8-2012

The Role of Educational Attainment in Migration Probability and Destination Selection for the Metropolitan Rust Belt, 1980-2000

Paul D. Jacobs
Utah State University

THE ROLE OF EDUCATIONAL ATTAINMENT IN MIGRATION PROBABILITY AND DESTINATION SELECTION FOR THE METROPOLITAN RUST BELT, 1980-2000

by

Paul D. Jacobs

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Sociology

Approved:

_____	_____
Christy Glass Major Professor	E. Helen Berry Committee Member
_____	_____
Michael B. Toney Committee Member	Mark R. McLellan Vice President for Research and Dean of the School of Graduate Studies

UTAH STATE UNIVERSITY
Logan, Utah

2012

ABSTRACT

The Role of Educational Attainment in Migration Probability and Destination Choice for the Metropolitan Rust Belt, 1970-2000

by

Paul Jacobs, Master of Science

Utah State University, 2012

Major Professor: Dr. Christy Glass
Department: Sociology

The U.S. has undergone macroeconomic changes over the latter course of the twentieth century. As a result, migration patterns have shifted toward the fast-growing southern and western portions of the nation. My research measures the impact of deindustrialization and educational selection on out-migration from the metropolitan Rust Belt for 1980, 1990, and 2000. Analysis on destination selection using multinomial regression analysis is then conducted to determine whether education trumps social capital for long-distance migration. Findings indicate that more severely deindustrializing metropolitan areas have greater out-migration in 1980 and 1990 but less so for 2000, with positive educational selection for each year. Multinomial results indicate that education does not attenuate social capital for interregional migration destination. The rise of the service economy may indicate the increasing importance of social capital for individuals leaving the Rust Belt for other regions. (56 pages)

PUBLIC ABSTRACT

The Role of Educational Attainment in Migration Probability and Destination Choice for the Metropolitan Rust Belt, 1970-2000

The metropolitan Rust Belt has long been recognized as the industrial center of the United States. By the year 2000 many Rust Belt residents were leaving these industrial metropolitan areas for other parts of the country. My research looks to examine how deindustrialization triggers out migration in selected industrial metropolitan areas as well as how migrants are selected by educational attainment. Following this analysis, I examine proximate measures of social capital compared to educational attainment to determine which factors are most important for interregional migration decisions.

Using census data for 1980, 1990, and 2000, I find that higher levels of deindustrialization trigger greater levels of out-migration from the metropolitan Rust Belt for 1980 while this relationship decreases over time. Binary logistic regression indicates that there is positive selection for migration where higher levels of educational attainment lead to higher odds of leaving the metropolitan Rust Belt. For destination choice, educational attainment does not attenuate social capital for Rust Belt migrants making interregional moves to the fast-growing South and West regions.

The changing nature of the U.S. economy may be responsible for the importance of social networks for interregional migrants. The rising service economy is much more interactive and interpersonal than the shrinking industrial occupations, increasing the importance of being able to successfully navigate society and “connect” with clientele. As such, decisions on migration from one region to another may in part be determined by consideration of these macroeconomic changes taking place.

Paul Jacobs, Utah State University. 2012

CONTENTS

Page

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

Deindustrialization since the 1970s has been regarded as detrimental to the economic well-being in the so called Rust Belt (Brady and Wallace 2001; Doussard, Peck, and Theodore 2009; O'Hara 2011). At the same time, the South and West have been experiencing large-scale net in-migration from the states that are most impacted by deindustrialization (U.S. Census Bureau 2010). The economic changes and the consequent interregional migration flows can be discerned from macro-level data and have been the topic of many studies. However, the micro-level processes that are fundamentally shaping the larger migration trends transforming the demographic landscape have been less examined. My research will focus on one such micro-level mechanism---educational attainment---and the effect of education on migration probability and destination selection.

Aside from contributing to the migration literature, issues pertaining to migration are important for a variety of reasons. High growth areas must manage to balance natural amenities with development. Rural areas in particular are sometimes host to conflicts over land-use management (Jackson-Smith, Jensen, and Jennings 2006), something that may be exacerbated by high rates of in-migration. In addition, both high-growth areas and areas that are losing population must determine school investment levels based on future population projections (Mitra, Movit, and Frick 2008). Understanding how to retain youth in declining areas (Elder, King, and Conger 1996) is also essential, as is managing the culture clashes that may arise in fast-growing areas (Smith and Krannich 2000). Areas where in-migrants have a higher or lower socioeconomic status than the

native population are known to occasionally trigger strife (Nelson 1999). Migration from one region to another can also alter the political landscape of an area when sending locations differ politically than destination locations (Robinson and Noriega 2010), something that is almost sure to lead to more contentious redistricting battles during reapportionment after each federal census. For these and other reasons, understanding migration processes in a diverse, highly mobile society is a valuable undertaking.

Scholars have noted that structural changes in the economy can compel out-migration (Massey 1988; Sassen 1988). Migration observers have also illustrated the many ways in which demographic variables can facilitate or inhibit migration (Plane 1992; Frey 2005) as well how these variables influence destination selection (Krieg 1993; Lee and Roseman 1999; Furguson et al. 2007). Educational attainment is a key determinant that can lead to higher or lower migration odds, depending on the specific conditions in place. The precise factors leading to destination selection are less clear. Many suggest education now trumps social networks when making long-distance migration, leading to a convergence in migration behavior between blacks and whites (Sandefur and Jeon 1991; Frey 1993). With the loss of manufacturing jobs in America during the final three decades of the 21st century, will the nature of deindustrialization in the areas where this macroeconomic feature is most pronounced lead to the expected positive education selection? When migrants relocate from high-manufacturing centers, will educational attainment attenuate social capital and lead to further convergence by race as suggested by the literature? Or will the rising service economy display unique characteristics that buck expectations set by current migration trends? These are the important issues my research will address. By analyzing the impact of education on out-

migration as well as interregional migration destination, I seek to elucidate not just who is more likely to migrate and under what conditions, but also what factors contribute to destination selection and how these relationships change over time.

LITERATURE REVIEW

Economic restructuring in the industrial heartland since 1970 has resulted in important macro-level changes. While deindustrialization has occurred throughout the United States, the decline has been most acute in the industrial heartland. The two decade period between 1970 and 1989 saw a nationwide decline in manufacturing employment of 2.9 percent, while the decline in manufacturing employment in the Rust Belt stood at 23.6 percent (Kahn 1998). Industrial manufacturing is frequently centered in urban areas, which has been disproportionately impacted by deindustrialization. Analysis of metropolitan statistical areas indicates that 34 metro areas between 1972 and 1986 saw a decline of 25 percent or more in manufacturing employment (Engerman and Gallman 2000). Of these 34 metropolitan statistical areas, fourteen were located in the Midwest, ten in the Northeast, and two in a Midwestern periphery (the Steubenville-Weirton OH, WV and Huntington-Ashland, OH-WV-KY metro areas) (ibid). The metro areas with the steepest declines in manufacturing were located in what the Census Bureau refers to as the East North Central (from this point onward referred to as the "Great Lakes") and the Middle-Atlantic, two division-level geographies. Because of the importance of manufacturing in these two census divisions, I will focus my analysis on out-migration from these areas (Great Lakes and Mid-Atlantic).

Although the origins of the term "Rust Belt" are somewhat unclear, it is believed that the term entered the American lexicon in 1984 when Walter Mondale "criticized Ronald Reagan for turning the industrial Midwest into a 'rust bowl'" (Safford 2009: 3). I

will speak in more detail on the selection of specific Rust Belt metropolises under consideration in the Data and Methods section.

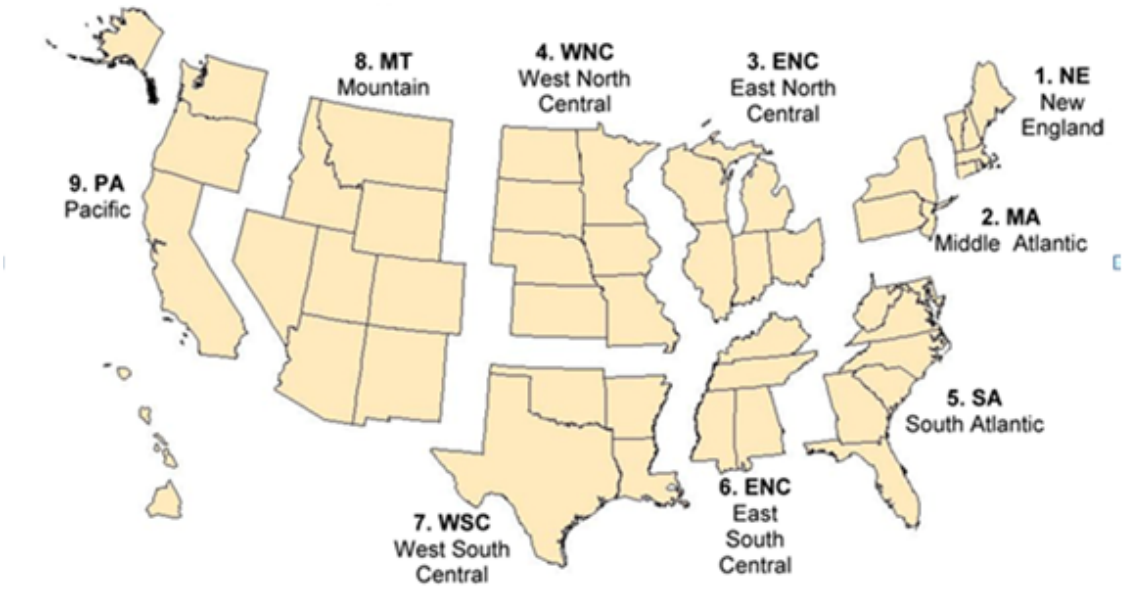

Figure 1: Nine U.S. Census Divisions
Source: U.S. Census Bureau

Education and Migration Probability

As residents of the urban industrial Rust Belt have struggled in the face of structural economic changes, it is important to note that deteriorating conditions in the home labor market have been known to induce out-migration (Clark and Ballard 1981). While migration streams from the Rust Belt to other regions are evident, we cannot expect that all Rust Belt residents will be equal in their likelihood to migrate. Higher levels of educational attainment are positively selected, meaning that those with higher educational attainment are more likely to migrate (Shryock 1965; Frey 1993). The migration of more highly educated individuals, particularly from the Midwest and Northeast, has at times been significant enough to be associated with bolstering the

human capital of the West (Evensen 1975) and slightly raising the educational attainment of whites in the South (Tarver 1969). Education is closely related to the marketable skills that make migration possible, as those with less "labor market literacy" are also less likely to migrate because they have fewer skills applicable to the current economy (Pennell 2007). The lack of labor market literacy translates to fewer employment options, and thus a lower ability to migrate in order to improve one's circumstances. While it would seem that advancing education is a good investment in regions suffering economic decline, there can be a paradoxical effect to sponsoring an increase in labor market literacy as advancing education may lead to providing residents with a better vehicle with which to leave (Mitra et al. 2008). Indeed, qualitative work on the future plans of blue collar workers in Pennsylvania has shown an explicit use of educational attainment by workers and their children to facilitate out-migration (Dublin 1998). While still others have documented the explicit pursuit of education as an enabler for out-migration (Eggert, Krieger, and Meier 2010), this issue is compounded during economic downturns as young adults display a greater likelihood to enroll in college when economic times are tough (Bozick 2009). If young adults "warehouse" themselves in a college setting during economic decline (Bozick 2009), increased educational attainment is likely to occur as a result of a bad economic climate and with it an increase in the likelihood of migrating.

While the literature suggests positive selection for out-migration is the rule, there have been circumstances where out-migration selection has been found to be negatively selected. For example, domestic migration in Botswana has been associated with lower educational levels (Lucas 1985). The results from Botswana likely reflect a gendered component, as women are less educated in this country and in such a context "tend to be

inherently more peripatetic in Botswana." (Lucas 1985: 377). What is more, studies on industry-specific (farm laborers, in this cases) migration behavior by education reveals no statistically significant relationship between education and out-migration (Emerson 1989). Because education is of very little value for farm labor employment, higher educational attainment is found to have no effect on migration likelihood for members of this specific occupation. Out-migration for whites with lower educational attainment is also found in global metropolitan areas in the U.S. (Frey 1993). For whites without high levels of education living in global metro areas such as New York City or Los Angeles, the large presence of immigrants increases competition among workers without college degrees and seemingly exerts a push on whites in these metro areas (Frey 1993). What these important counter-examples suggest is that in certain contexts, certain factors are found to trump positive selection by education. As in the case with farm workers, if the employment sought or attained by out-migrating Rust Belt residents does not require a high level of education, positive educational selection may not be present. That is, if educational attainment is of little consequence for the jobs sought by out-migrants from the Rust Belt, it should not display the typical positive selection found elsewhere. Similarly, if the immigrant presence in America's high-cost global centers of commerce is seen as posing an economic threat to the working class in these metros, the largely working class Rust Belt metropolitan areas that are under economic duress as a result of deindustrialization may also exhibit negative educational selection for migration as a result of a different kind of threat. Positive selection for out-migration is the norm, though research shows context matters and can at times yield the opposite result.

My first research question seeks to test the positive selection normally present for out-migration against the negative selection for out-migration found in certain contextual circumstances. Put more succinctly, *does the positive selection typically found in out-migration apply to the context of highly industrialized areas undergoing significant macro structural economic change*? In terms of hypothesis testing, the argument is as follows:

Hypothesis 1: Rapidly deindustrializing areas have greater out-migration.

Hypothesis 2: Individuals with higher education will be more likely to out-migrate.

Education and Destination Selection

The literature on destination selection is highly contested. Migration over long distances is thought to be heaviest between regions that are dissimilar in their economic structure as individuals seeking to maximize their economic position make the rational choice to make an interregional migration (Lim 2011). Since the time of the American Industrial Revolution, the macroeconomic structure of the Rust Belt has traditionally been in manufacturing (Sullivan 1988; Meyer 1989). With the rise of the service economy being associated with the Sun Belt (Moreton 2010), the differentiated economic structures between traditionally industrial economies and non-industrial economies may be reflected in the current migration streams. Deteriorating economic conditions in the Rust Belt and robust economic opportunities emerging elsewhere may help to explain migration from the Rust Belt to other regions. However, closer inspection of regional economic change suggests more similarity between regions than not. Consider the macro-

economic changes by occupation and by region (Mid-Atlantic & Great Lakes combined) for 1970-2000:

Table 1: Percent employed in Manufacturing, 1970-2000 (IPUMS extract)

	1970	1980	1990	2000	Change 1970-2000
Rust Belt states	30.2%	26.1%	20.1%	17.6%	(12.6)
New England	30.4%	27.3%	19.3%	14.9%	(15.5)
Plains	19.0%	18.2%	16.2%	15.5%	(3.5)
South	21.5%	20.0%	16.6%	14.0%	(7.5)
West	19.1%	17.2%	14.7%	12.0%	(7.1)
USA	24.9%	21.8%	17.4%	14.8%	(10.1)

Table 2: Percent Employed in Services, 1970-2000 (IPUMS extract)

	1970	1980	1990	2000	Change 1970-2000
Rust Belt states	25.7%	28.4%	31.6%	35.7%	10.0%
New England	26.9%	30.2%	33.4%	39.5%	12.6%
Plains	27.9%	28.4%	31.1%	33.9%	6.0%
South	27.0%	27.8%	30.6%	34.6%	7.6%
West	29.6%	30.1%	32.7%	37.3%	7.7%
USA	27.0%	28.6%	31.6%	35.7%	8.7%

While the Rust Belt states (and New England) have endured the greatest decline in manufacturing employment, the Rust Belt states have also experienced the greatest rise in service employment. The change (between very high reliance on manufacturing to a service-based economy) may be most pronounced in the Rust Belt, but analysis of descriptive data on occupational changes at the regional-level does not look sufficiently different enough to determine the direction of interregional migration. The decreasing role of manufacturing (10.1% decline nationwide) and the consequent increase in service

employment (8.7% increase nationwide) suggests that if migration is influenced in unique ways by the nature of service employment, it is in ways that are not yet fully understood. While differences between regions do not seem substantial, the decrease in manufacturing employment and the rise of service sector employment are the greatest occupational changes in the U.S. over this period of time. The greatest occupational change in a category other than manufacturing and services is in construction employment, up just 1.5% for a 30-year period. As such, the remainder of the discussion will focus primarily on educational attainment and social capital as determinants of destination selection during a period of widespread, nationwide occupational change that may be structuring migration behavior in new and unexpected ways.

While deindustrialization is most pronounced in the metropolitan Rust Belt, the rise of the service sector is taking place nationwide. Migration from one region to another may rest less on regional economic differences and more on social networks that are believed to be highly important to interregional migration. Social networks are a common theme when looking at migration destination selection and are determined by some to be as important as economic factors (Basu 1997; Haug 2008). The migration of African-Americans has historically been regarded as less responsive to economic forces than white migration (Bramhall and Bryce 1969), and contemporary research suggests racial and ethnic minorities continue to rely more on social networks for destination selection (Frey and Liaw 2005). Social capital, when measured as the percentage of coethnics in a destination, is more vital to destination selection for blacks migrating to the South in part due to the community's "long-standing roots" in the region (Frey and Liaw 2005: 218). The presence of a large share of coethnics in the South acts as a constraint on other

possible destination selections. Cultural constraints facilitate certain interregional migration patterns for groups that are more likely to rely on "social support networks, kinship ties, and access to informal employment opportunities that tend to be available in areas that house large concentrations of coethnics" (Frey and Liaw 2005: 208). Other socio-environmental factors are associated with higher likelihood of black migration as well, such as temperature and the number of sunny days, local crime levels, as well as the aforementioned share of blacks at a given destination location (Lee and Roseman 1999). Moreover, return migration to the South of former southern residents remains higher for blacks than for whites (Wilson et al. 2008). Social network ties may play a greater role for black migrants due to having "historic and/or cultural ties to the South" (Hunt, Hunt, and Falk 2008:98). Indeed, scholars first noting "reverse migration" (of blacks to the South) suggest "additional opportunities" and "improved social conditions for blacks" in the region in conjunction with "deteriorating social and economic conditions in northern cities" (McHugh 1987:173) are vital elements to understanding the social network ties that shape this particular migration.

As noted earlier, the nature of a changing economy in favor of service-sector employment may increase the importance of social networks when selecting a destination. Work in the service economy is seen as being "intensely social," with most work-related tasks involving "human interaction" (Moreton 2010:69). More than other forms of employment, the "personal characteristics of the workers [are] strongly associated with the nature of work" in service-sector fields (Macdonald and Sirianni 1996:15). Indeed, while factory workers or those otherwise employed in manufacturing could "openly hate" their job and coworkers so long as the basic tasks of the job were

accomplished, today's service workers must at least "pretend to like their jobs" (Macdonald and Sirianni 1996: 4) due to the "emotional labor" inherent to interactive service jobs. If interface with the public is of greater importance when seeking gainful employment in the service economy, then an attraction toward the region where blacks have deeper historical and cultural ties might be expected. As a result, service sector employers in the South may look to black workers more than employers in other regions, as African-Americans are deeply embedded in southern culture to a degree simply not found elsewhere. This cultural embeddedness and its advantage to working in the service sector may work in a number of ways. The higher share of blacks in the South means that a greater share of clientele is likely to consist of people of color. As such, hiring service workers of similar background as that of a large share of the clientele is an integral consideration in occupations where establishing personal connections is an important component of the job. What is more, the white clientele in the South may be equally receptive to black service workers, stemming from the feeling of being (culturally) "co-related…[where] the Southern white and Southern black understand each other---whether they like one another or not" (Rollins 1985:233). This mutual, cultural connectedness is seen as allowing blacks and whites in the South to understand each other's "goings and comings" in ways that enable blacks in the service sector to "feel a little easier with them [Southern whites]" (Rollins 1985:233). Due to the long-established presence of blacks and whites living together in the South, employers in that region are less likely to incur market penalties from hiring African-American workers. As a result, employers may benefit from adopting a business strategy that seeks to hire black workers who are found to be well-suited to maneuver within Southern culture and society.

While research points to the attraction of co-ethnics when discussing black migration toward the South, the literature also suggests that this attraction decreases with an increase educational attainment (Frey 1993). In this sense, education may be seen as the great equalizer, where those with higher education display more homogenous migration tendencies and toward a high-education convergence in migration behavior. Krieg (1993) offers conflicting results on education and interregional migration. For instance, when taking race and other important variables into account, Krieg (1993) shows that higher educational attainment equates to a higher likelihood of migrating to the South or West. The likelihood of migrating to either region with an increase in education is similar (Krieg 1993). However, the introduction of a race/education interaction variable unearths different regional migration probabilities by race and education that change over time. For example, blacks have a greater probability than whites of moving to the West in 1970, though as educational attainment increases as determined by the interaction variable, this higher probability recedes. Similarly, whites are more likely than blacks to migrate to the South by 1980, though the probability of blacks migrating to the South increases to the point of whites' probability with increased education. Krieg states that the "break even" point in 1980 for blacks migrating to the South is at 16 years of education. That is, differences in the probability between white and black migration to the South are erased for college graduates. Krieg suggests that the rising educational selection for migration to the South likely explains closing the racial migration gap once education is accounted for. More recent work also suggests an overall migration convergence for those that have higher levels of education. For blacks, the pull toward co-ethnics is attenuated as one's educational attainment goes higher (Sandefur

and Jeon 1992). Latino migration to "new destinations" also reveals a unique educational effect, as more highly educated Hispanics forge pathways into areas not typified by prior Hispanic migration settlement (Stamps and Bohon, 2006; South, Crowder, and Pias 2008). Various demographic traits are relevant when examining interregional migration, though such traits appear to become much less important as educational attainment increases.

Whether the changing economic structure at the expense of manufacturing in favor of service occupations is related to or responsible for the rise in educational attainment is unclear. What is clear is that there is an increase in polarization of new jobs in the service economy, as studies point to "expanding job opportunities in both high-skill, high-wage occupations and low-skill, low wage occupations, coupled with contracting opportunities in middle-wage, middle-skill white-collar and blue-collar jobs" (Autor 2010:1). The rise of college education has been particularly profound, considering that "just under 1 adult in 20 held a bachelor's degree in 1940" yet by the year 2000 "almost 1 adult in 4 had attained this educational level" (U.S. Census Bureau 1983). The debate on education and the changing economy can be summed up as follows:

> On one side are those who argue that a shift toward a service-based economy will produce skill upgrading and a leveling of job hierarchies as information and communications technologies reshape the labor market. Others take a more pessimistic view, arguing that the shift to services will give rise toward polarization and a greater increase in low-end service opportunities. (Macdonald and Sirianni 1996:15)

This quandary comprises the essence of my second research question, which is*: does educational attainment attenuate social capital for blacks when looking at destination selection for out-migrating Rust Belt residents*? The hypothesis is as follows:

Hypothesis 3: Educational attainment will reduce the importance of social capital when examining interregional migration destination selections for out-migrating Rust Belt residents of African-American descent.

Additional Considerations

Many other factors are found to be important when looking at interregional migration selection. The eroding industrial base in the Rust Belt starting in the 1970s combined with the large Baby Boomer population entering adulthood at the same period is seen as increasing the number of workers in competition with one another in this region (Bluestone and Harrison 1987). This increase in the surplus population has a demographic age component. As the large Baby Boomer cohort came of age, the need arose for an increase in employment opportunities (Plane 1992). With fewer jobs but a greater population entering the workforce, conditions made it more difficult for many Baby Boomers to match the income expectations set by their parents and to start a family and purchase a home (Pandit 1997). Educational attainment reduces the effect of other demographic attributes when it comes to interregional migration, though this should not be interpreted as suggesting that college educated migrants show no regional preferences. Research on the sub regional (divisional) migration preferences of young college educated adults highlights the attraction of two census division-level geographies. The Mountain West and South Atlantic have "gained roughly 15 to 30 percent more young college graduates as a result of migration from other regions of the country" (Kodryzycki 2001:30). A number of factors account for this attraction, many of which are frustratingly "unobservable to researchers" (Kodryzycki 2001:30). While long-distance migration decisions are challenging to account for, the "particularly strong economies" (Kodryzycki

2001:32) of the Mountain West and South Atlantic are likely enticements for young educated migrants. Prior work indicates that higher education may wash away the importance of other demographic characteristics, but that higher educational attainment is itself a powerful forecaster of interdivisional migration destination selection. Prior research on this topic underscores the importance of age differentials when looking at migration.

Household size is another factor where differences in migration behavior can be detected. Larger households are typically less likely to migrate unless external local conditions deteriorate, at which point larger households respond with a greater increase in migrational probabilities (Odland and Ellis 1988). Socioeconomic status (SES) plays a key role as well, with higher SES individuals often placing importance on natural amenities in their destination selection (Nelson 1999; Shumway and Otterstrom 2001). For lower SES individuals, employment opportunities are a more integral component of destination selection (Danaher 2001) while the record is mixed regarding the significance of state-level welfare benefits for poorer migrants (Friedli 1986; Danaher 2001; De Jong 2005). The importance of economic issues varies greatly by age, as younger migrants are more likely than older migrants to relocate based on economic opportunity concerns (Morgan and Robb 1981). The religious composition of sending and receiving locations is also an important consideration, as the religious composition of a state can attract migrants belonging to the dominant faith more than other religious groups (Toney, Stinner, and Kan 1983). While all of these measures are not available for consideration, they do inform my construction of the control variables that I have selected in the proceeding analysis.

What I seek to test is the notion that educational attainment will reduce the importance of the other demographic variables seen as influencing destination selection. Put differently, as education increases, the differences among groups that select one census region over another will be accounted for, with education providing a pathway toward convergence in interregional migration behavior. This will be highlighted by focusing on black migration (relative white migration). Controlling for the many ways regional migration selection is determined according to the literature, interregional migration differences by race will be lessened by educational attainment. Education in this sense will further prove to be the pathway to convergence of migrational behavior in the U.S., where race becomes less relevant. Meanwhile, the pull toward the two fastest-growing census regions is expected to be fueled in great part by more highly educated migrants.

DATA AND METHODS

To address my research questions and test my hypotheses, I rely on 5% census Integrated Public Use Microdata Samples (IPUMS) extracts for 1980, 1990, and 2000, as well as 1970 for contextual starting-point data. IPUMS allows users to easily download census data and to analyze the data on statistical programs such as SPSS, STATA, and SAS. I use SPSS for my analysis.

My first research question looks to test the selection for out-migration from the Rust Belt metro areas and to measure out-migration by the degree of deindustrialization experienced at the metro level. The Rust Belt, "spreading through New York to Pennsylvania and Ohio and on to the shores of Lake Michigan," (Safford 2009: 3) roughly corresponds with the two census-designated division-level geographies (Great Lakes and Middle Atlantic) that I focus my analysis of out-migration on. I further restrict my unit of analysis to out-migration from specific metropolitan statistical areas in the Rust Belt. This is a very important consideration when looking at the effects of deindustrialization on out-migration, as not all Rust Belt geographies have been traditionally reliant on the manufacturing sector. Indeed, while many cities in the Middle Atlantic such as Buffalo, NY and Pittsburgh, PA are heavily dependent on manufacturing, others such as the New York City have more diverse economic structures and may not suffer as jolting an economic shock over the course of deindustrialization. The same nuance is required when looking at parts of the Great Lakes states, much of which overlaps with the so-called "Corn Belt" where manufacturing has been less vital to the local economy. Indeed, when assessing the affects of deindustrialization on migration

behavior, it is important to focus on highly industrialized metropolitan areas within the general Rust Belt states more than locations such as New York City or rural, southern Illinois.

Restricting my focus to areas designated by the U.S. Census Bureau as metropolitan statistical areas within these two Rust Belt census divisions, I have decided to focus on metropolitan areas that meet two criteria. First, the metropolitan area must be located within the two census division areas (Great Lakes and Mid-Atlantic) that are otherwise known as "the Rust Belt." Secondly, the metropolitan area must be regarded as a high manufacturing metro area. Using 1970 data (IPUMS extract), the following are metro areas in the Rust Belt states that are approaching one standard deviation above the national average (of 24.9%) for percent of workers employed in manufacturing. Important to note, these 23 metropolitan areas account for 85.2% of all metropolitan areas in the U.S. that approach one standard deviation above the national average for manufacturing employment. Just 4 additional metropolitan areas match the 30.7% threshold of the Cincinnati, OH metro area, with two of them being located in the upland South and two located in southern New England. This concentration of high manufacturing urban centers truly underscores the reason for the area being designated as "the Rust Belt." My units of analysis are therefore individuals residing in historically highly industrialized metropolitan statistical areas located in the Great Lakes and Middle-Atlantic census divisions (aka the Rust Belt).

Table 3: Manufacturing Employment in 1970, by Metropolitan Statistical Area

Metropolitan Statistical Area	Percent Employed in MFG
Reading, PA	44.3
Allentown, PA	43.1
Rockford, IL	42.6
Flint, MI	41.9
York, PA	41.5
Erie, PA	41.0
Lorain, OH	40.8
Youngstown, OH	40.4
Lancaster, PA	40.2
Scranton-W.B., PA	39.4
Canton, OH	39.1
Appleton, WI	38.7
Binghamton, NY	37.0
Rochester, NY	35.9
Detroit, MI	35.1
South Bend, IN	34.8
Dayton, OH	34.7
Akron, OH	34.6
Cleveland, OH	33.8
Milwaukee, WI	33.6
Toledo, OH	32.5
Chicago, IL	31.4
Cincinnati, OH	30.7

To determine levels of deindustrialization, I compare the share of residents within a census designated Rust Belt metropolitan statistical area who are employed in manufacturing in 1970 to the share employed in manufacturing in 1980, and so on for each 10 year interval between censuses. The share of individuals within any given metropolitan statistical area working in manufacturing is determined by the U.S. Census Bureau for the 1970, 1980, 1990, and 2000 censuses, providing me with three time periods (1970-1980, 1980-1990, and 1990-2000) to measure deindustrialization. The percent change for those employed in manufacturing is a commonly used metric for

measuring deindustrialization (Jaffee 1986; Kutscher and Personick, 1986; Doussard et al. 2009). The "rate of change" in the percent employed in manufacturing between decennial censuses in each metropolitan statistical area is my independent variable. That is, metropolitan statistical areas located in the Rust Belt where the share of individuals employed in manufacturing decreases the most are expected to have higher levels of out-migration. Focusing on Rust Belt metropolitan statistical areas where manufacturing has traditionally been important allows me to gauge how the decline in manufacturing is associated with out-migration. To measure the severity of deindustrialization with out-migration, I employ a three-tiered deindustrialization categorization for the 23 metropolitan areas identified as high manufacturing metro areas. These categories consist of "D1," "D2," and "D3," (designed to represent a scale of worsening deindustrialization), with a metro area's membership in these categories being determined by the previous decade's relative decrease in manufacturing as measured by the census. Splitting the 23 metropolitan areas into sets of three deindustrialization categories allows me to gauge how membership in the "D3" category (greatest relative decline in manufacturing between censuses) leads to (the expected) greater odds of out-migration relative metro areas experiencing less severe deindustrialization (or those in the "D1" or "D2" categories).

To measure migration behavior I use a 5% Integrated Public Use Microdata Sample (IPUMS) for 1980, 1990, and 2000. These data inquire about residence five years prior to the census, allowing users to assess migration flows from 5 years prior to each census year. IPUMS also allows users to determine how many individuals have migrated from one location to another within the previous 5 years of the census. This enables me to

explore interregional migration by various demographic characteristics and to test how significant rapid deindustrialization is to facilitating out-migration. The inquiry on previous residence gives information on the number of individuals living within a metropolitan statistical area who have continued to reside there, and on the total number of individuals who have out-migrated from that metropolitan statistical area during the same period. This allows me to calculate migration probability, the dependent variables for my first research question, and to compare it to manufacturing decline, the severity of which is expected to be associated with a higher likelihood of out-migrating. I am also equipped to compare movers to stayers in order to measure the role educational attainment plays in this process. As noted by the literature, I expect those with higher educational attainment to be positively selected for migration and to contribute a greater share to those who are out-migrating. As with levels of deindustrialization, migration behavior is measured over three periods: 1975-1980, 1985-1990, and 1995-2000. While deindustrialization is measured over the course of an intercensal decade, the structure of the census inquiry on migration necessitates measuring migration behavior by looking at the latter 5 years of each decade. The census data also limits my ability to measure return migration. While the literature indicates social network ties are important to return migration, the census question on migration does not allow for differentiating this type of migration.

To measure out-migration, I look at those that indicated a past Rust Belt metro residence as measured by the variable MIGMET5 (metro area of residence 5 years prior to census) and those who did or did not indicate the same place of residence in the variable METAREA (metropolitan area of current residence). Those who match

(MIGMET5 and METAREA are the same) are non-migrants while those that differ (METAREA is different than MIGMET5) are out-migrants. This is coded as a binary outcome variable with non-migrants as the reference group, allowing me to assess the odds of out-migrating based on the independent variables placed in a binary regression model (residents either moved or did not move). For my second binary regression, I introduce the deindustrialization categorization (D1 through D3) to determine how membership in a severely deindustrializing metro area impacts odds of out-migration and if positive educational selection remains in the face of the geographically specific locations undergoing rapid macroeconomic change.

Once the association between deindustrialization and out-migration is determined, I entertain my second research question by looking at interregional destination selection for individuals who leave Rust Belt metropolitan statistical areas, with an emphasis on relocation to the South or West. The South and West are regions that have been gaining residents as a result of net-migration from other regions over the period of my analysis (Pew 2008). Out-migrants from the metropolitan Rust Belt will either relocate to another location within the Rust Belt states, to the South or West, or to the Plains or New England (the last two locations receive very few migrants from the Rust Belt and are entered as control locations). Other controls as determined by the literature include age, marital status, Hispanic origin, and sex.

I use a multinomial regression model for my second research question to predict several possible outcomes that are categorical but more than two. Using similar techniques used in the binary regression, I recode and combine those that indicate residence in one of my selected Rust Belt metro areas 5 years prior to census

(MIGMET5) with those who indicate a different area of residence by 2000 (METAREA). This allows me to look specifically at those who did reside in the metro Rust Belt 5 years earlier but who by the time of the census no longer reside in the same place; or more specifically, at "out-migrants" only. The new variable looking only at "Rust Belt out-migrants" is entered as a covariate, with "region of current residence" entered as the dependent variable. For region, "Rust Belt states" (the Mid Atlantic and Great Lakes census divisions) are the reference category while residence in the South or West are my primary outcomes (residence in New England or Plains states held constant as controls). My independent variable focuses primarily on race to measure black migration to the South (where social capital is thought to lead to higher migration), with an expected attenuation of social capital by including an educational attainment variable. Important control variables as determined by the literature include age, sex, marital status, and Hispanic origin for the first multinomial regression, followed by a second regression analysis that takes educational attainment into consideration. Education is categorized as having less than a high school education, having a high school degree, having "some college" experience, having a Bachelors degree, and having post graduate experience or higher. Having less than a high school diploma constitutes the reference category in order to assess the greater likelihood of migration by education. Age is broken into the categories "under 18," "18-39," "40-59," and "over 60." Educational variation exists primarily for those over the age of 18, so those "under 18" are the reference category. Sex is entered as a binary variable with males as the reference category, while race and ethnicity are measured in relation to white migrational behavior which is the reference category.

Inherent in research that looks at mixed geographic units is the concern over external validity. My research looks to gauge how structural economic changes, in this case deindustrialization, triggers long-distance out-migration, at which point special emphasis on the locations identified by the literature as part of the industrial heartland becomes essential. While metropolitan statistical areas with high shares of residents working in the declining manufacturing sector provide an adequate measure of "deindustrialization," it is the individuals in these metropolitan statistical areas whose interregional migration behavior I am most interested in measuring. In this sense, the metropolitan statistic area provides insight on who to focus my research on. Individuals residing in these metro areas will either move out of the specific metropolitan statistical areas linked to manufacturing decline for other census regions or they will not move. Once the degree of deindustrialization and the relation to probability of out-migrating is established, measuring higher levels of educational attainment's capacity to trump social capital for interregional migration is be explored. This presents another validity challenge, this time on internal validity. While other explanations may provide insight on interregional migration, the analysis is limited by what the Census Bureau offers. For example, religion may play a crucial role in destination selection. With the highest share of Evangelical Christians being located in the South, the inability to take religion into account may mask how Evangelical Rust Belt migrants select the South over other interregional destinations. Without information on religion available in the data set, only those variables accounted for by the census are able to be assessed. Based on prior research, many of the integral determinants of interregional migration look to be accounted for by this work.

RESULTS

The binomial regression is designed to examine the relation among more severely deindustrializing metropolitan areas in the Rust Belt and how deindustrialization impacts out-migration odds. Binomial results are listed as Tables 4 through 6 and in order by year for 1980, 1990, and 2000.

Table 4: 1980 Binomial Results

	Sig.	Odds	95% CI (lower)	95% CI (upper)	Sig.	Odds	95% CI (lower)	95% CI (upper)
male								
female	.000	.952	.935	.968	.000	.951	.934	.968
white								
black	.000	.505	.491	.520	.000	.544	.529	.559
Hispanic	.000	1.906	1.810	2.008	.000	1.644	1.560	1.732
Under 18								
18-39	.000	1.309	1.270	1.349	.000	1.312	1.272	1.353
40-59	.000	1.346	1.301	1.393	.000	1.338	1.292	1.385
Over 60	.002	1.057	1.020	1.095	.074	1.034	.997	1.072
Less than HS								
HS dip	.061	1.042	.998	1.089	.039	1.048	1.002	1.095
Some coll	.000	1.153	1.109	1.198	.000	1.154	1.109	1.200
Coll deg.	.000	1.828	1.763	1.896	.000	1.921	1.851	1.994
Post grad	.000	2.285	2.196	2.377	.000	2.368	2.274	2.466
D1								
D2					.000	3.234	3.148	3.323
D3					.000	3.363	3.276	3.453

N = 249,955. Source: IPUMS 5% extract of 1980 census

Table 5: 1990 Binomial Results

	Sig.	Odds	95% CI (lower)	95% CI (upper)	Sig.	Odds	95% CI (lower)	95% CI (upper)
male								
female	.000	.922	.910	.934	.000	.918	.906	.931
white								
black	.000	.607	.594	.620	.000	.624	.611	.638
Under 18								
18-39	.000	1.426	1.388	1.464	.000	1.455	1.416	1.495
40-59	.000	1.341	1.310	1.373	.000	1.379	1.347	1.413
Over 60	.000	1.209	1.174	1.245	.000	1.244	1.207	1.281
Less than HS								
HS dip	.962	.999	.967	1.032	.763	1.005	.972	1.039
Some coll	.000	1.164	1.130	1.200	.000	1.171	1.136	1.208
Coll deg.	.000	1.624	1.576	1.674	.000	1.671	1.620	1.724
Post grad	.000	1.863	1.800	1.927	.000	1.903	1.838	1.970
D1								
D2					.000	1.454	1.420	1.489
D3					.000	1.997	1.967	2.029

N = 401,472. Source: IPUMS 5% extract of 1990 census

The deindustrialization score is marked as D1, D2 and D3, with each consisting of approximately 8 Rust Belt metro areas placed in the deindustrialization category based on relative loss of manufacturing employment over the prior decade. D1 consists of the metro areas experiencing the least deindustrialization while D3 represents the most severe deindustrialization over the prior decade (with D2 representing the middle). The expectation that more severe deindustrialization leads to higher odds of out-migration is met, though this relation decreases to statistical non-significance by the year 2000.

Table 6: 2000 Binomial Results

	Sig.	Odds	95% CI (lower)	95% CI (upper)	Sig.	Odds	95% CI (lower)	95% CI (upper)
male								
female	.000	.930	.918	.942	.000	.930	.918	.942
white								
black	.000	.583	.572	.595	.000	.586	.574	.598
Under 18								
18-39	.000	1.259	1.229	1.289	.000	1.272	1.241	1.304
40-59	.000	1.088	1.065	1.113	.000	1.104	1.079	1.129
Over 60	.035	1.033	1.002	1.064	.018	1.037	1.006	1.069
Less than HS								
HS dip	.000	1.131	1.099	1.164	.000	1.126	1.093	1.159
Some coll	.000	1.180	1.148	1.213	.000	1.142	1.110	1.174
Coll deg.	.000	1.618	1.577	1.661	.000	1.566	1.525	1.608
Post grad	.000	1.953	1.892	2.016	.000	1.919	1.858	1.982
D1								
D2					.000	1.298	1.280	1.316
D3					.004	1.029	1.009	1.049

N = 421,238. Source: IPUMS 5% extract of 2000 census

Residents residing in Rust Belt metropolitan areas experiencing the most and second most severe deindustrialization in 1980 (Table 4) have 3-times greater odds of out-migrating than the metro areas experiencing more gradual deindustrialization. These trends continue in 1990 (Table 5) as the higher odds of out-migration for the most severely deindustrializing metropolitan areas remains nearly twice as high as the reference category, while the odds of out-migrating from the middle deindustrialization category stands at 42 percent greater odds of out-migrating. By 2000 (Table 6), there is

no statistically significant relation between the least and most severe deindustrialization metropolitan areas, while the middle group shows only slightly higher odds of out-migration compared to the reference category.

The second important finding from the binomial tables reaffirms the expected positive educational selection taking place. For each year, migration is positively selected for higher educational attainment. While research has shown that controlling for specific macro context can reveal negative selection on education, results show out-migrating Rust Belt residents are more likely to have higher levels of education. This positive selection remains in place both before and after taking into account deindustrialization. The positive selection for education is not altered substantially when taking deindustrialization into account. Positive selection for educational attainment slightly increases for both 1980 and 1990 when taking deindustrialization into account, while this relationship is slightly weakened by 2000. For each year, the coefficients remain surprisingly consistent, with those with post-graduate experience (the highest category) having roughly twice the likelihood of out-migration when compared to those without a high school education (reference category).

Regarding destination, descriptive data (Tables 7-9) show that the vast majority out movers from the metropolitan Rust Belt remained located in the broader Rust Belt states, confirming Ravenstein's classical contention that most moves are short-distance moves (Raventstein 1885). While the majority of out-migrations from the selected 23 metropolitan areas are more likely to relocate within the greater Rust Belt states (Mid-Atlantic and Great Lakes destinations), the descriptive tables also show that more than one in ten out-migrants relocates to the fast-growing South or West.

Table 7: Descriptive Data on Out-Migrants from Rust Belt, 1980

		N	Percent
DESTINATION	RUST BELT	212369	85.0%
	NEW ENGLAND	1605	.6%
	GREAT PLAINS	3212	1.3%
	SOUTH	21271	8.5%
	WEST	11498	4.6%
age	under 18	56835	22.7%
	18-39	134526	53.8%
	40-59	36007	14.4%
	over 60	22587	9.0%
ETHRACE	HISPANIC	9754	3.9%
	BLACK	36043	14.4%
	WHITE	204158	81.7%
Sex	Male	122098	48.8%
	Female	127857	51.2%
Edu	less than HS	103314	41.3%
	HS	74286	29.7%
	some college	39204	15.7%
	coll graduate	18964	7.6%
	post graduate	14187	5.7%
Total		249955	100.0%

Source: IPUMS 5% extract of 1980 census

The multinomial regression looks at migration from the Rust Belt to the South and West. Race and education are highlighted to determine whether the inclusion of educational attainment attenuates the tendency of blacks to migrate to the South due to social capital, or if social capital in the context of an emerging service economy remains or reemerges as a primary determinant in interregional migration. Multinomial results are listed as tables 10 through 15 and in order by year and region for 1980, 1990, and 2000.

Table 8: Descriptive Data on Out-Migrants from Rust Belt, 1990

		N	Percent
DESTINATION	RUST BELT	345148	86.0%
	NEW ENGLAND	2951	.7%
	GREAT PLAINS	3770	.9%
	SOUTH	35675	8.9%
	WEST	13928	3.5%
Sex	Male	194065	48.3%
	Female	207407	51.7%
age	under 18	82676	20.6%
	18-39	208841	52.0%
	40-59	69226	17.2%
	over 60	40729	10.1%
ETHRACE	WHITE	324829	80.9%
	BLACK	57725	14.4%
	HISPANIC	18918	4.7%
EDU	Post grad	22202	5.5%
	coll	47574	11.8%
	Some coll	97740	24.2%
	HS	107529	26.6%
	Less than HS	129648	32.0%
Total		401472	100.0%

Source: IPUMS 5% extract of 1990 census

The migration odds for blacks from the Rust Belt to the South remain higher than for whites for each year. The inclusion of educational attainment *increases* the likelihood of black migration to the South, contrary to expectations in support of social network explanations. For the migration of blacks to the West, 1980 findings (Table 11) indicate no statistically significant difference for blacks when compared to whites with and without the educational attainment variable, consistent with Krieg's (1993) findings for that year. For 1990 (Table 13), blacks from the Rust Belt are interestingly *more* likely to migrate to the West than whites. While Krieg's migration analysis covers 1970 and 1980, his 1970 findings on race are similar to my 1990 findings in that they also reveal slightly

higher odds of black migration to the West when compared to whites. By 2000 (Table 15), blacks in the Rust Belt are substantially less likely to migrate to the West than whites.

Table 9: Descriptive Data on Out-Migrants from Rust Belt, 2000

		N	Percent
DESTINATION	RUST BELT	361898	85.9%
	NEW ENGLAND	2664	.6%
	GREAT PLAINS	4598	1.1%
	SOUTH	37649	8.9%
	WEST	14429	3.4%
Sex	Male	204746	48.6%
	Female	216492	51.4%
age	under 18	88487	21.0%
	18 to 39	195250	46.4%
	40 to 59	93457	22.2%
	above 60	44044	10.5%
ETHRACE	HISPANIC	33165	7.9%
	BLACK	68260	16.2%
	WHITE	319813	75.9%
EDU	Post grad	28207	6.6%
	coll	57773	13.5%
	Some coll	79276	18.5%
	HS	136471	31.9%
	Less than HS	126230	29.5%
Total		421238	100.0%

Source: IPUMS 5% extract of 2000 census

The multinomial results also highlight the increasing role educational attainment plays when looking at interregional migration. For 1980, there is a negative relationship between educational attainment and migrating to the South. While this relationship turns positive for 1990 and 2000, the odds of migrating to the South by educational attainment remain moderate. For the West in 1980, positive educational selection for westward migration is moderate but increases substantially in proceeding years. For 1990, Rust Belt migrants with post-graduate experience are more than twice as likely as those without a

high school diploma to move West, while by 2000 post-grads are more than three times as likely as those lacking a high school degree to move West.

Table 10: 1980 Multinomial Results for the South

SOUTH	Sig.	Odds	95% CI (lower)	95% CI (upper)	Sig.	Odds	95% CI (lower)	95% CI (upper)
Male								
female	.002	.951	.920	.982	.000	.942	.912	.974
white								
black	.000	1.281	1.214	1.352	.000	1.254	1.188	1.324
Under 18								
18-39	.000	2.103	1.981	2.233	.000	2.292	2.150	2.444
40-59	.000	1.229	1.164	1.298	.000	1.397	1.311	1.488
Over 60	.000	.801	.768	.835	.177	.961	.907	1.018
Less than HS								
HS Dip					.010	.935	.888	.984
Some coll					.000	.685	.646	.726
Coll deg					.000	.798	.745	.855
Post grad					.000	.766	.711	.826

N = 21271. Source: IPUMS 5% extract of 1980 census

Table 11: 1980 Multinomial Results for the West

WEST	Sig.	Odds	95% CI (lower)	95% CI (upper)	Sig.	Odds	95% CI (lower)	95% CI (upper)
male								
female	.000	.917	.881	.955	.000	.923	.886	.962
white								
black	.502	.975	.905	1.050	.893	1.005	.933	1.083
Under 18								
18-39	.000	1.723	1.590	1.866	.000	1.472	1.347	1.609
40-59	.000	1.196	1.113	1.285	.434	.966	.885	1.054
Over 60	.018	1.067	1.011	1.126	.000	.836	.772	.905
Less than HS								
HS Dip					.000	1.328	1.238	1.425
Some coll					.000	1.236	1.145	1.333
Coll deg					.000	1.322	1.212	1.442
Post grad					.000	1.480	1.351	1.622

N = 11,498. Source: IPUMS 5% extract of 1980 census

Table 12: 1990 Multinomial Results for the South

SOUTH	Sig.	Odds	95% CI (lower)	95% CI (upper)	Sig.	Odds	95% CI (lower)	95% CI (upper)
male								
female	.001	.960	.936	.984	.003	.963	.940	.003
white								
black	.000	1.504	1.447	1.564	.000	1.526	1.467	1.587
Under 18								
18-39	.000	1.950	1.865	2.038	.000	1.821	1.728	.000
40-59	.000	1.332	1.279	1.388	.000	1.214	1.151	.000
Over 60	.000	.896	.866	.927	.000	.827	.786	.000
Less than HS								
HS Dip					.000	1.129	1.080	.000
Some coll					.259	.974	.931	.259
Coll deg					.000	1.169	1.111	.000
Post grad					.000	1.278	1.201	.000

N = 35,675. Source: IPUMS 5% extract of 1990 census

Table 13: 1990 Multinomial Results for the West

WEST	Sig.	Odds	95% CI (lower)	95% CI (upper)	Sig.	Odds	95% CI (lower)	95% CI (upper)
male								
female	.000	.898	.867	.930	.000	.908	.876	.941
white								
black	.000	1.175	1.107	1.247	.000	1.255	1.182	1.334
Under 18								
18-39	.000	1.701	1.590	1.821	.000	1.184	1.088	1.289
40-59	.000	1.313	1.235	1.397	.000	.805	.739	.878
Over 60	.000	1.211	1.151	1.273	.000	.735	.678	.797
Less than HS								
HS Dip					.000	1.534	1.427	1.650
Some coll					.000	1.559	1.450	1.677
Coll deg					.000	2.040	1.887	2.206
Post grad					.000	2.342	2.142	2.561

N = 13,928. Source: IPUMS 5% extract of 1990 census

Table 14: 2000 Multinomial Results for the South

SOUTH	Sig.	Odds	95% CI (lower)	95% CI (upper)	Sig.	Odds	95% CI (lower)	95% CI (upper)
male								
female	.121	.982	.959	1.005	.335	.988	.965	1.012
white								
black	.000	1.312	1.268	1.358	.000	1.357	1.310	1.406
Under 18								
18-39	.000	1.581	1.516	1.650	.000	1.548	1.468	1.633
40-59	.000	1.195	1.152	1.239	.000	1.151	1.092	1.213
Over 60	.000	.874	.847	.903	.000	.852	.810	.896
Less than HS								
HS Dip					.809	.995	.952	1.039
Some coll					.000	.887	.845	.930
Coll deg					.000	1.196	1.137	1.257
Post grad					.000	1.338	1.264	1.417

N = 37,649. Source: IPUMS 5% extract of 2000 census

Table 15: 2000 Multinomial Results for the West

WEST	Sig.	Odds	95% CI (lower)	95% CI (upper)	Sig.	Odds	95% CI (lower)	95% CI (upper)
male								
female	.015	.959	.927	.992	.061	.968	.935	1.002
white								
black	.000	.577	.540	.618	.000	.649	.606	.695
Under 18								
18-39	.000	1.494	1.400	1.595	.255	.949	.866	1.039
40-59	.000	1.353	1.280	1.430	.000	.766	.700	.838
Over 60	.000	1.145	1.091	1.203	.000	.652	.599	.711
Less than HS								
HS Dip					.000	1.373	1.270	1.485
Some coll					.000	1.520	1.401	1.648
Coll deg					.000	2.615	2.411	2.836
Post grad					.000	3.157	2.893	3.446

N = 14,429. Source: IPUMS 5% extract of 2000 census

DISCUSSION AND CONCLUSIONS

Between 1970 and 2000, the U.S. has undergone significant macroeconomic changes that have resulted in an exodus from the urban Rust Belt along with the rapid growth of the South and West. My research aims to examine the micro-level mechanisms that influence migration likelihood and destination outcomes in a setting definied by deindustrialization. Analysis of IPUMS data illustrates the selection role education plays for both out-migration and interregional destination choices. While educational attainment remains an integral component of migration and destination, proximate measures of social capital for racial minority groups continues to exert a stronger influence when looking at destination outcomes.

In my first hypothesis, I anticipated metro areas with more severe deindustrialization would experience greater out-migration. Results confirm that for 1980 and 1990, out-migration odds for the Rust Belt were much higher in metro areas that experienced greater levels deindustrialization. As the nation witnessed manufacturing jobs being replaced by service-sector employment, the areas in the Rust Belt hardest hit by deindustrialization endured the greatest exodus of residents led by those best suited to escape. By the year 2000, however, Rust Belt metropolitan areas had already lost much of their industrial base and residents no longer vacated at higher rates based on the loss of manufacturing employment. My second hypothesis asserted higher educational attainment as a positive selection factor for out-migration. As expected, increases in educational attainment are consistently associated with greater odds of out-migration from the metropolitan Rust Belt. The positive selection on educational attainment

indicates that those who could move out did so at a much higher rate. Positive educational selection has decreased slightly from 1980 to 2000 but remains very strong.

In my third hypothesis, I looked to test educational attainment on destination selection for black migrants from the Rust Belt against social capital explanations. Social capital has been regarded as an important factor when looking at the migration of racial minorities (Frey and Liaw 2005). While some have suggested migrational convergence is taking place (Sandefur and Jeon 1992; Frey 1993, Krieg 1993), multinomial results show that the context of highly deindustrializing metropolitan areas produces a sustained preference by black migrants for southern destinations while at the same time revealing a decreasing preference for the West as a destination. The nature of service employment may offer clues to explain the continuity of social capital and the pull toward the South for blacks. Indeed, as Tables 1-2 show, the gain in the share of occupations considered "service sector" employment has come during an almost equal level of decline in manufacturing employment. Service employment differs from the dominant form of economic activity in the Rust Belt in important ways. The high degree of interaction inherent to service employment has led employers to pursue "emotion management" of employees who must convey the proper attitude to customers. As a result of the increasing public interface required of service-sector employment, employers have begun looking for specific personality types—or "soft skills"---deemed most suitable for appealing to the customer. Studies of employer attitudes reveal concerns over "black dialect," stereotypes about black "hostility or oversensitivity," and other behavioral and attitudinal traits that have an elevated importance in the new economy (Moss and Tilly 2001:240). The ability to appeal to customers was not an important factor for employers

when making hiring decisions for factory work, where there was a greater reliance on "hard skills" such as experience, training and technical knowledge. As employers in the rapidly-growing service sector feel the need to hire workers who have personal characteristics most likely to appeal to the greater public at large, blacks may find the long-established, normative presence of African-Americans operating within southern culture to be more conducive for gaining service employment. Indeed, the manner in which black workers are incorporated into the service economy may be twofold, as "worker characteristics such as race and gender determine not only who is considered desirable or even eligible to fill certain jobs, but also who will want to fill certain jobs and how the job itself is performed" (Macdonald and Sirianni 1996:15). Employers seek individuals who will satisfy customer expectations. At the same time, workers may feel compelled to situate themselves where their emotional labor is most likely to resonate. For many in the African American community, that place is the South.

With deindustrialization in places like the Rust Belt "leaving blacks as racially isolated as anywhere in the nation," (Hunt et al. 2008:96) the pull toward the South in the context of a new, more interaction-based economy reinforces the importance of social capital when examining migration decisions. Because blacks in other parts of the country have "historic and/or cultural ties to the South" (Hunt et al. 2008:98) more than whites do, migration decisions are likely to include not only economic considerations but also "a more culturally-based sense of reconnection with a region where "family" and "place" are often inseparable" (2008:98). The feeling of having "clear inter-generational ties to the region" (2008:98) may in turn make the manufactured emotions necessary for service work easier to produce.

Interviews with black domestic workers who have worked in both the North and South reveal a universal preference for "southern white women as employers" (Rollins 1985:234). Partially due to being "closer in class and culture" to whites in the South, the lack of "behavioral norms" and rules in the North has led many to feel they were treated "more coldly" there (1985:234). Service employment necessitates the need to "fit in" as seamlessly as possible in order to accommodate needy customers. Having unspoken but well-established social rules for interaction likely makes service-sector employment easier to navigate.

Those who have resided in both the South and non-South are also likely to inform others of their experiences. It is in "linking particular origins and destinations" (McHugh 1987:174) that informational feedback loops are created and sustained. The "direct personal experience with a destination" allow migrants to "send back information about opportunities" which then influences migration decisions (1987:174). The experiences of personal connections are incredibly powerful as "information from family and friends is salient and often perceived to be highly credible"(1987:174). Though often used to explain perpetual flows of international migration, the characteristics of cumulative causation may be applied to this situation as "each act of migration alters the social context within which subsequent migration decisions are made, typically in ways that make additional movement more likely" (Massey et al. 1993: 451). Interviews with black migrants who formerly lived outside of the South reflect the positive vibe that would likely appeal to future migrants weighing their destination options. Citing the vibrant black culture in the South, one interviewee speaking of the higher share of black residents in the region states that "[h]ere, I would not be a fly in the buttermilk" (Hocker 2005:35).

Another cites “the chance to raise a child in a city with a highly visible number of African-American achievers” (Smith and Pederson 1997:36) as an important factor. "People are going back to their roots” (Jet Magazine 1998:46) says another, echoing the historical ties noted previously.

When deindustrialization first occurred, blacks from the Rust Belt were as likely or more likely as whites to migrate to the West or South. By 2000, the unique nature of the fast-growing service sector and the cumulative experiences of blacks working in the South have increased the role of social capital for making migration decisions. The macroeconomic context suggests that the nature of service employment, where social interaction is more essential to job performance, may be operating in a way that structures migration choices and channels migrants toward destinations that are conducive to both successful social interaction and integration into the new service economy. In this sense, economic *and* cultural considerations may come together in ways unlike before. In the past, a prospective migrant might view future work duties and the social atmosphere of the new location as two separate realms, each to be considered on their own. For those employed in service-sector occupations, the capacity to be successful at work may hinge on the ability to effectively navigate the social world.

While educational attainment does not seem to attenuate social capital for interregional migration decisions of blacks fleeing the Rust Belt, it must also be noted that there is a great difference in positive selection for regional migration. For the period 1975-1980, there is actually negative selection on education for migration to the South. Though by the 1985-1990 and the 1995-2000 measurements the educational selection for migration to the South had turned positive, the educational selection to the South

remained much lower for each period than for migration to the West. The educational selection to the West started moderately high and proceeded to skyrocket. This may be a result of amenity migration, where "footloose" migrants who "are often not tied to a particular local" are "able to locate to areas with a desirable lifestyle" (Rasker and Hanson 2000:31). Because amenity migrants often have careers in fields such as "finance, insurance, and real estate or business services," (Nelson 1999:32) they are able to settle in places "characterized by environmental amenities, recreation-based economies, and retirement communities" (Shumway and Otterstrom 2001:439). With the rural West by far having the greatest appeal for rural amenity seekers (U.S. Department of Agriculture 2004), the high educational selection may be an outcome of this particular migration phenomenon. Black migration patterns away from the West and more toward the South may also be an outcome of the ever-increasing educational selection for migrating to the West.

Some have voiced concern that service employment is becoming polarized by education, with job growth occurring "at the tails of occupational skill distribution, in both high-education, high-wage occupations and low-education, low-wage occupations." (Autor 2010:8) With very high and increasing educational selection for migration to the West while migration to the South has very moderate educational selection, we may see exacerbation of the South's current regional disparity where southern states consistently rank near the bottom in educational attainment (U.S. Census Bureau 2011).

There are several limitations to this study. How likely minorities are to migrate to destinations where residents are of similar background is a frequent measure of social capital, though future research will look to employ more robust measures of social

capital. To better examine social capital and the local variation that may induce or inhibit migration, it may be necessary to take a county-level approach. It may also be important to include other contextual measures from sources other than the Census Bureau, such as county-level religious composition provided by Association of Religious Data Archives (ARDA) or county-level political partisanship as indicated by the Cook Partisan Voter Index (PVI). If work shall increasingly require an understanding of social cues, additional sociocultural indicators may also be needed. My study would also be enhanced if the occupational differences between movers and stayers, and between western and southern migrants, were accounted for. Future research on this issue will take a closer look at occupational categories and how those in various professions make different migration decisions.

REFERENCES

Autor, David. 2010. “The Polarization of Job Opportunities in the U.S. Labor Market: Implications for Employment and Earnings.” *A Paper Jointly Released by The Center for American Progress and the Hamilton Report* pp. 1-40.

Basu, Bharati. 1997. “Advanced Consideration of Migration and the Choice of Destination: a Joint Decision.” *Applied Economics* 29(2):259-268.

Bluestone, Barry, and Bennet Harrison. 1987. “The impact of Private Disinvestment on Workers and their Communities.” Pp. 72-104 in *Work in Modern Society: A Sociology Reader*, edited by Lauri Perman. Richmond, VA: Kendall/Hunt Publishing.

Bramhall, F., and J. Bryce. 1969. “Interstate Migration of Labor Force Age Population.” *Industrial and Labor Relations Review* 22:576-583.

Bozick, Robert. 2009. “Job Opportunities, Economic Resources, and Postsecondary Destinations of American Youth.” *Demography* 46(3):493–512.

Brady, David, and Michael Wallace. 2001. “Deindustrialization and Poverty: Manufacturing Decline and AFDC Recipiency in Lake County, Indiana 1964-93.” *Sociological Forum* 16(2):321-358.

Clark, Gordon L., and Kenneth P. Ballard. 1981 “The Demand and Supply of Labor and Interstate Relative Wages: An Empirical Analysis.”*Economic Geography* 57(2):95-112.

Danaher, William F. 2001. “AFDC and Work: Magnets or Anchors for the Poor?” *Sociological Spectrum* 21(1):33-59.

De Jong, Gordon F., Deborah Roempke Graefe, and Tanja St. Pierre. 2005. “Welfare Reform and Interstate Migration of Poor Families.” *Demography* 42(3):469-496.

Doussard, Marc, Jamie Peck, and Nik Theodore. 2009. “After Deindustrialization: Uneven Growth and Economic Inequality in "Postindustrial" Chicago.” *Economic Geography* 85(2):183-207.

Dublin, Thomas. 1998. “Working-Class Families Respond to Industrial Decline: Migration from the Pennsylvania Anthracite Region Since 1920.” *International Labor and Working Class History* 54:40-56

Eggert, Wolfgang, Tim Krieger, and Volker Meier. 2010. “Education, Unemployment and Migration.” *Journal of Public Economics* 94:354–362.

Elder, Jr., Glenn H., Valerie King, and Rand D. Conger. 1996 “Attachment to Place and Migration Prospects: A Developmental Perspective.” *Journal of Research on Adolescence* 6(4):397-425.

Emerson, M.E. 1989. “Migratory Labor and Agriculture.” *American Journal of Agricultural Economics* 71:617-29.

Engerman, Stanley L., and Robert E. Gallman. 2000. *The Cambridge Economic History of the United States: The Twentieth Century.* New York: Cambridge University Press.

Evensen, James A. 1975. “Age and Educational Selectivity among Migration and Human Capital Flows in the West.” Paper presented at the Annual Meeting of the Western Social Science Association, Denver, CO, May 1-3. Retrieved March 18, 2012. (http://www.eric.ed.gov/ERICWebPortal/search/detailmini.jsp?_nfpb=true&_&ERICExtSearch_SearchValue_0=ED113240&ERICExtSearch_SearchType_0=no&accno=ED113240).

Ferguson, Mark, Kamar Ali, M. Rose Olfert, and Mark Patridge. 2007. ”Voting with their Feet: Jobs versus Amenities.”*Growth and Change* 38 (1):77–110.

Friedli, Eric A. 1986. “Migration of the Poor.” *Population Research and Policy Review*. 5 (1):47-61.

Frey, William H. 1993. “College Grad, Poverty Blacks Take Different Migration Paths.” *Population Studies Center* Research Report 94-303:1-11.

Frey, William. 2005. “Immigration and Domestic Migration in US Metro Areas: 2000 and 1990 Census Findings by Education and Race.” *Population Studies Center* Research Report 05-572:1-54.

Frey, William, and Kao-Lee Liaw. 2005. “Migration Within the United States: Role of Race-Ethnicity.” *Brookings-Wharton Papers on Urban Affairs*. pp. 207-262.

Haug, Sonja. 2008. “Migration Networks and Migration Decision-Making.” *Journal of Ethnic & Migration Studies* 34(4):585-605.

Hocker, Cliff. 2005. “Black Migration in Reverse.” *Black Enterprise,* May, P. 40.

Hunt, Larry L., Mathew O. Hunt, and William W. Falk. 2008. “Who is Headed South? Migration Trends in Black and White.” *Social Forces* 87(1):95-119.

Jackson-Smith, Doug, Eric Jensen, and Brian Jennings. 2006. “Changing Land Use in the Rural Intermountain West.” *The Springer Series on Demographic Methods and Population Analysis* 16(3):253-276.

Jaffee, David. 1986. “The Political Economy of Job Loss in the United States, 1970-1980.” *Social Problems* 33(4):297-318.

Jet Magazine. 1998. “Blacks in California Move Down South in Reverse Migration, Census Data Shows.” January 26, pp. 46.

Kahn, Mathew. 1998. “The Silver Lining of Rust Belt Manufacturing Decline.” *Journal of Urban Economics* 46(3):360-376.

Kodrzycki, Yolanda K. 2001. “Migration of Recent College Graduates: Evidence from The National Longitudinal Survey of Youth.” *New England Economic Review* pp. 13-34.

Krieg, Randall G. 1993. “Black-White Regional Migration and the Impact of Education: A Multinomial Logit Analysis.” *Annals of Regional Science* 27:211-222.

Kutscher, Ronald E., and Valerie A. Personick. 1986. “Deindustrialization and the Shift to Services.” *Monthly Labor Review* 109(6):3-13.

Lee, SeongWoo and Curtis C. Roseman. 1999.“Migration Determinants and Employment Consequences of White and Black Families, 1985-1990.” *Economic Geography*, 75(2):109-133.

Lim, Jaewon. 2011. Does Wage Differential Driven Migration Continue to Exist? Tests on the Role of Regional Economic Structure in Wage Differential Driven Migration.” *Annals of Regional Science* 47:213-233.

Lucas, R.E.B. 1985. “Migration Amongst the Botswana.” *Economic Journal* 95(378): 358-82.

Macdonald, Cameron Lynn, and Carmen Sirianni. 1996. “The Service Society and the Changing Experience of Work.” Pp. 1-26 in *Working in the Service Economy*, edited by Cameron Lynne MacDonald and Carmen Sirianni. Philadelphia: Temple University Press.

Massey, D. 1988. “Economic Development and International Migration in Comparative Perspective.” *Population and Development Review* 14(3):383-413.

Massey, Douglas S., Joaquin Arango, Graeme Hugo, Ali Kouaouci, Adela Pellegrino, and J. Edward Taylor. 1993. “Theories of International Migration: A Review and Appraisal.” *Population and Development Review* 19(3):431-466.

Meyer, David R. 1989. “Midwestern Industrialization and the American Manufacturing Belt in the Nineteenth Century.” *Journal of Economic History* 49(4):921-937.

McHugh, Kevin E. 1987. “Black Migration Reversal in the United States.” *Geographical Review* 77(2):171-182.

Mitra, Dana L., Marcela Movit, and William Frick. 2008. “Brain Drain in the Rust Belt: Can Educational Reform Help to Build Civic Capacity in Struggling Communities?” *Educational Policy* 22(5):731-757.

Moreton, Bethany. 2010. “The Soul of the Service Economy: Wal-Mart and the Making of Christian Free Enterprise, 1929-1994.” *Enterprise and Society* 8(4):777-783.

Morgan, J.N., and E.H. Robb. 1981. “The Impact of Age upon Interregional Migration.” *Annals of Geographic Science* 15(3):31-45.

Moss, Phillip, and Chris Tilly. 2001. “Stories Employers Tell: Employer Perceptions of Race and Skill.” Pp. 235-260 in *Working in America: Continuity, Conflict and Change, 3rd Edition*, edited by Amy S. Wharton. New York: McGraw-Hill.

Nelson, Peter. 1999. “Quality of Life, Nontraditional Income, and Economic Growth: New Development Opportunities for the Rural West.” *Rural Development Perspectives*, 14(2):32-37.

Odland, John, and Mark Ellis. 1988. “Household Organization and the Interregional Variation of Out-Migration Rates.” *Demography* 25(4):567-579.

O'Hara, S. Paul. 2011. “The Very Model of Modern Urban Decay: Outsiders’ Narratives of Industry and Urban Decline in Gary, Indiana.” *Journal of Urban History* 37(2): 135-154.

Pandit, Kavita. 1997. “Demographic Cycle Effects on Migration Timing and the Delayed Mobility Phenomenon.” *Geographical Analysis* 29(3):187-199.

Pennell, Michael. 2007. "If Knowledge Is Power, You're about to Become Very Powerful: Literacy and Labor Market Intermediaries in Postindustrial America.” *College and Communication* 58(3):345-384.

Pew Research Center. 2008. “Maps: U.S. Migration Flows.” Retrieved January 2, 2012 (http://www.pewsocialtrends.org/2008/12/17/u-s-migration-flows/).

Plane, David A. 1992. “Age-Composition Change and the Geographical Dynamics of Interregional Migration in the U.S.” *Annals of the Association of American Geographers* 82(1):64-85.

Ravenstein, E. 1885. “The Laws of Migration.” *Journal of the Statistical Society* 46(2): 167-235.

Rasker, Ray, and Andrew Hanson. “Natural Amenities and Population Growth in the Greater Yellowstone Region.” *Human Ecology Review* 7(2):30-40.

Robinson, Tony, and Stephen Noriega. “Voter migration as a source of electoral change in the Rocky Mountain West.” *Political Geography* 29:28-39.

Rollins, Judith. 1985. “Invisibility, Consciousness of the Other, and *Ressentiment* among Black Domestic Workers.” 223-243 in *Working in the Service Economy*, edited by Cameron Lynne MacDonald and Carmen Sirianni. Philadelphia: Temple University Press.

Safford, Sean. 2009. *Why the Garden Club Couldn't Save Youngstown: The Transformation of the Rust Belt.* Cambridge: Harvard University Press.

Sandefur, Gary J. and Jiwon Jeon. 1991. “Migration, Race and Ethnicity, 1960-1980.” *International Migration Review* 25(2):392-407.

Sassen, S. 1988. *The Mobility of Labor and Capital: A Study of International Investment and Labor Flow*. New York: Cambridge University Press.

Shryock, Jr., Henry S., and Charles B. Nam. 1965. “Educational Selectivity of Interregional Migration.” *Social Forces* 3(3):299-310.

Shumway, J. Matthew, and Samuel M. Otterstrom. 2001. “Spatial Patterns of Migration and Income Change in the Mountain West: The Dominance of Service-Based, Amenity-Rich Counties.” *Professional Geographer* 53(2):492-502.

Smith, Michael D., and Richard S. Krannich. 2000. “‘Culture Clash’ Revisited : Newcomer and Longer- Term Residents' Attitudes Toward Land Use, Development, and Environmental Issues in Rural Communities in the Rocky Mountain West.” *Rural Sociology* 65(3):396-421.

Smith, Vern E., and Daniel Pederson. 1997. “South Toward Home.” *Newsweek,* July 14, pp. 36.

Stamps, Katherine, and Stephanie A. Bohon. 2006. “Educational Attainment in New and Established Latino Metropolitan Destinations.” *Social Science Quarterly* 87(5): 1225–1240.

Sullivan, Timothy E. 1988. “Industrial Transformation and Market Integration Along the American Manufacturing Frontier: The Midwest from 1850 to 1880.” *Business & Economic History* 17:201-206.

Tarver, James D. 1969. “Is Migration Lowering the Educational Status of the Population in the South?” Paper presented at the Rural Sociological Society Meeting, San Francisco, California, August 28. Retrieved March 18, 2012 (http://www.eric.ed.gov/ERICWebPortal/search/detailmini.jsp?_nfpb=true&_&ERICExtSearch_SearchValue_0=ED032984&ERICExtSearch_SearchType_0=no&accno=ED032984).

Toney, Michael B., Carol McKewen Stinner, and Stephan Kan. 1983. “Mormon and Nonmormon Migration in and out of Utah.” *Review of Religious Research* 25(2): 114-126.

United States Census Bureau. 1983. “Census Brief.” *Educational Attainment: 2000.* Retrieved February 1, 2012 (www.census.gov/prod/2003pubs/c2kbr-24.pdf).

United States Census Bureau. 2010 “Geographic Mobility/Migration.” *State to State Migration Flow.* Retrieved February 1, 2012 (http://www.census.gov/hhes/migration/).

United States Census Bureau. 2011. “Statistical Abstract of the United States.” *Educational Attainment*. Retrieved February 1, 2012 (http://www.census.gov/compendia/statab/2012/tables/12s0233.pdf).

United States Department of Agriculture. 2004. Economic Research Service. *Natural Amenities Scale*. Retrieved January 9, 2012 (http://www.ers.usda.gov/Data/NaturalAmenities/Map.htm).

Wilson, Beth A., E. Helen Berry, Michael B. Toney, Young-Taek Kim, and John B. Cromartie. 2008. “A Panel Based Analysis of the Effects of Race/Ethnicity and Other Individual Level Characteristics at Leaving on Returning.” *Population Research Policy Review* 28:405-428.