Group Size	-0.894	-0.483	0.777	1.000	-	-	4.331	1.043
(5) Log Foreign-Born Blacks	0.525	0.187	-0.322	-0.524	1.000	-	-3.110	1.340
(6) Region ǂ	0.639	0.268	-0.291	-0.519	0.403	1.000	0.592	0.492
All correlations are significant at the 0.01 level (2-tailed).								
ǂ Reference region is South.								
N=363 MSAs.								

As shown in the first column of Table 5, all explanatory variables correlate fairly strongly with the percentage of blacks reporting black-white biracial identification. This preliminarily supports the central research question; similar macrostructural variables known to influence biracial marriage appear to, at least at the bivariate level, also vary with biracial identification.

Bivariate Regression Analysis

The bivariate relationship between biracial identification and each explanatory variable is displayed in the first column of Table 6. Black exposure to whites explains 42.9% of variation in the percentage of blacks claiming black-white biracial identification, racial equality explains 48.9% and black group size relative to whites explains 80.0%. Consistent with interracial relations theory and intermarriage empiricism, black exposure to whites is positively related to biracial identification; greater black exposure to whites increases the percentage of black biracial identification with whites. Also as expected, greater educational equality between blacks and whites decreases biracial identification. Lastly, group size is negatively related to biracial identification, just as the theory suggests. When black group size is small, biracial identification proportions are greater than when black group size is large relative to whites.

Table 6. Macrostructural Effects on Black Biracial Identification with Whites

Independent Variables	Standardized Bivariate Coefficient	Standardized Multivariate Coefficient
Log Black Exposure to Whites	0.655	0.293
Log Racial Equality	-0.699	-0.101
Log Black Group Size	-0.894	-0.514
Log Foreign-Born Blacks	0.525	0.073
Region ǂ	0.639	0.235
R^2	-	0.911
N	363	363

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.10 level (2-tailed).

ǂ Reference is South.

Both control variables are also statistically significant. The percentage of blacks foreign-born is positively related to black biracial identification with whites. Similar to findings on biracial marriage, blacks outside the South are more likely to claim black-white biracial identification. These bivariate results generally demonstrate stronger R^2 statistics and more

statistically significant results than interracial marriage studies, and similar results as Butts' (2008) black-white biracial identification model using data from the prior census.

Multiple Regression Analysis

The simultaneous regression of biracial identification on explanatory variables is shown in the last column of Table 6. All variables significantly contribute to biracial identification rates. The full model accounts for 91.1% of the variation in black biracial identification with whites.

The first hypothesis predicts that greater black exposure to whites elicits greater black-white identification. Blau considers the extent to which race is correlated with other demographic and lifestyle characteristics to be the most important variable in the theory and this is fully supported in this model. Exposure strongly performs as expected, even with the effects of educational equality, group size, foreign-born population, and geographic region parsed away. Institutional and interpersonal racism known to provoke defiance and rejection of a partially white heritage is minimized when blacks have more exposure to whites; greater exposure may inspire greater identification with both groups, perhaps signifying less social distance between races. Conversely, when black exposure to whites is limited, mono-racial black identification is more prevalent, conceivably due to intense geographic, social and cultural boundaries characteristic of segregated communities.

The second hypothesis predicts metropolitan areas with greater equality in education between blacks and whites have fewer blacks reporting biracial identification with whites. As expected, equality is negatively related to biracial identification. If blacks are represented in each educational attainment tier to the same degree as whites, same-race unions among blacks would be more likely because blacks would have greater exposure to other same-status blacks. But since blacks are underrepresented in higher socioeconomic tiers due to inequality, chances for

interracial contact on common ground is limited for all but the upwardly mobile. Along the same line of reasoning, it is not surprising that black-white equality in education decreases black-white biracial identification.

The third hypothesis predicts that members of smaller black groups are more likely to identify as half white. Consistent with biracial marriage studies where members of small racial groups are more likely to marry majority group members because same-race options are limited, biracial identification with whites is more prevalent when blacks make up a small proportion of the population relative to whites. Conclusively, the hypothesis that black group size is negatively related to black-white biracial identification is fully supported.

The percentage of blacks who are foreign-born is positively related to black biracial identification with whites. Cultural appreciation for diverse populations conceivably breeds biracial identification. Geographic region has an even stronger impact on the dependent variable. Southern blacks are over 40% less likely than blacks in other regions to report biracial identification with whites.

Summary

Extending Peter Blau's conceptualization of intergroup relations to also include interracial identification demonstrates methodological support for using biracial identification as an indication of social distance and also contributes to the collective understanding of the racial identification process. Indeed, 91.1% of the variation in black biracial identification with whites is attributable to exposure to whites, equality with whites in education, black group size relative to whites, black foreign-born representation and geographic region. Blacks are more likely to report biracial identification with whites the more black social circles intersect with that of whites because the more blacks and whites have in common, the less race matters. But with the

in-group being the default (per the theory), in this case mono-racial black identification, greater equality and larger black group sizes decreases the likelihood blacks report biracial identification because larger availability of same-status, same-race others naturally breeds in-group allegiance. Overall, the R^2 for the multivariate model, coupled with statistically significant results for all major postulates in the hypothesized directions, provides significant overall support for Blau's macrostructural theory.

CONCLUSION

This study borrows from Peter Blau's macrostructural theory on intergroup relations and subsequent empirical scholarship on interracial marriage to assess the effects of macrostructural variables on the likelihood of black Americans reporting biracial identification with whites in the 2010 US Census. By evaluating the extent social forces known to influence interracial marriage also influence interracial identification, this study contributes to both academic literature and policy.

The application of interracial marriage as a means of measuring structural influences on racial integration depends on assumptions about marriage that are not as valid today as they once were. Because of widespread cohabitation, partnerships not legally recognized as marriage, divorce and non-marital childbearing, this study seizes the opportunity to utilize newly established data on biracial *people*, rather than biracial *marriage*, as an alternative indicator of interracial relations. Conditions under which Blau's theory can be extended from interracial marriage to interracial people are confirmed.

This study demonstrates that structural parameters theoretically and empirically known to increase biracial marriage also increase biracial offspring, or at least the liberty and motive to identify as such. Whether greater biracial identification signifies greater biracial progeny, or

simply a greater freedom to express biracial heritage remains unknown (Harris 2002). The new race question on the 2000 US Census echoes the dynamic nature of race as an internalized choice reflecting external perceptions and conditions (Brown, Hitlin and Elder 2007; Hirschman et al. 2000; Hitlin, Brown and Elder 2007). As this study shows, macrostructural parameters have the power to accommodate or constrain this choice. Certainly other factors such as age, gender, networks, family structure, parent-gender/race nexus and political temperament affect both identity and identification. Additionally, racial identification changes over time, place and context (Brown et al. 2007; Saperstein 2006). However, the boundaries defining micro-social and macro-structural forces are blurred in the midst of implicitly contemplating identity and explicitly reporting identification, and no robust empirical approach to date has effectively captured this fluidity (Harris 2002). With such a socially constructed process perpetually in flux, self-identification is perhaps the only plausible race measure in contemporary society. Although identification may be developed within immediate social contexts, with cultural influences configuring the degree structural features constrain the choice, the environments where those social networks exist are governed by a macro-structural juggernaut. In fact, Blau repeatedly infers that social structure trumps cultural mediators. Furthermore, consistent empiricism supports the overriding effects of exposure, inequality and group size over cultural influences on interracial relations (Anderson and Saenz 1994; Blum 1985; Fitzpatrick and Hwang 1992; Rytina et al. 1988). Conclusively, theory and empiricism agree that cultural effects on biracial identification only wax and wane to the degree structural forces permit.

Nonetheless, a socio-cultural complement may be necessary to shed light on the micro-level manifestations of increased interracial contact on identity construction, despite the advantage a structural approach offers in quantifying factors affecting biracial identification.

With macro-level data, it is difficult to conclude whether greater interracial contact results in greater rejection of one or both races, greater identification with one or both races, or simply more interracial intimacy-- each increasing biracial identification prevalence. Because this study assumes biracial identification embraces, rather than rejects, both races – thereby indicating a closing gap in social distance, future studies might incorporate micro-level data with macro-structural trends to better understand the internal and external processes taking place within the environments most conducive to biracial identification.

This highlights a notable feedback loop guiding Blau's work. As the minority group size increases, majority group discrimination also increases and the gap between proportions of blacks who marry whites, and proportions of whites who marry blacks, narrows. As discrimination toward the minority increases, the discrepancy between those claiming a black-white biracial identification as a percentage of total blacks, and those claiming a black-white biracial identification as a percentage of total whites also closes. More biracial individuals identify as single-race black due to oppositional responses to discrimination as well as white perceptions and treatment projections onto the self. Both are bound to intensify as whites are increasingly exposed to a growing black minority. At the same time, blacks have less exposure to whites due to self-sustaining community size, increased discrimination, white-flight, etc. In this way it becomes understandable how relative group proportions can affect (and be affected by) residential exposure, racial equality and minority group size, as moderated by varying degrees of discrimination. These factors reciprocally influence the social distance between blacks and whites exemplified by the choice for biracial identification. Considering most blacks are a reputed product of racial amalgamation (Davis 1991; Lee and Bean 2004; Spencer 1997), recognizing and understanding how structural parameters influence biracial identification *over*

time is of cultural and macrostructural import.

Increasing profusion of biracial unions and offspring interactively decreases racial salience and encourages biracial identification. This relationship between prevalence and possibility makes speculation on the direction of causation impossible. However, using biracial identification to evaluate the degree structural features impact social distance is the purpose of this study. Investigating the structural parameters influencing choices to break hypodescent norms allows for a better understanding, albeit indirectly, of macro-social constraints rejecting partial white heritage.

Blau's work effectively hypothesizes that black penetration into white society increases interracial marriage; however, the latter is more than just a numerical product of the former. When degree is intimate and temper is affable, "high rates of intermarriage are considered to be indicative of social integration because they reveal intimate and profound relations between members of different groups and strata are – more or less – socially acceptable" (Blau et al. 1984:591). Blau stresses interracial marriage is more likely for minorities due to demographic consolidation (i.e., the extent race is correlated with several other characteristics at once), inequality and group size. Furthermore, the greater the discrepancy between minority and majority proportions, the greater the gap between each group's interracial marriage incidence because such intimacies encounter more resistance by the larger group where such occurrences are less prevalent. Exogamy and biracial identification are not necessarily conceptualized as black assimilation into white society, but rather a mutual endorsement of imploding structural and cultural boundaries synergistically enhancing mobility and diversity to the benefit of all.

Many empirical studies have tested various aspects of Blau's theory on interracial relations. However, no study has applied work on biracial marriage to biracial identification. By

extending Blau's intersection-interaction-intermarriage-interdependence link to also include 'interracial identification', this study demonstrates advantages of employing biracial identification as a precise social distance indicator between blacks and whites.

Presumably, biracial identification prevalence is both the result if interracial unions and a willingness to report recent multiracial heritage (Lee and Bean 2007b; Perlmann and Waters 2002). As mentioned, other studies find biracial blacks to be the least likely biracial group to report biracial identification. Although boundaries for membership in the white race appear to be shifting in some areas, those with recent black heritage continue to be socially restrained from participating in this phenomenon-- despite their eligibility to do so (Loveman and Muniz 2007). Whereas biracial individuals identifying as such demonstrate some degree of boundary-crossing, black-white biracial individuals may be more restricted from partaking in this type of mobility than other biracial individuals because social and structural constraints continue to prohibit blacks from transcending black categorization. These trends potentially sustain the increasing assertions that a black/non-black dichotomy best describes the state of race in the US (Brunsma 2005; Fischer 2003; Gans 2007; Hochschild and Weaver 2007; Lee and Bean 2007a). Whereas some racial groups have been able to pierce, or at least budge symbolic racial boundaries, biracial black mobility continues to be retarded by macro-structural and cultural influences. Future analyses might compare biracial blacks to non-black biracial individuals on the degree social mobility characteristics beyond phenotypic eligibility are inherited.

Blau does not stipulate how his theory might affect different racial groups differently because his theory examines the dynamics affecting intergroup relations in general, and these could be on the basis of religion, social class, race, etc. It is largely empiricists testing his theory, including Blau himself at times, that use 'race' to define 'group'. These studies either examine

relationships between blacks and whites, Asians and whites or Hispanics and whites. With the relationship between blacks and whites confirmed, further study is warranted contrasting the applicability of Blau's theory to other biracial groups.

CHAPTER 4: STRUCTURAL DETERMINANTS OF ASIAN BIRACIAL IDENTIFICATION WITH WHITES

This study borrows from Peter Blau's opportunity-structure theory and interracial marriage empirical scholarship to assess the effects of macrostructural variables on the likelihood of Asian Americans reporting biracial identification with whites in the 2010 US Census. To evaluate whether social forces known to influence interracial marriage also influence biracial identification, macrostructural parameters across 363 metropolitan areas were examined. Residential segregation, racial equality and minority group size were found to affect the likelihood Asians report biracial identification with whites over single-race Asian identification in much the same way these macrostructural variables affect the likelihood of interracial marriage in other studies.

INTRODUCTION

The 2000 US Census allowed respondents to describe themselves with more than one race for the first time. Approximately 6.8 million chose this option. This figure grew by 32.0% (to 9.0 million) by 2010, despite a total American population increase of only 9.7%. Among 42.0 million blacks (13.6% of the American population), over 1.8 million, or 4.4% of the total black population, identified as half white. Although doubled from 2.2% in 2000, this figure (i.e., 4.4%) is much smaller than what would be expected due to chance with the ratio of blacks to whites at .182. In contrast, the ratio of Asians to whites is .075, yet 9.4% of the total Asian American population, or over 1.6 million of the 17.3 million Asians in America, identified as half white. Blacks are 2.4 times the size of the Asian American population but nearly the same number from each group identified as half white (1.8 million and 1.6 million, respectively) on the 2010

Census. Responses to the census race question confirm that racial identification is indeed a choice (Harris and Sim 2002; Hirschman 2004; Masuoka 2011). Now the question becomes which factors influence that choice and why.

One factor influencing the racial identification choice is often overlooked: racial identity (Brunsma 2006). Identity is based on one's self-understanding through lived experience (Rockquemore and Brunsma 2008). Because it is an internalized process perpetually in flux, it may not match forced-choice classifications on institutional forms (Hirschman, Alba and Farley 2000; Hitlin, Brown and Elder 2006; Saperstein 2006). Nonetheless, empiricists rely on racial identification when research depends on quantitative analysis of significant sample size across multiple racial groups and geographies (Brown, Hitlin and Elder 2006; Renn 2008).

There is considerable geographic variation in the proportion of racial minorities that identify as biracial (Farley 2002; Hoeffel et al. 2012). Drastic variation in the 2010 Census ranges from 4.5% in New York City to 35.4% in Coeur d'Alene among biracial Asians identified as half white for example. Ironically, greater biracial populations skew toward areas where minorities represent a relatively small proportion of the population (Butts 2008). This and other distinctions across metropolitan areas suggests underlying structural differences affecting the likelihood of biracial identification. Borrowing from prior theoretical and empirical scholarship on mixed-race marriage, this study explores how urban structural factors affecting intergroup relations impact the likelihood Asians report biracial identification with whites.

STRUCTURAL FACTORS AFFECTING INTERGROUP RELATIONS

Intergroup relations are often investigated through the lens of exchange (Fu and Heaton 2000; Kalmijn 1998; Lichter and Qian 2005; Qian 1997, 1999; Sassler and Joyner 2011), assimilation (Hwang, Saenz and Aguirre 1994; Kalmijn 1998; Qian 1999; Qian, Glick and

Batson 2012) or opportunity-structure perspectives (Heaton and Jacobson 2000; Hwang et al. 1994; Kalmijn 1998; Kalmijn and Van Tubergen 2010; Qian 1999; Tucker and Mitchell-Kernan 1990). Peter Blau's macrostructural theory develops the opportunity-structure perspective (Blau 1977, 1994). This perspective rests on Simmel's (1908) notion of 'over-lapping social circles' in which each social circle is based on a demographic or lifestyle characteristic. The characteristic that is most salient is the social circle in which the person feels the most belonging and therefore becomes their core *group*. People generally prefer to interact with members of their own group. However, Simmel argues that meaningful social relationships can happen between people from different groups if they are similar in many other ways (that is, if their other social circles intersect). These shared commonalities become the grounds on which social relationships can be formed in spite of belonging to different groups. For example, Asian American preference for a similar status spouses often trump preferences for same race spouses (Fu and Heaton 2000; Kalmijn 1993; Qian 1997; Zhang and Vanhook 2009). Blau adds to Simmel's concept by arguing that various structural factors hinder opportunities to fulfill in-group preferences, making intergroup relations more likely under certain conditions.

Blau assumes the probability of intergroup relations depends on two key factors. First and most importantly, the number of characteristics in common between members of two different groups affects the likelihood of relationship development. The more characteristics in common, the less the one unshared characteristic matters. Second, the numerical availability of in-group associates that share other characteristics affects the likelihood of intergroup relations. When there are less in-group individuals of similar status on other characteristics, there are proportionately more out-group individuals of otherwise similar status.

A third element, group size, plays a role within each of these two key factors. Rapidly

growing minority groups tend to be geographically and socially segregated (Blalock 1967; Castles and Miller 2003; Massey and Denton 1993; Waters 1999; Wilson 1980). These groups become homogenous and delineated, limiting contact and the extent any characteristics are shared with the out-group (Blau 1980; Castles and Miller 2003; Qian et al. 2012; Sassen 2001, 2006; Waters 1999). In contrast, equality creates conditions that provide adequately sized in-group relationship opportunities with members of similar status unless the minority group is small. In both cases, the theory maintains that intergroup relations are more likely among members of small groups.

Blau's macrostructural theory of intergroup relations can utilize most any demographic variable to delineate groups (e.g., religion, class, age). In the 21st century US, the theory clearly lends itself to race as a salient characteristic defining in-group and out-group. The theory has been used to explain the probability of several different types of interracial relations including interracial contact, conflict, and marriage. Postulates tested include those centered on demographic consolidation (i.e., the extent race is correlated with several other characteristics at once), inequality, and group size.

Demographic Consolidation

The theory contends that relations can happen between members of different races if most of their other social circles intersect. Race, however, tends to have correlations with many other characteristics, thereby inhibiting the chances that members of two racial groups share the social circles on which these characteristics are formed. Heightened racial salience, intolerance of dissimilar others and antagonistic allegiance in opposition to institutional and interpersonal racism has a way of consolidating socio-demographic characteristics and homogenizing the minority group (Blau 1980; Castles and Miller 2003; Qian et al. 2012; Sassen 2001, 2006;

Waters 1999). Under these conditions, interracial relations is less likely because social circles for members of different racial groups do not often intersect.

Residential segregation best operationalizes this concept (Anderson and Saenz 1994; Kalmijn 1998; Kalmijn and Van Tubergen 2010). Segregation limits the number of similarities between racial groups because geographical confinement also creates cultural and social barriers by consolidating characteristics that would otherwise vary (e.g., employment opportunities, healthcare access, religious denomination attendance). That is, residential segregation has a way of completely segregating two racial groups in a multitude of ways beyond simply separating domiciles (Massey and Denton 1993; Qian et al. 2012). The effect is especially compounded in cities where the minority group is numerically large enough to pose a threat to the majority group (Blalock 1967; Massey and Denton 1993; Waters 1999; Wilson 1980).

When segregation limits minority social operations to immediate neighborhoods, quality contact with the majority group is rare (Fitzpatrick and Hwang 1992). Without regular opportunities for contact, commonalities or interpersonal respect, interracial relations is arguably less likely (Blau 1994). But when race is less correlated with the distribution of other socio-demographic characteristics, the minority group is more exposed to the majority group on common ground and interracial relations is consistently found to be more likely (Anderson and Saenz 1994; Blau 1994; Blau, Beeker and Fitzpatrick 1984; Blau and Schwartz 1984; Blum 1984, 1985; Fitzpatrick and Hwang 1992; Heaton and Jacobson 2000; Lichter 2013; Qian 1999; Qian et al. 2012; Skvoretz 1990).

Inequality

The theory assumes people prefer to interact with members of their own racial group so long as they are similar in most other ways (Blau 1977; Simmel 1908; see also Kalmijn and Van

Tubergen 2010). However, Blau's contribution rests on the premise that there are certain conditions limiting the availability of same-race associates who also share other characteristics. The likelihood of interracial relations is increased when the proportion of same-status, different-race options is larger than the proportion of same-status, same-race suitors.

The effect of one's status, or station in life, is often operationalized through inequality measurements because relationships depend on commonalities forged on the basis of equality (Blau 1977; Lichter 2013; Zhang and Vanhook 2009). Blau (1977) defines inequality as the relative difference between two groups on an interval-measured variable. The theory implies preference for education (over income or socioeconomic status indicators such as SEI) for this role. Rytina et al. (1988) statistically confirm that education is the most suitable inequality measure for use in this theory, arguing the volatility of income cannot compete with the more stable status associated with education.

The relative difference between racial groups on educational attainment affects interracial relations in different ways. On the one hand, as more minorities have access to higher education, the salience of race is reduced (Blau 1977, 1994; Broman, Neighbors and Jackson 1998; Croll 2007; Kalmijn 1993; Qian et al. 2012). Shared non-race characteristics and interests become more interpersonally relevant, making interracial relationships more likely (Blum 1984; Fu and Heaton 2000; Gans 2007; Harris 2002; Heaton and Jacobson 2000; Kalmijn 1993; Kalmijn and Van Tubergen 2010; Lichter 2013; McPherson et al. 2001; Qian 1997, 1999) and more sustainable (Zhang and Vanhook 2009). On the other hand, increased upward mobility puts greater proportions of minorities in higher wrung positions and, assuming the minority group size is adequate, increases the pool of same-status, same-race availability (Blau 1977, 1994). As such, decreasing racial inequality at the macro level actually decreases interracial relation

likelihood despite decreased social distance between groups at the interpersonal level (Blau 1994; Blau et al. 1984; Blau et al. 1982; Rytina et al. 1988).

Group Size

The theory concludes that interracial relations are more likely among members of groups that are numerically small relative to the majority group because numerically limited in-group options make out-group options statistically more probable. The effect is particularly apparent in race applications because smaller racial groups tend to be more heterogeneous and therefore are more distributed across various social dimensions than larger racial groups.

Because smaller racial groups are more likely to share multiple non-race characteristics, interests and activities in common venues with members of other racial groups, interracial relations are more likely (Blau 1977, 1994; Blau and Schwartz 1984; Frey and Farley 1996; Fu and Heaton 2000; Heaton and Jacobson 2000; Hwang et al. 1994; Kalmijn and Van Tubergen 2010; Qian 1999). Furthermore, minorities from smaller racial groups who break away from the norm for their group are more likely to intermarry because the selection pool of same-status, same-race suitors is numerically limited (Blau 1994; Heaton and Jacobson 2000; Kalmijn 1998; Kalmijn and Van Tubergen 2010; Qian et al. 2012; St. John and Clymer 2000). That is, small groups are an exception to the argument that increasing equality decreases interracial relations.

Structural factors such as demographic consolidation, inequality and group size have repeatedly been shown to affect the likelihood of relations with different-race others. Most tests have focused on interracial marriage in particular due to the availability of large-scale, quantitative data of sufficient sample size (Blau 1994). Indeed, over 13% of today's legal marriages are interracial (Lee and Bean 2007b). "Marriage is undoubtedly the most profound and lasting human relation of all those voluntarily established" (Blau et al. 1984:591). This implies

interracial marriage is more suitable than other forms of contact for measuring structural influences on racial integration because of its durability and longevity.

Contemporary American society, however, is characterized by widespread cohabitation, partnerships not legally recognized as marriage, divorce and non-marital childbearing. Interracial couples are more likely to cohabitate than marry (Kalmijn 1993; Lichter and Qian 2005; Qian et al. 2012), more likely to divorce (Zhang and Van Hook 2009) and more likely to produce children out of wedlock (Kalmijn 1993), than same-race couples. Although intermarriage incidence has commonly been used to indicate social distance (Fu and Heaton 2000; Kalmijn 1998; Kalmijn and Van Tubergen 2010; Lee and Bean 2004; Lichter and Qian 2005; Qian et al. 2012; Suro 1999; Zhang and Vanhook 2009), its footing as a preferred racial integration indicator is becoming less steady (Brunsma 2005).

The flexibility of the new census race question more accurately tallies variations in racial groups than ever before. This gives demographers the opportunity to utilize data on biracial *people*, rather than biracial *marriage*, as an emerging social distance indicator (Bean and Stevens 2003; Bratter 2007; Lee and Bean 2004). In the same way interracial marriage has reflected racial integration in the past, biracial identification may represent a more salient indicator of integration in today's society (Kalmijn 1993).

FACTORS AFFECTING INTERRACIAL IDENTIFICATION

Considerable quantitative advancements have been made in recent years identifying various determinants of multiracial identification. These studies examine the influence of sociodemographic and social psychological factors and contexts on individual-level units of analysis. Educational attainment generally encourages multiracial identification (Brunsma 2005; Croll 2007; Masuoka 2011; Roth 2005; Tafoya et al. 2005) with exception (Bratter 2007;

Hochschild and Weaver 2007). Immigrant status tends to discourage multiracial identification (Bean and Stevens 2003; Masuoka 2011; Roth 2005; Tafoya et al. 2005). Whereas contextual factors such as discrimination and segregation discourage multiracial identification (Brunsma 2005; Harris 2002; Hochschild and Weaver 2007; Masuoka 2011; Tafoya 2002; Tafoya et al. 2005), neighborhood diversity encourages multiracial identification (Bratter 2007; Croll 2007; Harris 2002; Masuoka 2011; Tafoya et al. 2005). Trends vary by region (Bean and Stevens 2003; Croll 2007; Harris and Sim 2002; Masuoka 2011; Rockquemore and Brunsma 2008; Roth 2005) and racial group (Bratter 2007; Campbell 2007; Masuoka 2011; Roth 2005).

Much like empiricism on biracial marriage and other forms of interracial relations, biracial identification empiricism gravitates toward the black-white divide. Methodological convenience aside, blacks and whites are important groups to study together for many reasons. For example, biracial blacks are more likely to share heritage with whites than any other racial group (see Table 1) despite being more socially, culturally and spatially distant than any other racial pairing (Bean and Stevens 2003; Bratter 2007; Gans 2007; Lee and Bean 2004, 2007a, 2007b; Lichter and Qian 2005; Massey and Denton 1993; Qian 1997, 1999).

Also intriguing, however, is the fact that nearly as many Asians as blacks identified as half white on the 2010 census (1.6 million and 1.8 million, respectively) despite the fact that the total Asian American population is 2.4 times less in number than the total black population. Given the ratio of blacks to whites, chance would expect as many as 18.2% of the total black population to be half white, yet only 4.4% of the black population identified as such. But given the ratio of Asians to whites, chance would expect only 7.5% of the total Asian American population to be half white, yet as many as 9.4% identified as such. In other words, blacks identify as half white 75% less than would be expected due to chance, while Asians identify as

half white 25% *more* than would be expected due to chance. Indeed, the racial identity process is different for Asians who are half white than for blacks who are half white (Lou, Lalonde and Wilson 2011; Roth 2005; Wilton, Sanchez and Garcia 2013). But knowing that biracial identification is affected by the current racial climate and its effects, the degree to which structural factors affect Asians differently than blacks has important policy implications.

Although very different from that experienced by blacks, Asians are subjected to much more racism, prejudice and discrimination than is commonly acknowledged (Alvarez, Juang and Liang 2006; JACL 2008; Song 2003). "Indeed, the perceptions of Asian Americans as 'foreigners' who present an economic, educational or cultural threat may elicit racial dynamics that are quite distinct from the experiences of African Americans" (Alvarez et al. 2006:478). Whereas blacks have endured involuntary immigration, slavery, oppression reproduced over generations, more intense and widespread segregation and denial of identity validation by hypodescent standards, Asians have been subjected to internment camps, property seizures, patriotic loyalty and citizenship interrogation, mainstream media ridicule (as seems to be customary with each new immigrant group) and a more recent history of overt anti-racial group legislation (Lou et al. 2011; Song 2003). Compared to blacks, today's Asians face more employment discrimination and issues voting, and lack political representation, despite the guise of the 'model minority' myth (JACL 2008). Asians do however have the greatest rates of homeownership, median income, marriage stability, educational attainment, and what I'll call 'inter-neighboring' with whites than any other racial minority (Xie and Goyette 2004; Zhang and Vanhook 2009; Zubrinsky and Bobo 1996).

Race itself doesn't hinder interracial relations; it is the geographical and structural boundaries we create that do (Park and Burgess 1921). Indeed, Zubrinsky and Bobo (1996) find

Asian segregation caused by racial discrimination, not by income or balkanization. Segregation is more common among large minority groups (Park and Burgess 1921) and minority groups with recent active immigration flow (Castles and Miller 2003). Although Asians are growing faster than blacks due to immigration (Edmonston, Lee and Passel 2002) and are the fastest growing racial group in the US (Hoeffel et al. 2012), Asians are the least segregated racial minority while blacks are the most (Farley 2011; Zubrinsky and Bobo 1996). This is despite declines in black segregation and no change in Asian segregation (Farley 2011).

Given these high-stake implications, it is surprising there is uncharted opportunity for analyzing differences in the effects of macrostructural contexts on each of these groups. Biracial marriage rates and biracial identification rates are both indicative of social distance between races (Bean and Stevens 2003; Bratter 2007; Butts 2008, 2009; Fu and Heaton 2000; Kalmijn 1998; Kalmijn and Van Tubergen 2010; Lee and Bean 2004; Lichter and Qian 2005; Qian et al. 2012; Suro 1999; Zhang and Vanhook 2009). However, biracial identification is potentially a more salient indicator of integration than biracial marriage in today's society (Butts 2008; Kalmijn 1993). Therefore, this study applies concepts drawn from Blau's macrostructural theory on biracial marriage to understand how structural factors affect Asian-white biracial identification differently than black-white biracial identification tested in the previous chapter.

HYPOTHESES

In summary, the theory assumes that smaller groups experience less discrimination and inequality and proposes two key postulates. First, cities with less discrimination facilitate opportunities for healthy interracial exposure. Second, cities with less inequality increase social mobility for minorities. This decreases racial salience and helps to close the social distance gap between racial groups. However, increased upward mobility puts greater proportions of

minorities in higher wrung positions and, assuming adequate group size, actually increases the pool of same-status, same-race marriage partner options, facilitating healthy interracial exposure but increasing the likelihood of same-race intimate relations.

Factors facilitating interracial marriage may also encourage interracial identification. This feedback loop supports testing the aptness of biracial identification in demonstrating the effect of structural parameters on social distances between racial groups. It is hypothesized that the same parameters influencing interracial marriage also influence interracial identification. Hence,

H_1. The more social circles between Asians and whites intersect, the greater the likelihood Asians will report biracial identification with whites.

H_2. The greater the educational equality between Asians and whites, the greater the likelihood Asians will report mono-racial Asian identification.

H_3. The smaller the Asian group size relative to whites, the greater the likelihood Asians will report biracial identification with whites.

DATA & METHODS

Social structure is embodied by multi-dimensional social arrangements between proximal groups (Blau 1994). Kalmijn and Van Tubergen (2010) recommend measuring social structure using geographical units more magnified than the state-level. In the US, diverse populations living in close proximity characterize urban centers (McPherson et al. 2001). Metropolitan areas have been the primary pallet for interracial contact since the antebellum period (Wilson 1980). Therefore, metropolitan areas including metropolitan statistical areas (MSAs) and metropolitan New England city and town areas (NECTAs) are the natural units of analysis for measuring interracial contact and, conceivably, interracial identification. There are 363 metropolitan areas in the continental US. All are used in this analysis.

Dependent Variable

For the first time in US history, the 2000 Census allowed residents to mark more than one choice and this policy was continued in 2010. The 2010 US Census race question offers several categories: White; Black, African American, or Negro; American Indian or Alaska Native; Asian; Native Hawaiian and Other Pacific Islander; and 'Some Other Race'. For each city, the proportion of all Asian Americans identifying as half white is calculated using data reported in Census Summary File 1. Although the ratio of Asians to whites is .075, as many as 9.4% of Asians claim biracial identification with whites. Metropolitan areas range from 4.5% claiming Asian-white identification in New York City (where Asians represent 10.9% of the population) to 35.4% in Coeur d'Alene, Idaho (where Asians represent 1.3% of the population).

Independent Variables

Several structural variables are hypothesized to explain the variance in biracial identification prevalence across geographies. These include interracial exposure (i.e., the opposite of the demographic consolidation characteristic of racial segregation), racial equality (i.e., the opposite of inequality), and Asian group size relative to whites.

Exposure. Racial segregation stifles the extent to which demographic and lifestyle characteristics are free to vary. This homogenization of characteristics, coupled with geographic, cultural and social delineation from the rest of society, limits Asian exposure to whites in some areas. Inter-neighboring, on the other hand, influences opportunities for interracial interaction (Marsden 1990; Peach 1996; St. John and Clymer 2000), interracial marriage (Anderson and Saenz 1994; Blau et al. 1984; Blau and Schwartz 1984; Blum 1984, 1985; Fitzpatrick and Hwang 1992; Heaton and Jacobson 2000; Lichter 2013; Qian 1999; Qian et al. 2012) and biracial identification (Tafoya 2002; Xie and Goyette 1997).

Exposure of one racial group to another is measured by the exposure index (Population Studies Center 2013). This index measures the probability of interaction between Asians and whites by taking the average percentage of an area that is white, within the neighborhood (i.e., census tract) of an Asian American. The exposure index for each metropolitan area can theoretically range from 0 (indicating no exposure between Asians and whites), to a number equal to the proportion of the population that is white in a city with only one Asian American. An exposure score calculated from 2010 census data for each metropolitan area is available from the University of Michigan Population Studies Center. Asian exposure to whites ranges from 5.7 in Laredo, Texas to 95.4 in Altoona, Pennsylvania.

Equality. Equality in college education has consistently been shown to influence interracial marriage (Heaton and Jacobson 2000; Kalmijn 1998; Lichter 2013; Qian 1997, 1999; Qian et al. 2012) and could therefore affect interracial identification in a similar manner. For each metropolitan area in the 2007-2011 ACS, chi-square is calculated for the relationship between race and education by dividing the raw chi-square term by the maximum chi-square value (and then multiplying by 100). Because chi-square indicates the extent census frequencies deviate from what would be expected if race and education were independent, higher scores indicate greater deviation from independence between race and education, implying educational attainment is more dependent upon race. The calculated expression is subtracted from 100 to reverse the scale such that higher scores indicate greater educational parity (i.e., education is less dependent on race) between Asians and whites. Scores range from 0.02 in Anderson, Indiana, where Asians and whites are divided by education, to 5.35 in Columbus, Indiana, where Asians and whites are more proportionately represented in each educational attainment category.

Group Size. Blau's theory assumes relative group size affects both exposure and equality

(Blau 1977, 1994; Blau and Schwartz 1984). Because it is assumed, Blau doesn't explicitly test group size alongside the two key theorems (i.e., consolidation/exposure and inequality/equality) in his final (1994) model. However, most empirical tests of Blau's theory not only control group size, but consider it a key theorem (Anderson and Saenz 1994; Butts 2008; Fitzpatrick and Hwang 1992; Heaton and Jacobson 2000; Qian 1999). Indeed, group size is often the strongest of all variables in tests of structural influences on interracial marriage (Kalmijn and Van Tubergen 2010). Relative group size is measured by the number of Asians per thousand single-race whites. Data for this calculation is available for each metropolitan area in Census Summary File 1. The ratio of Asians to 1,000 whites ranges from 106.0 in San Jose-Sunnyvale-Santa Clara, California to 80,729.1 in Rocky Mount, North Carolina.

Controls. Other variables isolate structural features borrowed from Blau's theory and subsequent empirical tests. These include the percentage of the Asian population foreign-born and geographic region.

The percentage of the Asian population foreign-born is controlled because areas with larger foreign-born populations tend to have more interracial marriage (Blau 1994; Lee and Bean 2004) and larger biracial populations (Bean and Stevens 2003; Lee and Bean 2004; Masuoka 2011; Roth 2005). This is because immigrant presence can enhance diversity tolerance (Lee and Bean 2004). Though areas with greater Asian immigration rates may have greater interracial marriage rates, the foreign-born Asians themselves are actually less likely to intermarry than their American-born counterparts (Lee and Fernandez 1998; Lichter and Qian 2005; Qian 1999; Hwang et al. 1994). For example, those who immigrate in pursuit of higher education often arrive with focal families (Castles and Miller 2003). And there are presumably some language barriers. Additionally, foreign-born racial minorities immigrate to the US with different

understandings of the racial categories and what it means to be a racial minority than American-born minorities and second-generation immigrants of color (Masuoka 2011; Tafoya et al. 2005; Waters 1999). Indeed, immigrant status tends to discourage multiracial identification (Bean and Stevens 2003; Masuoka 2011; Roth 2005; Tafoya et al. 2005). And because immigration is related to inequality, a key parameter in macrostructural theory, it must be isolated (Blau 1977, 1994). Five-year estimates of the number of foreign-born Asians are available from the 2007-2011 ACS Table B16005, A-I. This measure is calculated as the proportion of total single-race Asians that are foreign-born, and ranges from 46.3% in Idaho Falls, Idaho to 91.3% in Anderson, Indiana.

Regional variations also shape interracial relations and may which particular demographic variable is most salient in choosing a spouse or racial identification, as well as affect racial tolerance as a whole. Regional variation effects on interaction can persist beyond the effects of exposure, equality and group size due to racial identification strength, group allegiance and solidarity (Brunsma 2005; Croll 2007; Hochschild and Weaver 2007). Racial salience is more influential than other variables, especially on interracial relationship tolerance (Blum 1984; Heaton and Jacobson 2000; McPherson et al. 2001; Schwartz 1990).

A history of Asian discrimination in the United States is situated in the West (JACL 2008; Kitano et al. 1984). Consistent with prior theory and empirical work, regions are coded into a dummy variable where the South, Midwest and Northeast are coded as 1, and the West is coded as the reference group.

Analytic Design

Blau's final (1994) model logs all variables to correct for non-linearity and skewness to the right, help standardize the effect of different sized metropolitan areas in the sample and

different test variable scales in the model and circumvent the need for interaction terms. Once natural log transformations are performed on all variables except region[8], these data met regression assumptions (as shown in Chapter 2). A scatterplot of predicted values to observed values verifies clear linearity. A scatterplot of residuals to observed values indicates independence of the errors. A scatterplot of residuals to predicted values indicates homoscedasticity. A normal P-P plot of observed to expected values indicates normal distribution of errors. Some multicollinearity is typical of among structural parameters (Blau 1994). Similar to prior studies, bivariate correlations between explanatory variables are high but do not violate multicollinearity tests. OLS regression was then used to analyze these data.

FINDINGS

The average percentage (untransformed) of Asians reporting Asian-white biracial identification across 363 metropolitan areas is 15.4% with 0.06 standard deviations. Bend, Oregon and Coeur d'Alene, Idaho have percentages 3 standard deviations or greater (means of 33.0% or greater). Both cities are in the West where 19.4% of Asians claim Asian-white biracial identification. Nationally, 14.1% of Asians in the South, 13.2% in the Northeast and 15.3% in the Midwest report biracial identification with whites.

The correlation matrix and descriptive statistics for 363 metropolitan areas in the continental US is shown in Table 7. As shown in the first column, all explanatory variables correlate fairly strongly with the percentage of Asians reporting Asian-white biracial identification. This preliminarily supports the central research question; macrostructural variables influencing biracial marriage also influence biracial identification.

[8] As a dummy variable, region cannot be transformed because ln(0) is undefined.

Table 7. Correlations and Descriptive Statistics

Variable	(1)	(2)	(3)	(4)	(5)	(6)	Mean	Standard Deviation
(1) Log Asian-White Identification	1.000	-	-	-	-	-	-1.943	0.393
(2) Log Asian Exposure to Whites	0.385**	1.000	-	-	-	-	4.221	0.307
(3) Log Racial Equality	-0.550**	-0.190**	1.000	-	-	-	-0.448	0.916
(4) Log Asian Group Size	-0.545**	-0.457**	0.487**	1.000	-	-	3.420	0.802
(5) Log Foreign-Born Asians	-0.158**	0.102	0.119*	-0.151**	1.000	-	-0.332	0.108
(6) Region ǂ	-0.291**	0.226**	0.101	-0.315**	0.495**	1.000	0.790	0.409

*Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).

ǂ Reference region is West.

N=363 MSAs.

Bivariate Regression Analysis

The bivariate relationship between biracial identification and each explanatory variable is displayed in the first column of Table 8. Asian exposure to whites explains 14.8% of variation in the percentage of Asians claiming Asian-white biracial identification, racial equality explains 30.3% and Asian group size relative to whites explains 29.8%. Consistent with interracial relations theory, Asian exposure to whites is positively related to biracial identification; greater Asian exposure to whites increases the percentage of Asian biracial identification with whites. Also as expected, greater educational equality between Asians and whites decreases biracial identification. Lastly, group size is negatively related to biracial identification, just as the theory suggests. When the Asian group size is small, biracial identification proportions are greater than when the Asian group size is large relative to whites.

Both control variables are also statistically significant. Unlike the case with blacks, the percentage of Asians foreign-born is negatively related to Asian biracial identification with whites. Asians in the West are more likely to claim Asian-white biracial identification.

Multiple Regression Analysis

The simultaneous regression of biracial identification on explanatory variables is shown

in the last column of Table 8. All variables significantly contribute to biracial identification rates except the multivariate foreign-born coefficient. The full model accounts for 61.1% of the variation in Asian biracial identification with whites.

The first hypothesis predicts that greater Asian exposure to whites elicits greater Asian-white identification. Exposure strongly performs as expected, even with the effects of equality, group size and control variables parsed away. A partial white heritage flourishes when Asians have more exposure to whites; greater exposure may inspire greater identification with both groups, perhaps signifying less social distance between races. Conversely, when Asian exposure to whites is limited, mono-racial Asian identification is more prevalent, conceivably due to geographic, social and cultural boundaries characteristic of segregated communities.

The second hypothesis predicts metropolitan areas with greater equality in education between Asians and whites have fewer Asians reporting biracial identification with whites. As expected, equality is negatively related to biracial identification, though the effect is small. When Asians are proportionately represented in each educational attainment tier, same-race unions among Asians are more likely because of the availability of same-race, same-status suitors.

Table 8. Macrostructural Effects on Asian Biracial Identification with Whites

Independent Variables	Standardized Bivariate Coefficient	Standardized Multivariate Coefficient
Log Asian Exposure to Whites	0.385	0.229
Log Racial Equality	-0.550	-0.226
Log Asian Group Size	-0.545	-0.479
Log Foreign-Born Asians	-0.158	0.008
Region ǂ	-0.291	-0.476
R^2	-	0.611
N	363	363

All coefficients are significant at the 0.01 level (2-tailed) except the multivariate foreign-born coefficient.

ǂ Reference is West.

Along the same line of reasoning, it is not surprising that increasing Asian equality with whites decreases Asian-white biracial identification.

The third hypothesis predicts that members of smaller Asian groups are more likely to identify as half white. Consistent with biracial marriage studies where members of small racial minority groups are more likely to marry majority group members due to limited same-race options, biracial identification with whites is more prevalent when Asians make up a small proportion of the population relative to whites. Conclusively, the hypothesis that Asian group size is negatively related to Asian-white biracial identification is fully supported.

The percentage of Asians who are foreign-born is not related to Asian biracial identification with whites at a statistically significant level. Geographic region, however, has a relatively strong impact on the dependent variable. Western Asians are over 45% more likely than Asians in all other regions to report biracial identification with whites.

Summary

Extending Peter Blau's conceptualization of intergroup relations to also include interracial identification demonstrates methodological support for using biracial identification as an indicator of social distance and also contributes to the collective understanding of the racial identification process. Indeed, 61.1% of the variation in Asian biracial identification with whites is attributable to exposure to whites, equality with whites in educational attainment, Asian group size relative to whites and geographic region. Asians are more likely to report biracial identification with whites the more Asian social circles intersect with that of whites because the more Asians and whites have in common, the less race matters. But with the in-group being the default (per the theory), in this case mono-racial Asian identification, greater equality and larger Asian group sizes decreases the likelihood Asians report biracial identification because larger

availability of same-status, same-race others naturally breeds in-group allegiance. The R^2 for the multivariate model, coupled with statistically significant results for all major postulates in the hypothesized directions, provides significant overall support for Blau's macrostructural theory.

CONCLUSION

This study borrows from Peter Blau's macrostructural theory on intergroup relations and subsequent empirical scholarship on interracial marriage to assess the effects of macrostructural variables on the likelihood of Asian Americans reporting biracial identification with whites in the 2010 US Census. By evaluating the extent social forces known to influence interracial marriage also influence interracial identification, this study extends Blau's theory beyond explaining the likelihood two different-race people will have relations to the likelihood one person will identify with two races.

Blau's theory depends on the comparison of two groups in which one is a minority and the other is a majority. The theory lends itself to 'race' as the demographic characteristic defining group membership, and empirical studies testing the theory consistently choose whites as the majority group and either blacks, Asians or Hispanics as the minority group. As with most any study of race in America, tests of Blau's theory most commonly gravitate toward blacks and whites. This study examines the applicability of Blau's macrostructural theory of intergroup relations to Asians and whites to determine if the theory's explanatory value remains steadfast beyond the realm of black and white.

With 61.1% of the variation in Asian biracial identification with whites attributable to structural variables outlined in the theory, the applicability of Blau's theory beyond black and white is fairly strong. However, it cannot be overlooked that the exact same model applied to blacks explains 30% more variation in biracial identification with whites. This delta is seen in

two of the three central research variables.

The extent social circles intersect with whites is a much more impactful determinant of biracial identification for blacks than for Asians. Both blacks and Asians have experienced discrimination, prejudice, oppression and exploitation, but blacks have endured these conditions for much longer than Asians in the US. Perhaps prolonged hatred has a way of solidifying detrimental effects in a way that is definitive, making barriers to opportunity nearly impenetrable, the long term effects of segregation inescapable.

Educational inequality is more relevant for Asians than for blacks in influencing the likelihood of identifying biracially with whites. Inequality reflects socioeconomic disparities between the minority group and whites. Educational inequality in particular reflects differences in status that are persistent.

Lastly, relative group size is much more relevant for blacks than for Asians in affecting white biracial identification likelihood. That is, larger black group sizes deter biracial identification with whites to a greater degree than larger Asian groups. While it is believed that the larger the group size, the more threatening the group to whites (Blalock 1967), this effect seems to be quite a bit stronger when the group in question is black.

Prior studies employing Blau's theory on intergroup relations almost unanimously test whites and another racial group. With the relationships between blacks and whites, and now Asians and whites confirmed, the relevance of Blau's macrostructural theory to non-white biracial groups, such as black-Asians, will be tested to better understand inter-minority dynamics. The meaning of 'minority' as a numerical construct will be contrasted with the idea of 'minority' defined by oppression.

CHAPTER 5: STRUCTURAL DETERMINANTS OF BIRACIAL IDENTIFICATION BETWEEN BLACKS AND ASIANS

This study borrows from Peter Blau's opportunity-structure theory and interracial marriage empirical scholarship to assess the effects of macrostructural variables on the likelihood of black and Asian Americans reporting biracial identification with each other in the 2010 US Census. To evaluate whether social forces known to influence interracial marriage also influence biracial identification among those who are both Asian and black, macrostructural parameters across 363 metropolitan areas were examined. Residential segregation, racial equality and minority group size were found to affect the likelihood Asians report biracial identification with blacks, and blacks report biracial identification with Asians, over mono-racial Asian or black identification in much the same way these macrostructural variables affect the likelihood of interracial marriage in other studies.

INTRODUCTION

The 2000 US Census allowed respondents to describe themselves with more than one race for the first time. Approximately 6.8 million chose this option. This figure grew by 32.0% (to 9.0 million) by 2010, despite a total American population increase of only 9.7%. Among 42.0 million blacks (13.6% of the American population), 3.1 million, or 7.4% of the total black population, identified as multiracial. This figure (i.e., 7.4%) is roughly half of what would be expected due to chance with the ratio of blacks to non-blacks at .158. In contrast, the ratio of Asians to non-Asians is .059, yet 15.3% of the total Asian American population, or 2.6 million of the 17.3 million Asians in America, identified as multiracial. That is, Asians are nearly 30 times more likely to indicate more than one race on the census than chance would predict. Asians are

just over a third the size of blacks but over twice as likely to identify as multiracial. Responses to the census race question confirm that racial identification is indeed a choice (Harris and Sim 2002; Hirschman 2004; Masuoka 2011). Now the question becomes which factors influence that choice and why different groups are affected differently.

One factor influencing the racial identification choice is often overlooked: racial identity (Brunsma 2006). Identity is based on one's self-understanding through lived experience (Rockquemore and Brunsma 2008). Because it is an internalized process perpetually in flux, it may not match forced-choice classifications on institutional forms (Hirschman, Alba and Farley 2000; Hitlin, Brown and Elder 2006; Saperstein 2006). Nonetheless, empiricists rely on racial identification when research depends on quantitative analysis of significant sample size across multiple racial groups and geographies (Brown, Hitlin and Elder 2006; Renn 2008).

There is considerable geographic variation in the proportion of racial minorities that identify as biracial (Farley 2002; Hoeffel et al. 2012). Ironically, greater biracial populations skew toward areas where minorities represent a relatively small proportion of the population (Butts 2008). This and other distinctions across metropolitan areas suggest underlying structural differences affecting the likelihood of biracial identification. Borrowing from prior theoretical and empirical scholarship on mixed-race marriage, this study explores how urban structural factors affecting intergroup relations impact the likelihood racial minorities report biracial identification with each other.

Much like empiricism on biracial marriage and other forms of interracial relations, biracial identification empiricism gravitates toward the black-white divide. Methodological convenience aside, blacks and whites are important groups to study together for many reasons. For example, biracial blacks are more likely to share heritage with whites than any other racial

group despite being more socially, culturally and spatially distant than any other racial pairing (Bean and Stevens 2003; Bratter 2007; Gans 2007; Lee and Bean 2004, 2007a, 2007b: Lichter and Qian 2005; Massey and Denton 1993; Qian 1997, 1999).

Also intriguing, however, is the fact that nearly as many Asians as blacks identified as half white on the 2010 Census (1.6 million and 1.8 million, respectively) despite the fact that the total Asian American population is 2.4 smaller number than the total black population. Empiricism on Asian biracial identification almost unanimously focuses on Asian-white pairings (Brunsma 2005; Mass 1992; Harris 2002; Lou, Lalonde and Wilson 2011; Townsend, Fryberg, Wilkens and Markus 2012; Wilton, Sanchez and Garcia 2013), with some exception (Williams 1992; Williams and Thornton 1998). This is likely because quantitative analyses of multiracial identification examine individuals as the units of analysis, limiting the examination of other Asian pairings due to insufficient sample size.

Nonetheless, black-Asians have been suggested as a fruitful area for future interracial identification studies (Campbell 2007; Lou et al. 2011; Williams and Thornton 1998; Wilton et al. 2013). Their "multiple marginalized status" makes these individuals particularly worth examining in terms of policy implication (Williams and Thornton 1998:258). Knowing that biracial identification is affected by the current racial climate and its effects, the degree to which structural factors affect Asians differently than blacks has important policy implications.

For example, although very different from that experienced by blacks, Asians are subjected to much more racism, prejudice and discrimination than is commonly acknowledged (Alvarez et al. 2006; JACL 2008; Song 2003). "Indeed, the perception of Asian Americans as 'foreigners' who present an economic, educational or cultural threat may elicit racial dynamics that are quite distinct from the experiences of African Americans" (Alvarez et al. 2006:478).

Whereas blacks have endured involuntary immigration, slavery, oppression reproduced over generations, more intense and widespread segregation and denial of identity validation by hypodescent standards, Asians have been subjected to internment camps, property seizures, patriotic loyalty and citizenship interrogation, mainstream media ridicule (as seems to be customary with each new immigrant group) and a more recent history of overt anti-group legislation (Lou et al. 2011; Song 2003). Compared to blacks, today's Asians face more employment discrimination, issues voting and lack political representation, despite the guise of the 'model minority' myth (JACL 2008). Asians do however have the greatest rates of homeownership, median income, marriage stability, educational attainment and what I'll call *inter-neighboring* with whites than any other racial minority (Xie and Goyette 2004; Zhang and Vanhook 2009; Zubrinsky and Bobo 1996).

Race itself doesn't hinder interracial relations; it is the geographical and structural boundaries we create that do (Park and Burgess 1921). Indeed, Zubrinsky and Bobo (1996) find Asian racial segregation caused by racial discrimination, not by income or balkanization. Segregation is more common among large minority groups (Park and Burgess 1921) and minority groups with recent active immigration flow (Castles and Miller 2003). Although Asians are growing faster than blacks due to immigration (Edmonston, Lee and Passel 2002) and are the fastest growing racial group in the U.S. (Hoeffel et al. 2012), Asians are the least segregated racial minority while blacks are the most (Farley 2011; Zubrinsky and Bobo 1996). Instead, Asian immigration seems to fuel Asian inter-neighboring, with Asian-black inter-neighboring particularly on the rise (Farley 2011).

Given these high-stake implications, it is surprising that analyzing differences in the effects of macrostructural contexts on the nexus of these groups remains uncharted territory.

Biracial marriage rates and biracial identification rates are both indicative of social distance between races (Bean and Stevens 2003; Bratter 2007; Fu and Heaton 2000; Kalmijn 1998; Kalmijn and Van Tubergen 2010; Lee and Bean 2004; Lichter and Qian 2005; Qian et al. 2012; Suro 1999; Zhang and Vanhook 2009). However, biracial identification is a potentially more salient indicator of integration than biracial marriage in today's society (Butts 2008; Kalmijn 1993). Therefore, this study applies concepts drawn from Blau's macrostructural theory on biracial marriage to understand how structural factors affect Asian-black biracial identification.

STRUCTURAL FACTORS AFFECTING INTERGROUP RELATIONS

Intergroup relations are often investigated through the lens of exchange (Fu and Heaton 2000; Kalmijn 1998; Lichter and Qian 2005; Qian 1997, 1999; Sassler and Joyner 2011), assimilation (Hwang, Saenz and Aguirre 1994; Kalmijn 1998; Qian 1999; Qian et al. 2012) or opportunity-structure perspectives (Heaton and Jacobson 2000; Hwang et al. 1994; Kalmijn 1998; Kalmijn and Van Tubergen 2010; Qian 1999; Tucker and Mitchell-Kernan 1990). Peter Blau's macrostructural theory develops the opportunity-structure perspective (Blau 1977, 1994). This perspective rests on Simmel's (1908) notion of 'over-lapping social circles' in which each social circle is based on a demographic or lifestyle characteristic. The characteristic that is most salient is the social circle in which the person feels the most belonging and therefore becomes their core *group*. People generally prefer to interact with members of their own group. However, Simmel argues that meaningful social relationships can happen between people from different groups if they are similar in many other ways (that is, if their other social circles intersect). These shared commonalities become the grounds on which social relationships can be formed in spite of belonging to different groups. For example, Asian American preferences for similar status spouses often trump preferences for same race spouses (Fu and Heaton 2000; Kalmijn 1993;

Qian 1997; Zhang and Vanhook 2009). Blau adds to Simmel's concept by arguing that various structural factors hinder opportunities to fulfill in-group preferences, making intergroup relations more likely under certain conditions.

Blau assumes the probability of intergroup relations depends on two key factors. First and most importantly, the number of characteristics in common between members of two different groups affects the likelihood of relationship development. The more characteristics in common, the less the one unshared characteristic matters. Second, the numerical availability of in-group associates that share other characteristics affects the likelihood of intergroup relations. When there are less in-group individuals of similar status on other characteristics, there are proportionately more out-group individuals of otherwise similar status.

A third element, group size, plays a role within each of these two key factors. Rapidly growing minority groups tend to be geographically and socially segregated (Blalock 1967; Castles and Miller 2003; Massey and Denton 1993; Waters 1999; Wilson 1980). These groups become homogenous and delineated, limiting contact and the extent any characteristics are shared with the out-group (Blau 1980; Castles and Miller 2003; Qian et al. 2012; Sassen 2001, 2006; Waters 1999). In contrast, equality creates conditions that provide adequately sized in-group relationship opportunities with members of similar status, unless the minority group is small. In both cases, the theory maintains that intergroup relations are more likely among members of small groups.

Blau's macrostructural theory of intergroup relations can utilize most any demographic variable to delineate groups (e.g., religion, class, age). In the 21st century US, the theory clearly lends itself to race as a salient characteristic defining in-group and out-group. The theory has been used to explain the probability of several different types of interracial relations including

interracial contact, conflict and marriage. Postulates tested include those centered on demographic consolidation (i.e., the extent race is correlated with several other characteristics at once), inequality and group size.

Demographic Consolidation

The theory contends that relations can happen between members of different races if most of their other social circles intersect. Race, however, tends to have correlations with many other characteristics, thereby inhibiting chances that members of two racial groups share the social circles on which these characteristics are formed. Heightened racial salience, intolerance of dissimilar others and antagonistic allegiance in opposition to institutional and interpersonal racism has a way of consolidating socio-demographic characteristics and homogenizing the minority group (Blau 1980; Castles and Miller 2003; Qian et al. 2012; Sassen 2001, 2006; Waters 1999). Under these conditions, interracial relations are less likely because social circles for members of different racial groups do not often intersect.

Residential segregation best operationalizes this concept (Anderson and Saenz 1994; Kalmijn 1998; Kalmijn and Van Tubergen 2010). Segregation limits the number of similarities between racial groups because geographical confinement also creates cultural and social barriers by consolidating characteristics that would otherwise vary (e.g., employment opportunities, healthcare access, religious denomination attendance). That is, residential segregation has a way of completely segregating two racial groups in a multitude of ways beyond simply separating domiciles (Massey and Denton 1993; Qian et al. 2012). The effect is especially compounded in cities where the minority group is numerically large enough to pose a threat to the majority group (Blalock 1967; Massey and Denton 1993; Waters 1999; Wilson 1980).

When segregation limits minority social operations to immediate neighborhoods, quality

contact with the majority group is rare (Fitzpatrick and Hwang 1992). Without regular opportunities for contact, commonalities or interpersonal respect, interracial relations are arguably less likely (Blau 1994). But when race is less correlated with the distribution of other socio-demographic characteristics, the minority group is more exposed to the majority group on common ground and interracial relations are consistently found to be more likely (Anderson and Saenz 1994; Blau 1994; Blau, Beeker and Fitzpatrick 1984; Blau and Schwartz 1984; Blum 1984, 1985; Fitzpatrick and Hwang 1992; Heaton and Jacobson 2000; Lichter 2013; Qian 1999; Qian et al. 2012; Skvoretz 1990).

Inequality

The theory assumes people prefer to interact with members of their own racial group so long as they are similar in most other ways (Blau 1977; Simmel 1908; see also Kalmijn and Van Tubergen 2010). However, Blau's contribution rests on the premise that there are certain conditions limiting the availability of same-race associates who also share other characteristics. The likelihood of interracial relations is increased when the proportion of same-status, different-race options is larger than the proportion of same-status, same-race suitors.

The effect of one's status, or station in life, is often operationalized through inequality measurements because relationships depend on commonalities forged on the basis of equality (Blau 1977; Lichter 2013; Zhang and Vanhook 2009). Blau (1977) defines *inequality* as the relative difference between two groups on an interval-measured variable. The theory implies preference for education (over income or socioeconomic status indicators such as SEI) for this role. Rytina et al. (1988) statistically confirm that education is the most suitable inequality measure for use in this theory.

The relative difference between racial groups on educational attainment affects interracial

relations in different ways. On the one hand, as more minorities have access to higher education, the salience of race is reduced (Blau 1977, 1994; Broman, Neighbors and Jackson 1998; Croll 2007; Kalmijn 1993; Qian et al. 2012). Shared non-race characteristics and interests become more interpersonally relevant, making interracial relationships more likely (Blum 1984; Fu and Heaton 2000; Gans 2007; Harris 2002; Heaton and Jacobson 2000; Kalmijn 1993; Kalmijn and Van Tubergen 2010; Lichter 2013; McPherson, Smith-Lovin and Cook 2001; Qian 1997, 1999) and more sustainable (Zhang and Vanhook 2009). On the other hand, increased upward mobility puts greater proportions of minorities in higher wrung positions and, assuming the minority group size is adequate, increases the pool of same-status, same-race availability (Blau 1977, 1994). As such, decreasing racial inequality at the macro level actually decreases interracial relation likelihood despite decreased social distance between groups at the interpersonal level (Blau 1994; Blau et al. 1984; Blau et al. 1982; Rytina et al. 1988).

Group Size

The theory concludes that interracial relations are more likely among members of groups that are numerically small relative to the majority group because numerically limited in-group options make out-group options statistically more probable. The effect is particularly apparent in race applications because smaller racial groups tend to be more heterogeneous and therefore are more distributed across various social dimensions than larger racial groups.

Because smaller racial groups are more likely to share multiple non-race characteristics, interests and activities in common venues with members of other racial groups, interracial relations are more likely (Blau 1977, 1994; Blau and Schwartz 1984; Frey and Farley 1996; Fu and Heaton 2000; Heaton and Jacobson 2000; Hwang et al. 1994; Kalmijn and Van Tubergen 2010; Qian 1999). Furthermore, minorities from smaller racial groups who break away from the

norm for their group are more likely to intermarry because the selection pool of same-status, same-race suitors is numerically limited (Blau 1994; Heaton and Jacobson 2000; Kalmijn 1998; Kalmijn and Van Tubergen 2010; Qian et al. 2012; St. John and Clymer 2000). That is, small groups present an exception to the argument that increasing equality decreases interracial relations.

Structural factors such as demographic consolidation, inequality and group size have repeatedly been shown to affect the likelihood of relations with different-race others. Most tests have focused on interracial marriage in particular due to the availability of large-scale, quantitative data of sufficient sample size (Blau 1994). Indeed, over 13% of today's legal marriages are interracial (Lee and Bean 2007b). "Marriage is undoubtedly the most profound and lasting human relation of all those voluntarily established" (Blau et al. 1984:591). This implies interracial marriage is more suitable than other forms of contact for measuring structural influences on racial integration because of its durability and longevity.

Contemporary American society, however, is characterized by widespread cohabitation, partnerships not legally recognized as marriage, divorce and non-marital childbearing. Interracial couples are more likely to cohabitate than marry (Kalmijn 1993; Lichter and Qian 2005; Qian et al. 2012), more likely to divorce (Zhang and Van Hook 2009) and more likely to produce children out of wedlock (Kalmijn 1993), than same-race couples. Although intermarriage incidence has commonly been used to indicate social distance (Fu and Heaton 2000; Kalmijn 1998; Kalmijn and Van Tubergen 2010; Lee and Bean 2004; Lichter and Qian 2005; Qian et al. 2012; Suro 1999; Zhang and Vanhook 2009), its footing as a preferred racial integration indicator is becoming less steady (Brunsma 2005).

The flexibility of the new census race question more accurately tallies variations in racial

groups than ever before. This gives demographers the opportunity to utilize data on biracial *people*, rather than biracial *marriage*, as an emerging social distance indicator (Bean and Stevens 2003; Bratter 2007; Lee and Bean 2004). In the same way interracial marriage has reflected racial integration in the past, biracial identification may represent a more salient indicator of integration in today's society (Kalmijn 1993).

FACTORS AFFECTING INTERRACIAL IDENTIFICATION

Considerable quantitative advancements have been made in recent years identifying various determinants of multiracial identification. These studies examine the influence of sociodemographic and social psychological factors and contexts on individual-level units of analysis. Educational attainment generally encourages multiracial identification (Brunsma 2005; Croll 2007; Masuoka 2011; Roth 2005; Tafoya, Johnson and Hill 2005) with exception (Bratter 2007; Hochschild and Weaver 2007). Immigrant status tends to discourage multiracial identification (Bean and Stevens 2003; Masuoka 2011; Roth 2005; Tafoya et al. 2005). Whereas contextual factors such as discrimination and segregation discourage multiracial identification (Brunsma 2005; Harris 2002; Hochschild and Weaver 2007; Masuoka 2011; Tafoya 2002; Tafoya et al. 2005), neighborhood diversity encourages it (Bratter 2007; Croll 2007; Harris 2002; Masuoka 2011; Tafoya et al. 2005). Trends vary by region (Bean and Stevens 2003; Croll 2007; Harris and Sim 2002; Masuoka 2011; Rockquemore and Brunsma 2008; Roth 2005) and racial group (Bratter 2007; Campbell 2007; Masuoka 2011; Roth 2005).

The racial identity process is different for biracial black-whites, Asian-whites and black-Asians (Lou et al. 2011; Roth 2005; Wilton et al. 2013). Biracial identity is undoubtedly complex (see Root 1992; Zach 1995 as examples). The identities of biracial Asians are further complicated by a need to project an American citizen master status (Williams 1992; Williams

and Thornton 1998). However, biracial Asians do not seem to be subjected to hypodescents (Brunsma 2005; Masuoka 2011; Tafoya et al. 2005; Townsend, Fryberg, Wilkens and Markus 2012; Xie and Goyette 1997). For example, Asian-whites are equally likely to be identified as mono-racial white as they are to be identified as mono-racial Asian or biracial Asian-white (Xie and Goyette 1997). When forced to choose one race, biracial black-whites usually default to black while biracial Asian-whites usually default to white (Tafoya et al. 2005). Hypodescents commands that biracial individuals default to the identity of their minority half (Davis 1991). But what of biracial individuals with two minority halves, such as black-Asians? This simple inquiry questions whether the definition of 'minority' is based on oppression or group size. As it turns out, black-Asians do experience a sense of pressure to identify mono-racially black (Williams and Thornton 1998). When black-Asians have the option to identify with more than one race, they generally capitalize on it (Williams and Thornton 1998). In fact, black-Asians as likely as white-Asians to identify as biracial (Williams 1992). But when forced to choose one, black-Asians are more likely to choose black than Asian (Parker et al. 2004; Xie and Goyette 1997). This suggests that cultural oppression trumps numerical underrepresentation in its impact on the minority experience.

In the 2010 Census, the stark difference between the proportion of Asians that identified as half black (from this point forward called *Asian-blacks*) and the proportion of blacks that identified as half Asian (from this point forward called *black-Asians*) on the 2010 Census is astounding. Asians are just over a third the size of blacks but nearly 3 times as likely to identify with blacks than blacks are to identify with them. Among 42.0 million blacks (13.6% of the American population), only 0.2 million, or 0.4% of the total black population, identified as half Asian, compared with 1.1% of the 17.3 million Asians in America who identified as half black.

The question is why, and an examination of this minority-minority biracial group will help to better understand inter-minority dynamics often overlooked by a predisposition toward black-white and Asian-white studies.

HYPOTHESES

In summary, the theory assumes that smaller groups experience less discrimination and inequality and proposes two key postulates. First, cities with less discrimination facilitate opportunities for healthy interracial exposure. Second, cities with less inequality increase social mobility for minorities. This decreases racial salience and helps to close the social distance gap between racial groups. However, increased upward mobility puts greater proportions of minorities in higher wrung positions and, assuming adequate group size, actually increases the pool of same-status, same-race marriage partner options, facilitating healthy interracial exposure but increasing the likelihood of same-race intimate relations.

Factors facilitating interracial marriage may also encourage interracial identification. This feedback loop supports testing the aptness of biracial identification in demonstrating the effect of structural parameters on social distances between racial groups. It is hypothesized that the same parameters influencing interracial marriage also influence interracial identification. Hence,

H_1. The more social circles between Asians and blacks intersect, the greater the likelihood Asians will report biracial identification with blacks and blacks will report biracial identification with Asians.

H_2. The greater the educational equality between Asians and blacks, the greater the likelihood Asians will report mono-racial Asian identification and blacks will report mono-racial black identification.

H_3. The smaller the Asian group size relative to blacks, the greater the likelihood Asians

will report biracial identification with blacks. Similarly, the smaller the black group size relative to Asians, the greater the likelihood blacks will report biracial identification with Asians.

H_4. The model positioning blacks as the minority will be stronger than the model positioning Asians as the minority.

DATA & METHODS

Social structure is embodied by multi-dimensional social arrangements between proximal groups (Blau 1994). Kalmijn and Van Tubergen (2010) recommend measuring social structure using geographical units more magnified than the state-level. In the US, diverse populations living in close proximity characterize urban centers (McPherson et al. 2001). Metropolitan areas have been the primary pallet for interracial contact since the antebellum period (Wilson 1980). Therefore, metropolitan areas including metropolitan statistical areas (MSAs) and metropolitan New England city and town areas (NECTAs) are the natural units of analysis for measuring interracial contact, and conceivably, interracial identification. By examining geographical units of analysis rather than individuals, a dearth of biracial persons of black and Asian descent does not affect the sample size used in this analysis. There are 363 metropolitan areas in the continental US. All are used in this analysis.

Dependent Variable

For the first time in US history, the 2000 Census allowed residents to mark more than one choice and this policy was continued in 2010. The 2010 US Census race question offers several categories: White; Black, African American, or Negro; American Indian or Alaska Native; Asian; Native Hawaiian and Other Pacific Islander; and 'Some Other Race'. For each city, the proportion of all Asian Americans identifying as half Asian is calculated using data reported in

Census Summary File 1. The proportion of all blacks who claim Asian as part of a biracial identification is also calculated for comparison. Whereas 1.1% of Asians indicated biracial black, only 0.4% of blacks indicated biracial Asian suggesting hypodescents commands identification with black ancestry in particular. Proportions of Asians claiming Asian-black identification range from 0.1% in Sheboygan, Wisconsin (where Asians are nearly proportionately represented, 5.0%) to 7.1% in Hinesville-Fort Steward, Georgia (where Asians represent 2.8% of the population). Proportions of blacks claiming biracial Asian range from 0.1% claiming black-Asian identification in Pine Bluff, Arkansas (where blacks represent 48.4% of the population) to 3.1% in Salinas, California (where blacks represent 4.0% of the metro population).

Independent Variables

Several structural variables are hypothesized to explain the variance in biracial identification prevalence across geographies. These include interracial exposure (i.e., the opposite of the demographic consolidation characteristic of racial segregation), racial equality (i.e., the opposite of inequality) and relative group size.

Exposure. Racial segregation stifles the extent to which demographic and lifestyle characteristics are free to vary. This homogenization of characteristics, coupled with geographic, cultural and social delineation from the rest of society, limits minority exposure to other races. Inter-neighboring, on the other hand, influences opportunities for interracial interaction (Marsden 1990; Peach 1996; St. John and Clymer 2000), interracial marriage (Anderson and Saenz 1994; Blau et al. 1984; Blau and Schwartz 1984; Blum 1984, 1985; Fitzpatrick and Hwang 1992; Heaton and Jacobson 2000; Lichter 2013; Qian 1999; Qian et al. 2012) and biracial identification (Tafoya 2002; Xie and Goyette 1997).

Exposure of one racial group to another is measured by the exposure index (Population

Studies Center 2013). This index measures the probability of interaction between Asians and blacks by taking the average percentage of an area that is black, within the neighborhood (i.e., census tract) of an Asian American, and again by taking the average percentage of an area that is Asian, within the neighborhood of a black American. The exposure index for each metropolitan area can theoretically range from 0 (indicating no exposure between Asians and blacks), to a number equal to the proportion of the population that is black in a city with only one Asian American, or the proportion of the population that is Asian in a city with only one black person. Both exposure scores were calculated from 2010 Census data for each metropolitan area and are available from the University of Michigan Population Studies Center. Scores for Asian exposure to blacks range from 0.2 in Wenatchee, Washington to 40.6 in Hinesville-Fort Steward, Georgia. Scores for black exposure to Asians range from 0.3 in Muskegon-Norton Shores, Michigan to 30.2 in San Jose-Sunnyvale-Santa Clara, California.

Equality. Equality in college education has consistently been shown to influence interracial marriage (Heaton and Jacobson 2000; Kalmijn 1998; Lichter 2013; Qian 1997, 1999; Qian et al. 2012) and could therefore affect interracial identification in a similar manner. For each metropolitan area in the 2007-2011 ACS, chi-square is calculated for the relationship between race and education by dividing the raw chi-square term by the maximum chi-square value (and then multiplying by 100). Because chi-square indicates the extent census frequencies deviate from what would be expected if race and education were independent, higher scores indicate greater deviation from independence between race and education, implying educational attainment is more dependent upon race. The calculated expression is subtracted from 100 to reverse the scale such that higher scores indicate greater educational parity (i.e., education is less dependent on race) between Asians and blacks. Scores range from 0.06 in Anderson, Indiana,

where Asians and blacks are divided by education, to 43.37 in Morgantown, West Virginia, where Asians and blacks are more proportionately represented in each educational attainment category.

Group Size. Blau's theory assumes relative group size affects both exposure and equality (Blau 1977, 1994; Blau and Schwartz 1984). Because it is assumed, Blau doesn't explicitly test group size alongside the two key theorems (i.e., consolidation/exposure and inequality/equality) in his final (1994) model. However, most empirical tests of Blau's theory not only control group size, but consider it a key theorem (Anderson and Saenz 1994; Butts 2008; Fitzpatrick and Hwang 1992; Heaton and Jacobson 2000; Qian 1999). Indeed, group size is often the strongest of all variables in tests of structural influences on interracial marriage (Kalmijn and Van Tubergen 2010). Relative group size is measured by the number of Asians per thousand single-race blacks and again by the number of blacks per thousand single-race Asians. Data for these calculations are available for each metropolitan area in Census Summary File 1. The ratio of Asians to blacks ranges from 15.9 in Pine Bluff, Arkansas to 13,227.3 in San Jose-Sunnyvale-Santa Clara, California. The ratio of blacks to Asians ranges from 106.0 in San Jose-Sunnyvale-Santa Clara, California to 80,729.1 in Rocky Mount, North Carolina.

Controls. Other variables isolate structural features borrowed from Blau's theory and subsequent empirical tests. These include the percentage of the Asian population foreign-born, the percentage of the black population foreign-born, and geographic region.

The percentage of each group's foreign-born population is controlled because areas with larger foreign-born populations tend to have more interracial marriage (Blau 1994; Lee and Bean 2004) and larger biracial populations (Bean and Stevens 2003; Lee and Bean 2004; Masuoka 2011; Roth 2005). This is because immigrant presence can enhance diversity tolerance (Lee and

Bean 2004). Though areas with greater immigration rates may have greater interracial marriage rates, the foreign-born individuals themselves are actually less likely to intermarry than their American-born counterparts (Lee and Fernandez 1998; Lichter and Qian 2005; Qian 1999; Hwang et al. 1994). For example, those who immigrate in pursuit of higher education often arrive with focal families (Castles and Miller 2003). Additionally, foreign-born racial minorities immigrate to the US with different understandings of racial categories and what it means to be a racial minority than American-born minorities and second-generation immigrants of color (Masuoka 2011; Tafoya et al. 2005; Waters 1999). Indeed, immigrant status tends to discourage multiracial identification (Bean and Stevens 2003; Masuoka 2011; Roth 2005; Tafoya et al. 2005). And because immigration is related to inequality, a key parameter in macrostructural theory, it must be isolated (Blau 1977, 1994). Five-year estimates of the number of foreign-born Asians and foreign-born blacks are available from the 2007-2011 ACS Table B16005, A-I. These measures are calculated as the proportion of total single-race Asians that are foreign-born, with ranges from 46.3% in Idaho Falls, Idaho to 91.3% in Anderson, Indiana, and again as the proportion of total single-race blacks that are foreign born, which ranges from 0.0% where are there no reported foreign-born blacks in Sandusky, Ohio, Kokomo, Indiana or Coeur d'Alene, Idaho, to 60.4% in Fargo, North Dakota-Minnesota.

Regional variations also shape interracial relations. From a historical standpoint for example, anti-miscegenation laws didn't apply to minority-minority interracial marriages in some states like California (Kitano et al. 1984). From a current perspective, Asians and blacks tend to intermarry most in the South (Heaton and Jacobson 2000). Regional differences may affect preferences for which particular demographic variable is most salient in choosing a spouse or racial identification, as well as affect racial tolerance as a whole. Regional variation effects on

interaction can persist beyond the effects of exposure, equality and group size due to racial identification strength, group allegiance and solidarity (Brunsma 2005; Croll 2007; Hochschild and Weaver 2007). Racial salience is more influential than other variables, especially on interracial relationship tolerance (Blum 1984; Heaton and Jacobson 2000; McPherson et al. 2001; Schwartz 1990).

Whereas the longest and most concentrated history of black discrimination is situated in the South (Wilson 1980), that of Asians is situated in the West (JACL 2008; Kitano et al. 1984). Regions are coded into dummy variables where the South, Midwest and Northeast are coded as 1 with the West coded as the reference group when Asians are examined, and the South coded as the reference group when blacks are examined.

Analytic Design

Blau's final (1994) model logs all variables to correct for non-linearity and skewness to the right, to help standardize the effect of different sized metropolitan areas in the sample and different test variable scales in the model and to circumvent the need for interaction terms. Once natural log transformations are performed on all variables except region[9], these data meet regression assumptions (as shown in Chapter 2). A scatterplot of predicted values to observed values verifies clear linearity. A scatterplot of residuals to observed values indicates independence of errors. A scatterplot of residuals to predicted values indicates homoscedasticity. A normal P-P plot of observed to expected values indicates normal distribution of errors. Some multicollinearity is typical of among structural parameters (Blau 1994). Similar to prior studies, bivariate correlations between explanatory variables are high but do not violate multicollinearity tests.

[9] As a dummy variable, region cannot be transformed because ln(0) is undefined.

OLS regression was then used to analyze these data. Blau's theory depends on the comparison of two groups in which one is a minority and the other is a majority. Because this study examines two minority groups, two separate models are devised in order to be able to position each as the minority. The first model, which I refer to as the 'Asian-black' model, situates Asians as the minority. The second model I refer to as the 'black-Asian' model situates blacks as the minority. My conclusions then compare models to contrast the meaning of 'minority' as Blau intended (numerically) with the idea of 'minority' defined by oppression.

FINDINGS

The average percentage (untransformed) of Asians reporting Asian-black biracial identification across 363 metropolitan areas is 1.5% with .012 standard deviations. Nine metropolitan areas have percentages greater than 3 standard deviations (means of 5.0% or greater). All these cities are in the South where 2.2% of Asians claim Asian-black biracial identification. Nationally, 0.9% of Asians in the West, 1.1% in the Northeast and 1.2% in the Midwest report biracial identification with blacks.

In comparison, the average percentage of blacks reporting black-Asian biracial identification across metropolitan areas is 0.6% with .006 standard deviations. Eleven metropolitan areas have percentages greater than 3 standard deviations (means of 2.2% or greater). All these cities are in the West where 1.4% of blacks claim black-Asian biracial identification. Nationally, 0.3% of blacks in the South, and 0.4% in both the Northeast and Midwest report biracial identification with Asians. This regional ranking in percentage of blacks claiming black-Asian identification mimics that of blacks claiming black-white identification in Chapter 3.

Table 9. Correlations and Descriptive Statistics for Asian-Black Model

Variable	(1)	(2)	(3)	(4)	(5)	(6)	Mean	Standard Deviation
(1) Log Asian-Black Identification	1.000	-	-	-	-	-	-4.425	0.710
(2) Log Asian Exposure to Blacks	0.704**	1.000	-	-	-	-	1.776	1.089
(3) Log Racial Equality	-0.439**	-0.300**	1.000	-	-	-	2.084	0.899
(4) Log Asian Group Size	-0.730**	-0.816**	0.260**	1.000	-	-	5.961	1.371
(5) Log Foreign-Born Asians	0.248**	0.376**	0.090	-0.417**	1.000	-	-0.332	0.108
(6) Region ǂ	0.284**	0.584**	0.080	-0.659**	0.495**	1.000	0.788	0.409

**Correlation is significant at the 0.01 level (2-tailed).

ǂ Reference region is West.

N=363 MSAs.

The correlation matrix and descriptive statistics associated with Asian-blacks in 363 metropolitan areas in the continental US are shown in Table 9. As shown in the first column, all explanatory variables correlate fairly strongly with the percentage of Asians reporting Asian-black biracial identification. This preliminarily supports the central research question; macrostructural variables influencing biracial marriage also influence biracial identification.

As shown in the first column of Table 10, all explanatory variables except equality correlate fairly strongly with the percentage of blacks reporting black-Asian biracial identification. This preliminarily supports the central research question; macrostructural variables influencing biracial marriage also influence biracial identification.

Bivariate Regression Analysis

The bivariate relationship between biracial identification and each explanatory variable of the Asian-black model is displayed in the first column of Table 11. The bivariate relationships for the black-Asian model are displayed in the first column of Table 12. Whereas Asian exposure to blacks explains 49.5% of variation in the percentage of Asians claiming Asian-black biracial identification, black exposure to Asians explains 41.6% of variation in the percentage of blacks claiming black-Asian biracial identification. Racial equality explains 19.3% of the variation in

Table 10. Correlations and Descriptive Statistics for Black-Asian Model

Variable	(1)	(2)	(3)	(4)	(5)	(6)	Mean	Standard Deviation
(1) Log Black-Asian Identification	1.000	-	-	-	-	-	-5.567	0.877
(2) Log Black Exposure to Asians	0.645**	1.000	-	-	-	-	0.603	0.847
(3) Log Racial Equality	0.019	0.071	1.000	-	-	-	2.084	0.899
(4) Log Black Group Size	-0.812**	-0.685**	-0.281**	1.000	-	-	8.311	1.246
(5) Log Foreign-Born Blacks	0.595**	0.440**	0.269**	-0.649**	1.000	-	-3.110	1.340
(6) Region ǂ	0.412**	0.266**	0.324**	-0.556**	0.403**	1.000	0.592	0.492

**Correlation is significant at the 0.01 level (2-tailed).

ǂ Reference region is South.

N=363 MSAs.

the Asian-black model, but is not statistically significant in the black-Asian model. Asian group size relative to blacks explains 53.2%, while black group size relative to Asians explains 65.9%.

Consistent with interracial relations theory, exposure between Asians and blacks is positively related to biracial identification; greater Asian exposure to blacks increases the percentage of Asian biracial identification with blacks and greater black exposure to Asians likewise increases the percentage of black biracial identification with Asians. Greater educational equality between Asians and blacks decreases biracial identification among Asians but not necessarily among blacks. Lastly, group size is negatively related to biracial identification, just as the theory suggests. When the group size of one race is small relative to the other, biracial identification proportions are greater than when the minority group size is large.

Control variables are also statistically significant in both models. Unlike the case with Asians in the Asian-white model presented in Chapter 4, the percentage of Asians foreign-born is positively related to Asian biracial identification with blacks. But similar to the case with blacks in the black-white model presented in Chapter 3, the percentage of blacks foreign-born is positively related to black biracial identification with Asians. Asians in the West are more likely to claim Asian-black biracial identification than in other regions while blacks in the South are less likely to claim black-Asian biracial identification than in other regions.

Table 11. Macrostructural Effects on Asian Biracial Identification with Blacks

Independent Variables	Standardized Bivariate Coefficient	Standardized Multivariate Coefficient
Log Asian Exposure to Blacks	0.704	0.323
Log Racial Equality	-0.439	-0.160
Log Asian Group Size	-0.730	-0.618
Log Foreign-Born Asians	0.248	0.041
Region ǂ	0.284	-0.318
R^2	-	0.668
N	363	363
All coefficients are significant at the 0.01 level (2-tailed) except the multivariate foreign-born coefficient.		
ǂ Reference is West.		

Multiple Regression Analysis

The simultaneous regression of biracial identification on explanatory variables is shown in the last columns of Tables 11 and 12. All variables in the Asian-black multivariate model significantly contribute to biracial identification rates except foreign-born presence. The full model accounts for 66.8% of the variation in Asian biracial identification with blacks. All variables in the black-Asian multivariate model significantly contribute to biracial identification

Table 12. Macrostructural Effects on Black Biracial Identification with Asians

Independent Variables	Standardized Bivariate Coefficient	Standardized Multivariate Coefficient
Log Black Exposure to Asians	0.645	0.117
Log Racial Equality	0.019	-0.227
Log Black Group Size	-0.812	-0.692
Log Foreign-Born Blacks	0.595	0.153
Region ǂ	0.412	0.008
R^2	-	0.727
N	363	363
All coefficients are significant at the 0.01 level (2-tailed) except the bivariate equality coefficient and the multivariate region coefficient.		
ǂ Reference is South.		

rates except region. The full model accounts for 72.7% of the variation in black biracial identification with Asians.

The first hypothesis predicts that greater Asian exposure to blacks elicits greater Asian-black identification, and greater black exposure to Asians elicits greater black-Asian identification. Exposure strongly performs as expected in both models, even with the effects of educational equality, group size and control variables parsed away. A partial black heritage flourishes when Asians have more exposure to blacks and vice versa; greater exposure may inspire greater identification with both groups, perhaps signifying less social distance between races. Conversely, when exposure between Asians and blacks is limited, mono-racial identification is more prevalent, conceivably due to geographic, social and cultural boundaries characteristic of segregated communities.

The second hypothesis predicts metropolitan areas with greater equality in education between Asians and blacks have fewer Asians identifying as half black and fewer blacks identifying as half Asian. As expected, equality is negatively related to biracial identification. If Asians and blacks are represented in each educational attainment tier proportionately, same-race unions would be more likely because each minority group would have greater exposure to others in their own group with similar qualities that accompany social class. Along the same line of reasoning, it is not surprising that educational equality also decreases biracial identification between Asians and blacks. That is, as each minority group becomes more proportionately represented along the distribution of educational categories, biracial identification between Asians and blacks decreases.

The third hypothesis predicts that members of smaller Asian groups relative to blacks are more likely to identify as half black and members of smaller black groups relatives to Asians are

more likely to identify as half Asian. Consistent with biracial marriage studies where members of small racial minority groups are more likely to marry majority group members due to limited same-race options, biracial identification with blacks is more prevalent when Asians make up a small proportion of the population and biracial identification with Asians is more prevalent when blacks make up a small proportion of the population. Conclusively, the hypothesis that Asian group size is negatively related to Asian-black biracial identification and black group size is negatively related to black-Asian biracial identification is fully supported.

The percentage of Asians who are foreign-born is not related to Asian biracial identification with blacks at a statistically significant level. This mirrors the Asian-white model described in Chapter 4. However, the percentage of blacks who are foreign-born is positively related to black biracial identification with Asians, mirroring the black-white model described in Chapter 3. In the case of blacks, cultural appreciation for diverse populations seems to consistently breed biracial identification but the same is not true of Asians. Geographic region has a relatively strong impact on the dependent variable in the Asian-black model but no statistically significant value in the black-Asian model. That is, the South affects the likelihood of blacks identifying as half white but not half Asian.

Summary

Extending Peter Blau's conceptualization of intergroup relations to also include interracial identification demonstrates methodological support for using biracial identification as an indicator of social distance and also contributes to the collective understanding of the racial identification process. Indeed, 66.8% of the variation in Asian biracial identification with blacks is attributable to exposure to blacks, equality with blacks in educational attainment, Asian group size relative to blacks and geographic region. Similarly, 72.7% of the variation in black biracial

identification with Asians is attributable to exposure to Asians, equality with Asians in educational attainment, black group size relative to Asians and black foreign-born presence. Asians are more likely to report biracial identification with blacks, and blacks with Asians, the more Asian and black social circles intersect with one another. With mono-racial identification the default, greater equality and larger group sizes decreases the likelihood Asians and blacks report biracial identification with one another because increased numbers of same-status, same-race others naturally breeds in-group allegiance. The R^2 for both multivariate models, coupled with statistically significant results for all major postulates in the hypothesized directions, provides significant overall support for Blau's macrostructural theory.

CONCLUSION

Interracial marriage is an indication of declining social distance between races (Fu and Heaton 2000; Kalmijn 1998; Kalmijn and Van Tubergen 2010; Lee and Bean 2004; Lichter and Qian 2005; Qian et al. 2012; Suro 1999; Zhang and Vanhook 2009). Asians are much more likely to be interracially married than blacks (Heaton and Jacobson 2000; Lee and Bean 2004; Lichter and Qian 2005; Masuoka 2011; Qian 1997; Xie and Goyette 1997). This is because black intermarriage and Asian intermarriage are influenced by certain dynamics differently (Campbell 2007; Qian 1999). For example, Asians are a much smaller group than blacks, making interracial marriage more numerically probable for Asians than for blacks (Fu and Heaton 2000; Heaton and Jacobson 2000; Hwang et al. 1994; Kalmijn and Van Tubergen 2010; Qian 1999). However, Asians are growing much faster than blacks due to immigration (Edmonston et al. 2002; Hoeffel et al. 2012). Asian immigrants are less likely to intermarry (Hwang et al. 1994; Lee and Fernandez 1998; Lichter and Qian 2005; Qian 1999; Tafoya 2002). Additionally, Asian immigration increases the same-race marriage pool for American-born Asians (Lichter and Qian

2005). But certainly intermarriage isn't just a matter of group size, with blacks and Hispanics of similar size but the prior much less likely to interracially marry than the latter (Frey 2003). Education also affects intermarriage rates of each race differently (Kalmijn and Van Tubergen 2010; Qian 1999). Even geography has a differing impact, with Asians most likely to marry blacks in the South and whites in the West (Heaton and Jacobson 2000). Segregation plays a very strong role for black intermarriage, but the impact on Asian intermarriage has been mixed (see Hwang et al.; Qian et al. 2012). Interracial marriage for each racial group is also threatened by different rates of marital stability (Zhang and Vanhook 2009) and cohabitation in place of marriage (Lichter and Qian 2005; Qian et al. 2012). Overall, Asian interracial marriage is expected to slow (Lee and Fernandez 1998; Lichter and Qian 2005).

In contrast, Asian interracial identification is expected to grow (Edmonston et al. 2002). Like interracial marriage, interracial identification has also been called an indication of declining social distance between races (Bean and Stevens 2003; Bratter 2007; Lee and Bean 2004), eroding the racial hierarchy as we know it (Gans 2007; Wright et al. 2003), or at least circumventing it (Roth 2005). Similar things that influence interracial marriage influence interracial identification (Bean and Stevens 2003; Lee and Bean 2004; Harris and Sim 2002; Masuoka 2011; Roth 2005; Tafoya 2002). Asians are much more likely to interracially identify than blacks, as shown in these studies. This is because black interracial identification and Asian interracial identification are influenced by different things (Campbell 2007; Lee and Bean 2007, Lou et al. 2011; Mass 1992; Williams 1992; Williams and Thornton 1998), or the same things but in different ways (Roth 2005). For example, the black-white divide in the South encourages black mono-racial reporting (Blum 1984; Harris and Sim 2002), but the history of Asian discrimination in the west does not (JACL 2008; Kitano et al. 1984). Asians are not subjected to

hypodescents (Brunsma 2005; Masuoka 2011, Tafoya et al. 2005; Townsend, Fryberg, Wilkens and Markus 2012; Xie and Goyette 1997). Instead, their identity is complicated by a desire to project an American-citizen master status (Williams 1992, Williams and Thornton 1998).

Given these racial group differences, this study borrows from Peter Blau's macrostructural theory on intergroup relations and subsequent empirical scholarship on interracial marriage to assess the effects of macrostructural variables on the likelihood of blacks and Asian Americans reporting biracial identification with one another in the 2010 U.S. Census. By evaluating the extent social forces known to influence interracial marriage also influence interracial identification, this study extends Blau's theory beyond explaining the likelihood two different-race people will have relations to the likelihood one person will identify with two different races.

Blau's theory depends on the comparison of two groups in which one is a minority and the other is a majority. The theory lends itself to 'race' as the demographic characteristic defining group membership, and empirical studies testing the theory consistently choose whites as the majority group and either blacks, Asians or Hispanics as the minority group. This study examines the applicability of Blau's macrostructural theory of intergroup relations to two non-white racial groups, blacks and Asians, to better understand inter-minority dynamics.

This manuscript contrasts the meaning of 'minority' as Blau intended (numerically) with the idea of 'minority' defined by oppression. Whereas the Asian-black model (Table 11) positions Asians as the minority, the black-Asian model (Table 12) positions blacks as the minority. As shown by the R-squares, the two models have similar strength, with the black-Asian model strength 5.9% stronger than the Asian-black model. These models are stronger than the Asian-white model described in Chapter 4 (R^2 = 61.1%) but weaker than the black-white model

described in Chapter 3 (R^2 = 91.1%).

Blau's theory explains the likelihood of intergroup relations and therefore rests on the assumption that there is some degree of social distance between the two groups. (If the two groups lacked social distance, there would be no sociological phenomenon worth explaining because relationships among members from the two groups would not be noteworthy.) As such, the extent to which the theory accounts for two groups coming together arguably alludes to the extent to which the two groups stand apart from one another. Under this line of reasoning, the stronger the R^2 of each model, the greater the social distance between the two racial groups incorporated into each model.

Of the four models tested (i.e., black-white in Chapter 3, Asian-white in Chapter 4, Asian-black and black-Asian both in this chapter), the black-white model in Chapter 3 is by far the strongest (R^2 = 91.1%) and the Asian-white model in Chapter 4 is the weakest (R^2 = 61.1%). If this indicates that blacks have more social distance with whites than Asians have with whites, these findings are consistent with countless studies concluding that blacks remain at the bottom of the American racial hierarchy (Bean and Stevens 2003; Bratter 2007; Gans 2007; Lee and Bean 2004, 2007a, 2007b: Lichter and Qian 2005; Qian 1997).

Blau's theory rests on the foundation that one group is a minority and the other a majority; in most cases, whites are both the numerical and the cultural majority. But when two non-white groups are modeled, it begs the question of which group plays the role of the minority and which plays the role of the majority. Blau does not explicitly specify in his theory whether the minority group is defined by numerical proportion or by oppression but the default definition is commonly understood by the prior. And with empiricism consistently testing Blau's theory with whites acting as the majority group, it is quite possible this definition has not been

challenged. Tested both ways, first positioning Asians as the minority group (Table 11) and then positioning blacks as the minority group (Table 12), the stronger R^2 in the black-Asian model (Table 12) suggests that the effect of blacks as a cultural minority trumps the effect of Asians as a numerical minority in Blau's theory of intergroup relations.

CHAPTER 6: STRUCTURAL DETERMINANTS OF BIRACIAL IDENTIFICATION CONCLUSIONS

This paper examines how different environments (i.e., social structures) affect the proportion of a given minority group that chooses to identify as biracial on the US Census. This is as opposed to identifying mono-racially, which has in the past been considered the default. For example, Davis (1991) says that social norms label people who are half-black as just-black. He estimates that 3 in 4 blacks are multiracial. Yet a relatively small proportion of blacks identify as multiracial on the census. Therefore, the degree to which minorities in different geographical areas breech this norm by identifying biracially says something about the social structure in which they live.

In order to assess how different environmental factors influence the proportion of a given minority group that chooses to identify biracially, I review what the literature says about social structure's influence on intergroup relations (and interracial marriage in particular), discuss biracial identification and how common or uncommon it is, cover details of the analysis I performed testing environmental factors and their relationship with biracial identification prevalence, and compare different biracial groups and what differences say about social distance between primary racial groups.

This study is based on theory and empiricism on inter-group relations. Groups can be defined on the basis of just about anything. In the US, the most defining group in society is arguably race. Why is it important to study interracial relationships? A multitude of scholars say that it says something about the social distance between racial groups. (Fu and Heaton 1997; Kalmijn 1998; Kalmijn and Van Tubergen 2010; Lee and Bean 2004; Lichter and Qian 2005;

Qian, Glick and Batson 2012; Suro 1999; Zhang & Vanhook 2009). For example, if marriages between blacks and whites were on the rise, this would suggest the social distance between blacks and whites was decreasing.

There are three main theories of intergroup relations: Exchange theory (Homans 1958), assimilation theory (Gordon 1964; Park 1926), and opportunity-structure theory (Simmel 1908). Exchange and assimilation theories have been criticized as Anglo-conformist and over-reliant on economic motivations (Bean and Stevens 2003; Blau 1994). Opportunity structure theory, alternatively, is believed to wield a greater degree of influence on social life than micro- and meso-level approaches (Blau 1977). This paper utilizes opportunity structure theory as developed by Peter Blau.

Opportunity structure theory starts with the assumption that people prefer relationship with those in their own group. Simmel (1908) says that relationships can happen between people from different groups if they are similar in many other ways. Blau (1977) agrees with Simmel and adds that the degree to which different racial groups have anything in common is dictated by certain structural factors. Blau's development of opportunity structure theory, called macrostructural theory, was published in 1977. He tested it on intermarriage in 1984 and retested it with different scholars in different ways 1984-1988. For the next decade, various empiricist tested it further. Blau come out with a revision in 1994 that made the model for testing the theory more parsimonious. Much empiricism followed but has waned in recent years, perhaps as a result of the saturation that comes from consistently supported findings coupled with a limited number of racial groups to test.

Intermarriage has by far been the most utilized type of intergroup relation tested under Blau's theory. Recall this topic's importance being rooted in the fact that it is thought to be

indicative of the social distance between racial groups. In this theory's hay-day, intermarriage was considered the most prolonged type of relation. But today, that may not be the case. As such, multiple scholars have suggested racial identification might be a more suitable social distance indicator for today's society (Bean and Stevens 2003; Bratter 2007; Lee and Bean 2004; Kalmijn 1993).

Therefore, this manuscript resurrects Blau's theory, repurposing it from explaining the likelihood persons from two different races will marry to the likelihood a person will identify with two different races. If structural factors influence interracial relations, and intermarriage begets interracial population, then do the same factors affecting intermarriage affect interracial identification? And if so, do these factors affect different racial groups differently?

For the first time in US history, Census 2000 respondents were allowed to choose more than one racial category. Over 6 million took advantage of this option by identifying with two races. By the 2010 Census, this figure grew by 30%, despite total American population growth of about 10%. Either interracial parents are producing 3 times the number of offspring as the general population, or survey respondents are feeling more liberated to breech the age-old social norm pressuring multiracial people to identify as mono-racial with their minority side. Notably, some racial groups are taking advantage of this option more than others. The ratio of blacks to whites for example is .182, suggesting that 18.2% of blacks would be half white if race did not matter when choosing a spouse or identifying on a survey. But race does matter, and only 4.4% of blacks say they are half white. Conversely, 9.4% of Asians identified as half white, yet the ratio of Asians to whites is .075.

My central research question asks whether the same factors influencing biracial marriage also influence biracial identification. Prior tests of Blau's theory (including the theory itself)

recommend using metropolitan areas as the unit of analysis. My data does show that the prevalence of biracial identification varies drastically by city. Data at the metropolitan level is available from the Census itself, as well as the Census Bureau's American Community survey, which essentially takes the place of what used to be the Census' long form. Beyond my central research question, I also want to know why biracial identification rates vary by racial group. I test blacks and whites because they are well-known for having the greatest social distance. I test Asian-whites as a point of comparison and because racism against Asians is often overlooked. And I triangulate with Asian blacks to better understand inter-minority dynamics.

The theory says that intermarriage depends on three main structural factors governing people's choices. First, cities where the minority group has greater exposure to the majority group have higher rates of intergroup relations. The equivalent of this theorem repurposed to explain biracial identification is: The more minorities are exposed to the majority group, the greater the likelihood minorities will report biracial identification with the majority group. Second, cities with greater equality between groups have lower rates of intergroup relations. In terms of biracial identification, this means the greater the educational equality between two racial groups, the greater the likelihood minorities report mono-racial identification. Finally, cities with smaller minority groups have higher rates of intergroup relations. Similarly, the smaller the minority group relative to the majority, the greater the likelihood minorities are expected to report biracial identification with the majority group in my test.

Biracial identification is the dependent variable in the study. This is the proportion of the minority group identifying as half majority group race, or the percent of Race A identifying as half Race B. The first independent variable is minority exposure to the majority group, which I measure using the exposure index of segregation. That is, the average percent of an area that is

white within the neighborhood of a black person, for example. The second independent variable is equality between groups. I use education rather than income to measure equality because income is volatile. I measure educational equality with the inverse of the chi-square statistic. The independence between race and education is interpreted as educational equality between two racial groups. The third independent variable is minority group size relative to the majority group, or more specifically, the number of all Race A members per 1,000 mono-racial Race B members. I control for the percent of each minority group foreign born. I also control for geographic region, controlling the South when blacks are positioned as the minority and the West when Asians are positioned as the minority.

Nearly all of these variables depend on positioning one group as the minority and the other as the majority (unanimously whites). Blau did not specify in his theory or empiricism any guidelines for testing a model excluding whites because society was largely black and white at the time. I test the percent of blacks half white, the percent of Asians half white, and then when I test Asian-black biracials I test it both ways-- first positioning Asians as the minority (numerical minority), and then positioning blacks as the minority (as defined by more prolonged oppression).

The two models of minority groups identifying as half white are similar. First, group size is the strongest key predictor. The percent of blacks identifying as half white, and the percent of Asians identifying as half white, increases .5% for every 1% decrease in relative group size. The second strongest key predictor is exposure, or the inverse of segregation. The percent of blacks identifying as half white increases .3% for every 1% increase in black exposure to whites. The percent of Asians identifying as half white increases .2% for every 1% increase in Asian exposure to whites. And in both models, equality is the third strongest predictor.

The percent of blacks identifying as half white decreases .1% for every 1% increase in black-white equality. The percent of Asians identifying as half white decreases .2% for every 1% increase in Asian-white equality. Both models have strong adjusted R-square, with the black-white model being the strongest and the Asian-white model being very strong but actually the weakest of the 4 models.

To test the influence of structural factors on the likelihood Asians and blacks identify biracially with one another, I had to create two models – one with Asians positioned as the minority, which they are, numerically, and the other with Blacks positioned as the minority, which they are if defined by prolonged oppression. These two models performed quite similarly. The adjusted R-squares are similar, with the black-Asian model slightly stronger than the Asian-black model. As with the white biracial models, group size is the strongest predictor, with the percent of Asians who are half black increasing .6% for every 1% decrease in Asian group size, relative to blacks. The percent of blacks who are half Asian increases .7% for every 1% decrease in black group size, relative to Asians. Again, exposure increases biracial identification, while equality decreases it. Exposure seems to be slightly more relevant to Asians identifying as half black, while equality seems to be slightly more relevant to the likelihood blacks identify as half Asian. Conclusively, all four models provide overall support for this new application of Blau's theory.

There are several limitations of this study described in earlier chapters. One worth expanding on here is that this research is limited by the imperfect science of survey methodology inherent in using census data. The categorical nature of the race question, or any race question, will never be able to capture the lived experience of racial identity. For example, this study finds that the black-white model and the Asian-white model are strikingly similar despite findings by

Harris and Sim (2002) and Lou, Lalonde and Wilson (2001) who contend that black-whites and Asian-whites go through two totally different patterns of identity selection, with blacks looking to other to validate their identity and Asians identifying in a contextually dependent manner. Although structural analyses have been criticized for failing to acknowledge the cultural element, this study incorporates environmental factors that arguable capture cultural undertones. With blacks for example, the region variable likely accounts for some of the historical and political history with whites, the segregation variable likely accounts for some of the effect of hypodescents. With Asians, the foreign-born control likely accounts for some of the culture of interdependence and master status as American. In both cases, this study finds blacks experience the most social distance with whites and Asians experience the least. This aligns with more culture-focused approaches and policy implications aimed at dismantling segregation and closing the gap on educational equality in order to close social distance gaps between racial groups.

This study contributes to our understanding of race in America. First, it extends the applicability of Blau's (1977, 1994) theory to an entirely different type of interracial phenomenon. Blau's (1977) theory was on interrelations. Blau and Schwartz (1984) tested the theory on intermarriage. This manuscript tests the theory on 'interidentificaiton'. Second, this study seizes the opportunity to take advantage of newly established data to examine the suitability of biracial identification as a social distance indicator for today's society. Earlier chapters explain that the stronger the explanatory power of each model, the greater the social distance between groups. Whereas the black-white model has the greatest R^2, the Asian-white model has the smallest. Asians and blacks may have less social distance than whites and blacks, but more than whites and Asians. Third, this study is the first to examine the applicability of Blau's theory of intergroup relations to two non-white racial groups with statistically significant

results. I contrast the meaning of 'minority' as intended (numerically) with the idea of 'minority' defined by prolonged oppression. The black-Asian model is stronger than the Asian-black model, suggesting blacks experience more social distance from Asians than vice versa.

There are many opportunities for further research resulting from this study. First, it would be worth considering structural determinants outside the theory, such as political climate. Such an approach might utilize hierarchical linear modeling to account for the nesting effects inherent in analyzing processes taking place at different ecological levels. Second, conclusions of this study rest on the assumption that biracial identification signifies embracing both races, rather than rejecting both. A socio-cultural, qualitative complement could confirm this assumption. Third, multi-race question data is now available from two census waves. A comparative study examining how structural parameters influence biracial identification over time could results in powerful policy implications. Lastly, much of the American racial structure discourse argues that our society is not made up of a racial hierarchy, but rather is simply bifurcated. While some scholars argue we live in a white/non-white society where specific minority group is irrelevant because of the overwhelming influence of the white ruling class, others argue we live in a black/non-black society where racial group doesn't really matter much except in the case of blacks who are set apart from the opportunities afforded to the rest of society. The methodology of the current study could lend support to one of these two arguments simply by reconfiguring the biracial groups into white biracials, non-white biracials, black-biracials, and non-black biracials in place of the black-whites, Asian whites, Asian-blacks, and black-Asians examined here.

REFERENCES

REFERENCES

Alvarez, Alvin N., Linda Juang and Christopher T. H. Liang. 2006. "Asian Americans and Racism: When Bad Things Happen to 'Model Minorities'." *Cultural Diversity and Ethnic Minority Psychology* 12(3):477-92.

Anderson, Robert N., and Rogelio Saenz. 1994. "Structural Determinants of Mexican American Intermarriage, 1975-1980." *Social Science Quarterly* 75(2):414-30.

Bean, Frank D., and Gillian Stevens. 2003. *America's Newcomers and the Dynamics of Diversity*. The American Sociological Association's Rose Series in Sociology. Russell Sage Foundation.

Berry, William D. 1993. *Understanding Regression Assumptions.* Series in Quantitative Applications in the Social Sciences, 92. Sage University Papers.

Blalock, Hubert M. 1967. *Toward a Theory of Minority Group Relations*. Wiley.

Blau, Peter M. 1964. *Exchange and Power in Social Life*. John Wiley & Sons, Inc.

_____. 1977. *Inequality and Heterogeneity: A Primitive Theory of Social Structure*. The Free Press.

_____. 1980. "A Fable About Social Structure." *Social Forces* 58(3):777-88.

_____. 1994. *Structural Contexts of Opportunities*. The University of Chicago Press.

Blau, Judith R., and Peter M. Blau. 1982. "The Cost of Inequality: Metropolitan Structure and Violent Crime." *American Sociological Review* 47(1):114-29.

Blau, Peter M., Carolyn Beeker and Kevin M. Fitzpatrick. 1984. "Intersecting Social Affiliations and Intermarriage." *Social Forces* 62(3):585-606.

Blau, Peter M., Terry C. Blum and Joseph E. Schwartz. 1982. "Heterogeneity and Intermarriage." *American Sociological Review* 47(1):45-62.

Blau, Peter M., and Joseph E. Schwartz. 1984. *Crosscutting Social Circles: Testing a Macrostructural Theory of Intergroup Relations.* Academic Press.

Blum, Terry C. 1984. "Racial Inequality and Salience: An Examination of Blau's Theory of Social Structure." *Social Forces* 62(3):607-17.

_____. 1985. "Structural Constraints on Interpersonal Relations: A Test of Blau's Macrosociological Theory." *American Journal of Sociology* 91(3):511-21.

Bratter, Jenifer. 2007. “Will ‘Multiracial’ Survive to the Next Generation? The Racial Classification of Children of Multiracial Parents.” *Social Forces* 86(2):821-49.

Broman, Clifford L., Harold W. Neighbors and James S. Jackson. 1998. “Racial Group Identification Among Black Adults.” *Social Forces* 67(1):146-58.

Brown, J. Scott, Steven Hitlin and Glen H. Elder Jr. 2006. “The Greater Complexity of Lived Race: An Extension of Harris and Sim.” *Social Science Quarterly* 87(2):411-31.

_____. 2007. “The Importance of Being ‘Other’: A Natural Experiment About Lived Race Over Time.” *Social Science Research* 36:159-74.

Brunsma, David L. 2005. “Interracial Families and the Racial Identification of Mixed-Race Children: Evidence from the Early Childhood Longitudinal Study.” *Social Forces* 84(2):1131-57.

_____. 2006. “Public Categories, Private Identities: Exploring Regional Differences in the Biracial Experience.” *Social Science Research* 35:555-76.

Butts, Rachel. 2008. “Guess Who’s Coming to Dinner: Structural Determinants of Black-White Biracial Identification in the 2000 Census.” MA Thesis, Department of Sociology, University of Oklahoma, Norman, OK.

_____. 2009. “Guess Who’s Coming to Dinner: Structural Determinants of Black-White Biracial Identification in the 2000 Census.” Presented in the Structural Influences on Race/Ethnic Identification Division at the Annual Meeting of the Population Association of America, Detroit, MI.

Campbell, Mary E. 2007. “Thinking Outside the (Black) Box: Measuring Black and Multiracial Identification on Surveys.” *Social Science Research* 36:921-44.

Castles, Stephen, and Mark J. Miller. 2003. *The Age of Migration: International Population Movements in the Modern World*. Guilford Press.

Chideya, Farai. 1999. The Color of our Future. William Marrow and Company, Inc.

Cortes, Dharma E., Sherry Deren, Jonny Andia and Rafaela Robles. 2003. "The Use of the Puerto Rican Biculturality Scale with Puerto Rican Drug Users in New York and Puerto Rico." *Journal of Psychoactive Drugs* 35(2):197-207.

Croll, Paul R. 2007. “Modeling Determinants of White Racial Identification: Results From a New National Survey.” *Social Forces* 86(2):613-41.

Davis, F. James. 1991. *Who is Black: One Nation’s Definition*. Pennsylvania State University Press.

Dong, Yiran, and Chao-Ying Joanne Peng. 2013. "Principled Missing Data Methods for Researchers." *Springerplus* 2(1):222.

Edmonston, Barry, Sharon M. Lee and Jeffrey S. Passel. 2002. “Recent Trends in Intermarriage and Immigration and Their Effects on the Future Racial Composition of the US Population.” Pp. 227-55. *The New Race Question: How the Census Counts Multiracial Individuals.* Joel Perlmann and Mary C. Waters, editors. Russell Sage.

Ellis, Lee. 1994. *Research Methods in the Social Sciences*. Brown & Benchmark.

Farley, Reynolds. 2002. “Racial Identities in 2000: The Response to the Multiple-Race Response Option.” Pp. 33-61. *The New Race Question: How the Census Counts Multiracial Individuals*. Joel Perlmann and Mary C. Waters, editors. Russell Sage.

_____. 2011. “The Waning of American Apartheid?” *Contexts* (Summer):36-43.

Fischer, Mary J. 2003. “The Relative Importance of Income and Race in Determining Residential Outcomes in U.S. Urban Areas, 1970-2000.” *Urban Affairs Review* 38(5):669-96.

Fitzpatrick, Kevin M., and Sean-Shong Hwang. 1992. “The Effects of Community Structure on Opportunities for Interracial Contact: Extending Blau’s Macrostructural Theory.” *The Sociological Quarterly* 33(1):51-61.

Fox, John. 1991. *Regression Diagnostics*. Series in Quantitative Applications in the Social Sciences, 79. Sage University Papers.

Frey, William H. 2003. “Charticle.” *The Milken Institute Review* (Third Quarter):7-10.

Frey, William H., and Reynolds Farley. 1996. “Latino, Asian, and Black Segregation in US Metropolitan Areas: Are Multiethnic Metros Different?” *Demography* 33(1):35-50.

Fu, Xuanning, and Tim B. Heaton. 2000. “Status Exchange in Intermarriage Among Hawaiians, Japanese, Filipinos and Caucasians in Hawaii: 1983-1994.” *Journal of Comparative Family Studies* 31(1):45-61.

Gans, Herbert J. 2007. “The Possibility of a New Racial Hierarchy in the Twenty-First Century United States.” Pp. 149-65. *Rethinking the Color Line: Readings in Race and Ethnicity.* 3rd Edition. Charles A. Gallagher, editor. McGraw-Hill.

Glesne, Corrine. 2006. Becoming Qualitative Researchers: An Introduction. 4th Edition. Pearson Education, Inc.

Gordon, Milton M. 1964. *Assimilation in American Life: The Role of Race, Religion, and National Origins*. Oxford University Press.

Hair Jr., Joseph F., William C. Black, Barry J. Babin, Rolph E. Anderson and Ronald L. Tatham.

2006. *Multivariate Data Analysis.* 6th Edition. Pearson Prentice Hall.

Harris, David R. 2002. "Does It Matter How We Measure? Racial Classification and the Characteristics of Multiracial Youth." Pp. 62-101. *The New Race Question: How the Census Counts Multiracial Individuals.* Joel Perlmann and Mary C. Waters, editors. Russell Sage.

Harris, David R., and Jeremiah Joseph Sim. 2002. "Who is Multiracial? Assessing the Complexity of Lived Race." *American Sociological Review* 67(4):614-27.

Heaton, Tim B., and Cardell K. Jacobson. 2000. "Intergroup Marriage: An Examination of Opportunity Structures." *Sociological Inquiry* 70(1):30-41.

Hirschman, Charles. 2004. "The Origins and Demise of the Concept of Race." *Population and Development Review* 30(3):385-415.

Hirschman, Charles, Richard Alba and Reynolds Farley. 2000. "The Meaning and Measurement of Race in the US Census: Glimpses into the Future." *Demography* 37(3):381-93.

Hitlin, Steven, J. Scott Brown and Glen H. Elder Jr. 2006. "Racial Self-Categorization in Adolescence: Multiracial Development and Social Pathways." *Child Development* 77(5):1298-1308.

_____. 2007. "Measuring Latinos: Racial vs. Ethnic Classification and Self-Understandings." *Social Forces* 86(2):587-611.

Hochschild, Jennifer L., and Vesla Weaver. 2007. "The Skin Color Paradox and the American Racial Order." *Social Forces* 86(2):643-69.

Hoeffel, Elizabeth M., Sonya Rastogi, Myoung Ouk Kim and Hasan Shahid. 2012. "The Asian Population: 2010." *2010 Census Briefs* (March):1-23.

Homans, George C. 1958. "Social Behavior as Exchange." *American Journal of Sociology* 63(6):597-606.

Hutcheson, G. D. 2011. "Ordinary Least-Squares Regression." Pp. 224-8. *The Sage Dictionary of Quantitative Management Research*. L. Moutinho and G. D. Hutcheson, editors.

Hwang, Sean-Shong, Rogelio Saenz and Benigno E. Aguirre. 1994. "Structural and Individual Determinants of the Outmarriage Among Chinese-, Filipino-, and Japanese-Americans in California." *Sociological Inquiry* 64(4):396-414.

_____. 1997. "Structural and Assimilationist Explanations of Asian American Intermarriage." *Journal of Marriage and the Family* 59:758-72.

Japanese American Citizens League (JACL). 2008. *An Unnoticed Struggle: A Concise History of*

Asian American Civil Rights Issues. JACL.

Justis, Rachel M. 2010. "Census 2010 Participation Rates." Indiana University Kelley School of Business, Indiana Business Research Center. Summer.

Kalmijn, Matthijs. 1993. "Trends in Black/White Intermarriage." *Social Forces* 72(1):119-46.

_____. 1998. "Intermarriage and Homogamy: Causes, Patterns, Trends." *Annual Review of Sociology* 24:395-421.

Kalmijn, Matthijs, and Frank Van Tubergen. 2010. "A Comparative Perspective on Intermarriage: Explaining Differences Among National-Origin Groups in the United States." *Demography* 47(2):459-79.

Kitano, Harry H. L., Wai-Tsang Yeung, Lynn Chai and Herbert Hatanaka. 1984. "Asian-American Interracial Marriage." *Journal of Marriage and the Family* 179-90.

Knoke, David, George W. Bohrnstedt, Alisa Potter Mee. 2002. *Statistics for Social Data Analysis.* 4th Edition. Thompson.

Lee, Sharon, and Marilyn Fernandez. 1998. "Trends in Asian American Racial/Ethnic Intermarriage." *Sociological Perspectives* 41(2):323–42.

Lee, Jennifer, and Frank D. Bean. 2004. "America's Changing Color Lines: Immigration, Race/Ethnicity, and Multiracial Identification." *Annual Review of Sociology* 30:221-42.

_____. 2007a. "Reinventing the Color Line: Immigration and America's New Racial/Ethnic Divide." *Social Forces* 86(2):561-85.

_____. 2007b. "Beyond Black and White: Remaking Race in America." Pp. 122-9. *Rethinking the Color Line: Readings in Race and Ethnicity.* 3rd Edition. Charles A. Gallagher, editor. McGraw-Hill.

Lichter, Daniel T. 2013. "Integration or Fragmentation? Racial Diversity and the American Future." *Demography* 50:359-91.

Lichter, Daniel T., and Zhenchao Qian. 2005. "Marriage and Family in a Multiracial Society." Pp. 169-200. *The American People: Census 2000.* Reynolds Farley and John Haaga, editors. Russell Sage.

Lieberson, Stanley, and Mary C. Waters. 1985. "Ethnic Mixtures in the United States." *Sociology and Social Research* 70:43-52.

Lou, Evelina, Richard N. Lalonde and Carlos Wilson. 2011. "Examining a Multidimensional Framework of Racial Identity Across Different Biracial Groups." *Asian American Journal of Psychology* 2(2):79-90.

Loveman, Mara, and Jeronimo O. Muniz. 2007. “How Puerto Rico Became White: Boundary Dynamics and Intercensus Racial Reclassification.” *American Sociological Review* 72(6):915-39.

Marsden, Peter V. 1990. “Network Diversity, Substructures, and Opportunities for Contact.” Pp. 397-410. *Structures of Power and Constraint: Papers in Honor of Peter Blau.* Craig Calhoun, Marshall W. Meyer and W. Richard Scott, editors. Cambridge University Press.

Mass, Amy Iwasaki. 1992. “Interracial Japanese Americans: The Best of Both Worlds or the End of the Japanese American Community?” Pp. 265-79. *Racially Mixed People in America.* Maria P. P. Root, editor. Sage Publications.

Massey, Douglas S., and Nancy A. Denton. 1988. “The Dimensions of Residential Segregation.” *Social Forces* 67(2):281-315.

_____. 1989. “Hypersegregation in U.S. Metropolitan Areas: Black and Hispanic Segregation along Five Dimensions.” *Demography* 26(3):373-91.

_____. 1993. *American Apartheid: Segregation and the Making of the Underclass.* Harvard University Press.

Masuoka, Natalie. 2011. “The ‘Multiracial’ Option: Social Group Identity and Changing Patterns of Racial Categorization.” *American Politics Research* 39(1):176-204.

McPherson, Miller, Lynn Smith-Lovin and James M. Cook. 2001. “Birds of a Feather: Homophily in Social Networks.” *Annual Review of Sociology* 27(1):415-44.

Messner, Steve F., and Scott J. South. 1986. “Economic Deprivation, Opportunity Structure, and Robbery Victimization: Intra-and Interracial Patterns.” *Social Forces* 64(4):975-91.

Park, Robert Ezra. 1926. “Our Racial Frontier in The Pacific.” *Survey Graphic* 9:192-96.

Park, Robert E., and Ernest W. Burgess. 1921. *Introduction to the Science of Sociology*. University of Chicago Press.

Parker, J.D., N. Schenker, D.D. Ingram, J.A. Weed, K.E. Heck, J.H. Madans. 2004. “Bridging Between Two Standards for Collecting Information on Race and Ethnicity: An Application to Census 2000 and Vital Rates.” *Public Health Report* 119:192-205.

Peach, Ceri. 1980. “Ethnic Segregation and Intermarriage.” *Annals of the Association of American Geographers* 70:371-81.

_____. 1996. “Does Britain Have Ghettos?” *Transactions of the Institute of British Geographers* 21(1):216-35.

Perlmann, Joel, and Mary C. Waters. 2002. “Introduction.” Pp. 1-30. *The New Race Question:*

How the Census Counts Multiracial Individuals. Joel Perlmann and Mary C. Waters, editors. Russell Sage.

Population Studies Center. 2013. Exposure Indices. University of Michigan.

Qian, Zhenchao. 1997. "Breaking the Racial Barriers: Variations in Interracial Marriage Between 1980 and 1990." *Demography* 34(2):263-76.

_____. 1999. "Who Intermarries? Education, Nativity, Region, and Interracial Marriage, 1980 and 1990." *Journal of Comparative Family Studies* 30(4):579-97.

Qian, Zhenchao, Jennifer E. Glick and Christy D. Batson. 2012. "Crossing Boundaries: Nativity, Ethnicity and Mate Selection." *Demography* 49(2):651-75.

Renn, Kristen A. 2008. "Research on Biracial and Multiracial Identity Development: Overview and Synthesis." *New Directions for Student Services* 123:13-21.

Rockquemore, Kerry Ann and David L. Brunsma. 2008. *Beyond Black: Biracial Identity in America*. Rowman & Littlefield Publishers.

Root, Maria P. P. 1992. *Racially Mixed People in America.* Sage Publications.

Roth, Wendy D. 2005. "The End of the One-Drop Rule? Labeling of Multiracial Children in Black Intermarriages." *Sociological Forum* 20(1):35-67.

Rytina, Steven. 1987. "Paths to Plausible Inference." Unpublished manuscript.

Rytina, Steven, Peter M. Blau, Terry Blum and Joseph Schwartz. 1988. "Inequality and Intermarriage: A Paradox of Motive and Constraint." *Social Forces* 66(3):645-75.

Sampson, Robert V. 1984. "Group Size, Heterogeneity and Intergroup Conflict: A Test of Blau's Inequality and Heterogeneity." *Social Forces* 62(3):619-39.

Saperstein, Aliya. 2006. "Double-Checking the Race Box: Examining Inconsistency Between Survey Measures of Observed and Self-Reported Race." *Social Forces* 85(1):57-74.

Sassen, Saskia. 2001. *The Global City: New York, London, Tokyo*. Princeton University Press.

_____. 2006. *Territory, Authority, Rights: From Medieval to Global Assemblages*. Cambridge University Press.

Sassler, Sharon, and Kara Joyner. 2011. "Social Exchange and the Progression of Sexual Relationships in Emerging Adulthood." *Social Forces* 90(1):223-46.

Schwartz, Joseph E. 1990. "Penetrating Differentiation: Linking Macro and Micro Phenomena." Pp. 353-74. *Structures of Power and Constraint: Papers in Honor of Peter Blau.* Craig

Calhoun, Marshall W. Meyer and W. Richard Scott, editors. Cambridge University Press.

Simmel, Georg. [1908, 1922] 1955. *Conflict: The Web of Group Affiliations*. Translated by Reinhard Bendix. The Free Press.

Skvoretz, John. 1983. "Salience, Heterogeneity and Consolidation of Parameters: Civilizing Blau's Primitive Theory." *American Sociological Review* 48:360-375

_____. 1990. "Social Structure and Intermarriage: A Reanalysis." Pp. 375-96. *Structures of Power and Constraint: Papers in Honor of Peter Blau*. Craig Calhoun, Marshall W. Meyer and W. Richard Scott, editors. Cambridge University Press.

Song, Miri. 2003. *Choosing Ethnic Identity*. Polity Press.

South, Scott J., and Steven F. Messner. 1986. "Structural Determinants of Intergroup Association: Interracial Marriage and Crime." *The American Journal of Sociology* 91(6):1409-30.

Spencer, John Michael. 1997. *The New Colored People: The Mixed-Race Movement in America*. New York University Press.

St. John, Craig, and Robert Clymer. 2000. "Racial Residential Segregation by Level of Socioeconomic Status." *Social Science Quarterly* 81(3):701-15.

Stanton, Jeffrey M. 2001. "Galton, Pearson, and the Peas: A Brief History of Linear Regression for Statistics Instructors." *Journal of Statistics Education* 9(3).

Stevens, Gillian, and Gray Swicewood. 1987. "The Linguistic Context of Ethnic Endogamy." *American Sociological Review* 52:73-82.

Suro, Roberto. 1999. "Mixed Doubles." *American Demographics* 21(11):56-62.

Tafoya, Sonya M. 2002. "Mixed Race and Ethnicity in California." Pp. 102-15. *The New Race Question: How the Census Counts Multiracial Individuals.* Joel Perlmann and Mary C. Waters, editors. Russell Sage.

Tafoya, Sonya M., Hans Johnson and Laura E. Hill. 2005. "Who Chooses to Choose Two?" Pp. 332-51. *The American People: Census 2000.* Reynolds Farley and John Haaga, editors. Russell Sage.

Townsend, Sarah S. M., Stephanie A. Fryberg, Clara L. Wilkins and Hazel Rose Markus. 2012. "Being Mixed: Who Claims a Biracial Identity?" *Cultural Diversity and Ethnic Minority Psychology* 18(1):91-6.

Tucker, M. Belinda, and Claudia Mitchell-Kernan. 1990. "New Trends in Black American Interracial Marriage: The Social Structural Context." *Journal of Marriage and the Family*

52(1):209-18.

US Census Bureau. 2008. “A Compass for Understanding and Using American Community Survey Data: What General Data Users Need to Know.” US Government Printing Office, Washington DC.

_____. 2009. “American Community Survey Fundamentals.” Presented at the annual meeting of the Population Association of America, Detroit, MI.

_____. 2010. “Strength in Numbers.” US Government Printing Office, Washington DC.

_____. 2013. “American Community Survey: Information Guide.” US Government Printing Office, Washington DC.

US Office of Management and Budget. 2013. “Revised Delineations of Metropolitan Statistical Areas, Micropolitan Statistical Areas, and Combined Statistical Areas, and Guidance on Uses of the Delineations of These Areas.” *OMB Bulletin No.* 13(01).

Waters, Mary C. 1999. *Black Identities: West Indian Immigrant Dreams and American Realities*. Russell Sage Foundation.

Williams, Teresa Kay. 1992. “Prism Lives: Identity of Binational Amerasians.” Pp. 280-303. *Racially Mixed People in America.* Maria P. P. Root, editor. Sage Publications.

Williams, Teresa Kay, and Michael C. Thornton. 1998. “Social Construction of Ethnicity Versus Personal Experience: The Case of Afro-Asians.” *Journal of Comparative Family Studies* 29(2):255-67.

Wilson, William Julius. 1980. *The Declining Significance of Race: Blacks and Changing American Institutions.* University of Chicago Press.

Wilton, Leigh S., Diana T. Sanchez and Julie A. Garcia. 2013. “The Stigma of Privilege: Racial Identity and Stigma Consciousness Among Biracial Individuals.” *Race and Social Problems* 5:41-56.

Wooldridge, Jeffrey M. 2006. *Introductory Econometrics: A Modern Approach*. 3rd Edition. Tsinghua University Press.

Wright, Richard, Serin Houston, Mark Ellis, Steven Holloway and Margaret Hudson. 2003. “Crossing Racial Lines: Geographies of Mixed-Race Partnering and Multiraciality in the United States.” *Progress in Human Geography* 27(4):457-74.

Xie, Yu, and Kimberly Goyette. 1997. “The Racial Identification of Biracial Children with One Asian Parent: Evidence from the 1990 Census.” *Social Forces* 76(2):547-70.

_____. 2004. “A Demographic Portrait of Asian Americans.” *The American People: Census*

2000. Russell Sage Foundation.

Zack, Naomi. 1995. *American Mixed Race: The Culture of Microdiversity*. Rowman & Littlefield Publishers, Inc.

Zhang, Yuanting, and Jennifer Van Hook. 2009. "Marital Dissolution Among Interracial Couples." *Journal of Marriage and Family* 71(1):95-107.

Zubrinsky, Camille L., and Lawrence Bobo. 1996. "Prismatic Metropolis: Race and Residential Segregation in the City of the Angels." *Social Science Research* 25(4):335-74.