Gentrification in the Wake of the Subprime Mortgage Crisis

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EXECUTIVE SUMMARY

From the late 1990s until the mid-2000s, real residential property prices increased by more than 80 percent in the U.S. housing market. After U.S. home prices peaked in 2006, the demand for home purchases and construction fell sharply. During the Subprime Mortgage Crisis, more than 60 million Americans experienced foreclosure while overall home prices declined nearly 31 percent since 2006. This paper explores the short-term effects of the subprime crisis on the urban housing market. More specifically, my thesis seeks to answer the policy question: *In the wake of the subprime mortgage crisis, what happened to gentrification in American cities?* To better understand the relationship between the housing crisis and urban development, I will examine how the landscape of gentrification changed as a result of the collapsing U.S. housing market.

From 2000 to 2006, gentrification became a mainstay of the American housing landscape. Researchers define gentrification as the process of rehabilitating depressed commercial and residential spaces in geographically urban areas. Many young, white, and college-educated homeowners purchased housing stock in urban neighborhoods for economic and aesthetic purposes. Although gentrification emerged in the 1960s, this phenomenon continued to grow during periods of economic decline.

Many real estate experts believed that the subprime mortgage crisis would slow gentrification rather than stop the current trend indefinitely. Economists argue that an economic downturn forces capital to withdraw and retreat from land use possibilities in gentrifying urban areas. On the other hand, analysts argue that value-priced homes in center cities encourage investment from young urban-pioneers looking to purchase when the market has bottomed out. If “bargain hunters” are willing to invest now, they will benefit from lower home prices in neighborhoods driven by increases in the supply of single-family homes.

In light of the Subprime Mortgage Crisis, this paper examines:

- The effect of the subprime mortgage crisis on gentrification trends in 14 major metropolitan cities; and
- Whether gentrification is driven by preferences for affordable housing stock, or preferences for historic and/or luxury builds in periods of economic decline.

The key findings of the paper are:

*Gentrification Increased in Most Cities* -- Overall, gentrification did not slow down in the U.S. in the wake of the recession. In most cities gentrification increased despite economic pressures in the housing and financial markets. Only a small number of cities experienced little or no changes in gentrification levels. Detroit was the only city with declining levels of gentrification.

In Williamsburg and Greenpoint, strong preferences for certain neighborhood amenities helped maintain demand for housing after 2008. Increased median rents and home values show that the Subprime Mortgage Crisis did not deter interest in these up and coming neighborhoods.
Gentrification is thriving and quickly expanding to other parts of the borough, mostly because these neighborhoods are well served by public transport to Manhattan.

Despite the economic downturn, Washington, DC’s Columbia Heights neighborhood experienced an increase in home and rental prices. From 2000 to 2006, income-driven preferences fueled gentrification patterns in Columbia Heights. Additionally, the share of the white college educated population continued to grow between 2006 and 2009. Low unemployment in the District helped to maintain and expand gentrification patterns in the area.

While de-industrialization is the main contributor to Detroit’s collapse, the Subprime Mortgage Crisis has only worsened city conditions. The city’s core gentrifying demographic of college educated professionals left the city in search of better employment opportunities. Detroit’s downtown areas are still plagued by high vacancy rates, poverty, and chronic unemployment. However, early-stage re-gentrifiers are looking to create a Williamsburg effect. Detroit’s ability to successfully re-gentrify in the future is very much dependent on a healthy job economy.
1. INTRODUCTION

The Second Great Contraction began in 2007 and spread to global credit markets. This economic fallout resulting from distorted interest rate policy actions, relaxed mortgage lending regulations, and securitization of mortgages caused the crisis. Home defaults soon became a problem for several investment banks engaging in the buying and selling of securitized mortgage bundles into Collateralized Debt Obligations (CDOs), and Collateralized Mortgage Obligation (CMOs). Institutions with junk mortgage securities realized that bad assets on their books would eventually impair their own credit flows. As a result, the crisis forced several banks to declare bankruptcy or assume conservatorship by the U.S. government.

Government largely participated in the crisis by lowering the federal funds rate and making credit more accessible to potential homeowners. Following the recession of 2001, the Federal Reserve (Fed) worked to expand the money supply by lowering the federal funds rate from 6.25 percent to 1.75 percent in 2001 (White 2008). Former chairman Alan Greenspan believed lowering interest rates would stimulate the economy and get America spending again. Once credit lowered to nearly 1 percent in 2003, real estate developers engaged in record levels of urban and suburban development (White 2008). Increased residential development coupled with rising home prices encouraged Americans to invest in what was supposed to be their greatest single asset -- a home. At the same time, mortgage standards were lowered by both private lenders and the Federal Housing Authority (FHA) to encourage investment. The Clinton and G.W. Bush Administrations worked to increase homeownership, which they saw as a symbol of the American Dream. Both Administrations increased home ownership by pressuring lenders and expanding government sponsored mortgages via Freddie Mac and Fannie Mae. Misguided monetary policy in the form of artificial credit expansion jump started investments, but failed to account for the falling home prices. Lucy (2010) says this was probably the nation's largest ever “income to house value gap.” Borrowers owed more on their home than the home’s worth; soon these borrowers began to default.

Eventually the mortgage crisis forced millions of Americans into foreclosure, and lowered prices of unsold homes. From the late 1990s until the mid-2000s, residential property prices increased by more than 80 percent in the United States after significant policy changes were made by the federal government (Guerrieri et al. 2009; S&P/Case-Shiller Home Price Indices 2010). However, U.S. home prices plunged 33 percent in 20 cities through March 2011 from their 2006 peak (Bloomberg 2011). This decline signaled a “double dip,” which occurs when the index falls “below its previous post-housing-bubble (Bloomberg 2011). Figure 1 shows the contrast between this upward trend in home prices and the 31 percent decline in housing prices beginning in late 2006.¹

From 2000 to 2006, gentrification became a mainstay of the American housing landscape. Researchers define gentrification as the process of rehabilitating depressed commercial and residential spaces in urban geographic areas. Before the housing crisis, young gentrifying professionals placed a premium on “the work-play” lifestyle over “bargain hunting” when looking for a place to live. However, with the housing market slowing nationwide, will urban areas experiencing the transformation of a “working-class” or vacant area continue gentrifying in the wake of a crisis?

More recently, investment analysts have become interested in understanding the effect of the current subprime mortgage crisis on gentrification. In 2009, Forbes hosted a real estate panel where leaders from the real estate investment community opined on the “end of gentrification.” Many of the panelists said that the subprime mortgage crisis would slow gentrification rather than stop the current trend indefinitely (Forbes 2009). According to one expert, “The real force behind gentrification was probably more demographic growth toward the center city than anything else, and lower-cost neighborhoods provided the space for new development to satisfy the resultant housing demand. So if anything is going to deter this trend, it's the loss of jobs in those cities, not the housing bust” (Forbes 2009). While real estate developers conceptualize gentrification as a unique mechanism for urban development, social scientists share varying perspectives regarding the phenomenon of gentrification.

Social scientists study gentrification for the following reasons: First, gentrification is significant, because it is part of a larger restructuring of urban space (Schaffer and Smith 1986). Changing
dynamics of the labor market in the late 1960s forced people to adopt new housing preferences closer to their workplace. Development of service sector work gave rise to educated urban professionals looking to create accessible high-density European-style urban neighborhoods. Schaffer and Smith (1986) write that in the U.S., gentrification was the “result of changing lifestyle and demographic changes (the maturation of the baby boom generation, higher numbers of single adults living together, high female labor force participation rates, and so forth).” Development and restoration of urban neighborhoods encouraged young professionals to live closer to their workplaces, because of the lifestyle attached to urban living. Kolko (2009) notes, “over the last two decades . . . household incomes near the central business district (CBD) have grown, relative to metropolitan average income, for larger metropolitan areas.” One U.S. study looking at 44 metropolitan cities found that, “between 1990 and 2000, only 48 percent of these cities increased their downtown populations” (Birch 2009). The percentage of downtown residents continued to grow before the recession. From 2000 to 2007, 64 percent of the 44 cities in the study experienced increases in their downtown and overall city populations (Birch 2009).

Second, government investment in urban renewal has increased gentrification. Several federal programs including the Community Development Act of 1974 funneled billions of dollars towards the rehabilitation of depressed urban centers. In the program’s inaugural year, the federal government committed some $2.5 billion for “urban physical development programs” including “property acquisition, construction of public works, rehabilitation of old buildings, provision of social services, and development of planning and management capabilities” (Frej and Specht 1976, 276). The Ford Administration acknowledged the plight of urban spaces by signing one of the most important pieces of housing legislation since the Housing Act of 1949. The Act aimed to solve the problems of our inner cities by strengthening the institutions that served the communities. Clearly, the federal government demonstrated its interest in the recovery of urban American through revitalization efforts.

Third, gentrification is a nation-wide phenomenon that has managed to reverse “white flight.” U.S. gentrification was born from new demand-driven and income-driven preferences among white Americans developing during the late 1960s. According to Vigdor (2002), early gentrification was driven by young white Americans who in search of affordable housing. In policy terms, the demand for urban housing among whites resulted in higher property tax returns once they settled and enhanced the “economic vigor of the city” (Kern 1981 as cited in Schaffer and Smith 1986, 349). Between 2000 and 2006, Harlem experienced a 130 percent in real residential property prices (Guerrier et al. 2011). In 2010, The New York Times ran the article, “No Longer Majority Black, Harlem Is in Transition” chronicling the role of race in Harlem’s gentrification. Census data from 2010 illustrates a reverse diaspora of whites returning to central business districts in several U.S. cities. Washington, D.C. once retained the label of “Chocolate City” is looking more diverse than ever due to gentrification.

Finally, gentrification is a hot-button issue that has made its way to the front page of the newspapers for both praise and condemnation. This racially and class charged phenomenon grows as home values and rental prices continue to outpace wage increases. Increased home prices and the presence of high-end retail outlets force long time community residents to move further away from the center city. Anger over the perceived displacement of lower-income and
minority groups has elevated the gentrification discussion among social scientists looking at racial and class conflict.

This paper explores the short-term effects of the subprime crisis on the urban housing market. This thesis seeks to answer the policy question: *In the wake of the subprime mortgage crisis, what happened to gentrification in American cities?* To better understand the relationship between the housing crisis and urban development, I will examine how the landscape of gentrification changed as a result of the collapsing U.S. housing market.

## 2. BACKGROUND

Gentrification is the “systematic process” of replacing the existing population or *gentry*. This phenomenon came on the heels of “urban renewal, slum clearance, and post-war reconstruction programs that were implemented during the 1950s and 1960s” (Shafer and Smith 1986, 327). In 1964, Marxist Sociologist Ruth Glass coined the term *classical gentrification* observing:

> One by one, many of the working-class quarters of London have been invaded by the middle classes - upper and lower. Large Victorian houses, downgraded in an earlier or recent period – which were used as lodging houses or were otherwise in multiple occupation – have been upgraded once again . . . Once this process of ‘gentrification’ starts in a district it goes on rapidly until all or most of the original working class occupiers are displaced and the social character of the district is changed. (Glass 1964 as cited in Lees 2008, 4)

Examples of classical gentrification are often limited to spaces just outside of London, or more aptly, cases in Brooklyn. Early gentrifiers were not interested in new builds or luxury condos. Rather, these “homesteaders” preferred rehabilitating their own spaces through “sweat equity.” During this stage, gentrification is considered to be a non-commercial movement also known as “brownstoning.” Brownstoners began to move into the Brooklyn Heights neighborhood of Park Slope largely as a result of “state and federal government legislation which encouraged reinvestment in ‘rundown’ neighborhoods” (Squires 1992 as cited in Lees 2008: 23). Today, traces of gentrification are present in all of American’s major cities and metropolitan areas. Gentrification signifies significant change in a community, both in structure and demographic composition.

Initially, gentrification was often a way for homosexual Americans to create safe places and spaces where specific cultural identities could flourish. For example, neighborhoods like Park Slope became, “supportive, liberal, and tolerant queer space” (Lees 2008: 24). Overtime, urban pioneers like the “gay creative types” merged with second stage gentrifiers. This demographic of gentrifiers also fell under the educated and childless demographic. Unlike their mainstream yuppie white successors, they settled in older neighborhoods for their architectural elements. Also, educated (and childless) heterosexual white couples began moving into these up and coming neighborhoods for economic reasons. Young professionals inhabiting this space were attracted to its “idealistic, unprejudiced, adventurous, and energetic space” (Holton 1968 as cited in Lees 2008: 24).
As gentrification evolved internationally, so too did its definitions. Economist Neil Smith (1982) makes the theoretical distinction between gentrification and redevelopment. Smith argues that, “redevelopment involves not rehabilitation of old structures but the construction of new buildings on previously developed land” (Lees 2008, 9). While the first waves of gentrification were described as “brownstoning,” high-end residential and commercial developments in low-income urban neighborhoods are now considered contemporary definitions of the term. These mixed-use developments include high-rise waterfront condos located in the Williamsburg and Greenpoint neighborhoods of Brooklyn or luxury lofts in Chicago’s West Loop.

Market forces and unique consumption preferences are largely responsible for driving this phenomenon. Gentrification trends may be driven by a number of economic, social and political factors; however, Vigdor (2002) argues that there are “two basic scenarios that might underlie demographic changes in central city neighborhoods.” Vigdor (2002) describes the first scenario as involving the “localized increase in income inequality.” Income-driven gentrification occurs when “housing price inflation across a metropolitan area leads some households to consider choosing locations in previously undesirable areas” (Vigdor 2002). Homeowners and investors will search for housing opportunities outside the city when the demand for housing is weakened inside the city. Income driven gentrification is motivated by preferences for economically feasible housing stock. Those with a strong income-driven preference shift their consumption habits when the price of certain goods and services change. These “bargain hunters” are very sensitive to downturns in the market—especially housing crises. This group of prospective homeowners (the young urban-pioneers) may chose to retreat from the housing market or invest when the market has bottomed out. If “bargain hunters” are willing to invest now, they will benefit from lower home prices in neighborhoods driven by increases in the supply of homes.

Vigdor (2002) also says that changes in housing preferences within a subset of the population drive gentrification. This consumption or “preference-driven gentrification reflects a change in some households’ willingness to pay for housing in certain areas, even as the market price of housing in other areas remains constant or even declines” (Vigdor 2002). Some American homeowners have a strong consumption (demand-side) preference to live in neighborhoods with certain aesthetics and amenities. This demand-driven preference is inelastic and constant regardless of outside market forces. Some social scientists believe that consumption-driven preferences influence gentrification patterns while other researchers believe that income-driven preferences explain gentrification trends in the housing market. From an economist’s perspective, these two basic scenarios provide a basis for understanding what motivates homeowners to gentrify or relocate to gentrifying spaces.

In the past, demand-side preferences were so strong in gentrifying cities that, “gentrification was less susceptible to the cycles of economic boom and bust” (Badcock and Ley 1992). Analysis from prior recessions shows that a struggling economy only temporarily paused gentrification. In the late 1980s and early 1990s, a weak stock market forced capital to withdrawal from real estate investments in New York City (Smith and Defilippis 1999). During this period, “rents in residential and commercial real estate declined by 30 percent to 40 percent in New York City” (Smith and Defilippis 1999). This shock to the housing market, particularly New York City’s

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2 Some economists believe that the oversupply of residential units forces capital to withdraw and retreat from land use possibilities.
housing market, was unlike any other previous crises. *The New York Times* suggested that gentrification was a thing of the past, and that consumption preferences weren’t enough to account for major structural changes in the flow of capital (Smith 1999). Despite decreased demand for residences in lower Manhattan during this period, the area experienced its own “re-gentrification” in the mid-1990s. It became clear that the limited supply of rental space on the island would continue attracting buyers and renters looking for significant spatial capital.

3. DATA AND METHODS

*Overview*

First I observe gentrification trends occurring in fourteen Metropolitan Statistical Areas (MSAs) between 2000 and 2006. I determine trends by evaluating changes in the common markers of gentrification over time. Next, I take the descriptive statistics from 2000 and 2006, and then compare those gentrification trends to patterns observed from 2006 to 2009.

The results and discussion section will be followed by a case study analysis of three selected cities experiencing increased gentrification (New York City and Washington, DC) or de-gentrification (Detroit). This section takes a deeper look at consumption and production mechanisms affecting patterns of gentrification at the more granular PUMA level.

I have limited my attention to large metropolitan areas for several reasons. First, the cities listed in the sample – Baltimore, Charlotte, Boston, Chicago, Detroit, Oklahoma City, Milwaukee, Memphis, New York City, Los Angeles, Philadelphia, San Francisco, Seattle, and Washington, DC – have all experienced significant level of gentrification at least since the 1990s. Second, the cities in this sample are ripe with historic homes and high-rise condominiums often sought out by persons who fall into the demographic of typical gentrifier. Also, these major metropolitan cities provide some source of cultural activity (e.g. opera, organic markets, luxury athletic clubs, etc.) available for middle and upper-class consumption.

*Data*

I observe general housing and demographic trends at the household level beginning with the 2000 decennial Census and 1-year ACS data estimates from 2006 and 2009. These data allow me to understand major changes in a city over time. Decennial Census data provides baseline descriptive statistics prior to the major changes that occur in U.S. monetary policy. Data from 2000 should be immune to the negative impacts from the recession of the early 1990s. ACS data from 2006 illustrated development activity from the earliest stages of the subprime mortgage crisis. By early 2005, the federal government has made credit more accessible and cheaper. Real estate speculation in metropolitan areas seems to hit a wall in late 2005 and early 2006. To observe changes in gentrification during the height of the housing and greater economic crisis, I am using 2009 1-year ACS estimates. Comparing descriptive statistics from 2000, 2006 and 2009 will allow me explain what happens to gentrification in the wake of a crisis.

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3 By typical gentrifiers I mean young, mostly white, college educated persons who are upwardly mobile and seek urban spaces for living and work purposes.
This data set has metrics at the city and metropolitan area level in addition to the more fine-grained Public Use Microdata Area-level (PUMA). The descriptive statistics using weighted data will leverage the Public Use Microdata Area from Census microdata files.\(^4\) For the 2000 Census, PUMAs are the smallest identifiable geographic unit containing at least 100,000 households. Data from the 2000 Census is a weighted 5 percent sample of the U.S. population. Data for all other years have a smaller 1 percent sample with a threshold of about 400,000 households.

While some geographic areas show high levels of gentrification over time, it is important for me to compare these areas to other MSAs with diminishing urban development activity. In addition to the outliers, I highlight areas experiencing little or no change to its gentrification landscape. I explain what mechanisms may have prevented levels of gentrification to either increase or decrease. Additionally, this approach allows me to discuss the unique characteristics of each metropolitan area that may drive prices over preferences or vice-versa. In the results and discussion section, I highlight which cities are showing patterns of increased gentrification, no change in gentrification, or de-gentrification. These results help to illustrate how characteristics of gentrification in a MSA may change in response to housing crises.

\textit{Measuring Gentrification}\(^5\)

I use several demographic, economic, housing, and geographic variables to measure the level of gentrification occurring in a geographic area.\(^6\) Measuring gentrification requires that I identify variables describing the size and composition of my sample.\(^7\) Increasing household incomes, increased median rents and home values, as well as higher levels of college-educated and white households often signify high levels of gentrification in residential urban neighborhoods.

Demographic variables in the sample include city population, general educational attainment, race and occupation. The \textit{general educational attainment} variable is an important measurement for gentrification, because college educated persons are significantly more likely to gentrify for both economic and consumption purposes. Gayle (1984 as cited in Lees 2008) found that college-educated persons make up 70-90 percent of gentrified areas. McKinnish and Walsh (2008) found that, “the influx of white college graduates is a feature that distinguishes the

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\(^4\) Weighted data is data collected by households that are adjusted to represent the general population from which I derived the sample. It is important that I use weighted data for my study, because the number of observations (households) varies for years 2000, 2006 and 2009. In 2000, the sample size consists of 939,464 households in 14 major metropolitan cities. In 2006, the sample size consists of 177,032 households in the 1-year sample. The 2009 sample includes statistics exposing the effects of the recession across 715,833 households. Using weighted data will allow me to get a clear idea of what general trends are occurring each year in the sample even if the size of the sample may be lower or higher than from the previous year.

\(^5\) Reference Table A in the appendix for additional detail the IPUMS measurement criteria.

\(^6\) Geographic variables such as metropolitan area (METAREA) and urban/rural status (RURAL) are not included in this discussion as the fourteen cities in our sample include only major metropolitan areas with large urban centers.

\(^7\) Geographic variables include \textit{city} and \textit{public use microdata area}. The \textit{city} variable is essentially comparable across years and helps define boundaries that may be undergoing urban transformation. The variable “PUMA” is vital to our descriptive statistical study, because it provides detailed neighborhood statistics. The granular PUMA variable makes it possible for the study to look at fourteen MSAs in our sample and then evaluate gentrification trends at the PUMA level.
gentrifying neighborhoods from other low-income neighborhoods.” Education is an important indicator of gentrification, because it tends to be a better marker of social-class status than income. Although there is some debate as to whether gentrification is racially or economically driven, consensus is that the variable race is essential to gentrification studies. The variable race is used in my study, because gentrification is associated with an increasing share of non-Hispanic whites occupying a given area. The U.S. media portrays gentrification as synonymous with a young white professional lifestyle. Gayle (1979 as cited in Lees 2008) describes the gentrifier type as a household that is composed of two white adults in their late twenties or thirties. Occupation is the last demographic used to evaluate changes in gentrification over time. As occupational structure of work gravitates towards central business districts, urban professionals seek residential spaces in close proximity to their workplace.

Household income is the only economic variable in my study. Household income is an important measurement for gentrification, because it suggests that consumption preferences are driving a certain demographic to a particular geographic area. Hackworth (2002) says that gentrification is the production of urban space for progressively more affluent users. Gentrification occurs with changing consumption preferences for different location patterns. Glaeser Khan and Rappaport (2008 as cited by Brueckner and Rosenthal 2009) suggest that, “the housing-based force is far weaker than the time-cost force,” which would imply that wealthier households desire a central location. Other academic studies modeling gentrification find that “topographical and historical amenities in the city center may attract the rich more strongly than the poor, leasing to a Paris-style location pattern” (Brueckner et al. 2009 as cited by Brueckner and Rosenthal 2009). Additionally, higher income demographics will increase the demand for the types of luxury residents and businesses associated with gentrification.

Housing variables include monthly contract rent and house value. Monthly contract rent helps us understand trends in urban development, because rent is often the first housing variable affected by early gentrification. Speculation over rising prices in gentrified areas impacts rent before house value. The second housing variable home value helps illustrate the supply and demand for homes in a neighborhood. Gentrifiers’ ability to increase ground rent through “sweat equity” often drives up prices for historic homes in highly sought after neighborhoods.

4. FINDINGS AND DISCUSSION

Overview

Overall, gentrification did not slow down in the U.S. in the wake of the recession. In most cities gentrification increased despite economic pressures in housing and financial markets. However,

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8 Variables for public housing (PUBHOUS) and vacancy status (VACS) were supposed to be included as measurement variables; however, these data points were not available via IPUMS USA. Vacancy is an important indicator of the housing crisis, because it is associated with decreased demand and loan delinquency. The housing boom increased construction and investment in residential property, only to result in low occupancy rates. Vacancy status also serves as somewhat of a proxy for foreclosures. Additionally, Public housing is an important indicator to understand transitions from depressed to completely gentrified at the neighborhood level. Removal of public housing units often suggests that some type of urban development is occurring in the space.
a small number of cities experienced little or no change in their gentrification levels. Detroit was the only city with declining levels of gentrification.

**Demographic Changes**

The mean total population of the 14 sample cities continued to trend upward from 2000 to 2006, with only a slight decrease in the population from 2006 to 2009. According to Figure 2, the mean share of the white population increased between 2000 and 2009.

Figure 2:

![Mean White/Non-Hispanic Population MSA Sample](image)

The average increase of the white population is less than 3 percent between each year. With the exception of Detroit, the white population increased in each one of the sample’s 14 MSAs from 2000 to 2006. Baltimore and Boston’s white populations both increased by 2 percent before the economic crisis. Despite overall decreases in Detroit’s total population, the share of the white population increased by nearly a percent before the Second Great Contraction. In comparison to other cities in the sample, Washington, DC experienced the largest gains in its share of the white population. Just before the recession, the white population increased by nearly 9 percent. From 2000 to 2006, New York City’s white population increased by 1.7 percent. Finally, San Francisco experienced a 4 percent gain in its share of the white population during the same period.

Of the 14 MSAs, the share of the white population increased in the following metropolitan areas: New York, NY, San Francisco, CA, Boston, MA, Baltimore, MD, Charlotte, NC, Oklahoma City, OK, Chicago, IL Seattle, WA, Detroit, MI, and Washington, DC from 2006 to 2009. In Baltimore, the share of the white population only increased 1 percent after that crisis, down from a 2.25 percent gain from 2000 to 2006. Boston’s white population increased 1.5 percent despite the crisis. During this period, Detroit’s population decreased just a percentage after the Automotive Industry Crisis of 2008-2010. Even after the economy reached its lowest point, Washington, DC’s white population increased by around 3 percent. From 2006 to 2009, New
York City’s share of its white population increased by 1.8 percent. Surprisingly, San Francisco’s white population increased almost 3 percent after the recession. This population increase is most likely seen in the city’s neighborhoods closer to the city center. Chicago showed a slight increase in the share of the white population before the recession, followed by a 5 percent gain after the recession. It is unclear what drove increases in Chicago’s white population after the recession. However, it is highly likely that professionals flocked to the center city for more job opportunities that were unavailable outside the metro area.

While many of the sample cities showed little growth in the share of their white population, the average number of college-educated people increased in more than half of the cities. Overall, college graduates represent more than a quarter of residents in the sample. In Baltimore, the average number of college educated persons increased nearly 6 percent from 2000 to 2006. The college educated population continued to increase by 2.4 percent from 2006 to 2009. Chicago experienced a 7 percent increase from 2000 to 2006, but only saw a 2.3 percent increase after the economic crisis. A number of factors including the recession may have contributed to a decline in the city’s white population. Some may argue that Chicago’s gentrification landscape is being driven by young African American professionals who are also interested in the city’s downtown luxury living or the South Side’s historic homes. Charlotte’s college educated population increased by almost 5 percent before the housing crisis and just over 1 percent after the recession. In San Francisco, the college educated population climbed more than 7 percent between 2000 and 2006. However, that trend nearly flatlined after 2008. San Francisco has long attracted young college educated Americans looking for job opportunities in banking and technology; however, lower home prices and growing unemployment forced young professionals to migrate to areas with better job opportunities. Washington, DC continues to show strong “gentrification” related characteristics with an increase in college educated residents. From 2000 through 2006, the average number of college educated persons in DC increased by almost 6 percent. After the recession that population continued to increase, but only by 2.2 percent. The increase of college graduates in Washington, DC shows that despite the recession, the District was able to lure in more professionals because of its jobs market and unique growth patterns.

Cities like Los Angeles, Philadelphia, Oklahoma City, and Seattle experienced small gains in the average number of college grads overall (+1.5 to 4 percent) from 2006 to 2009. These cities suffered from high unemployment rates and lack of access to public transportation. Perhaps the weak labor market pressured college educated persons into other areas where the job market showed promise. Additionally, those that fell into the demographic of typical gentrifier may have sought other cities where public transportation is accessible in various commercial and cultural districts.

Rising numbers of residents with college degrees almost certainly means that the number of white-collar professionals will rise during the same time period. Nearly all of the metropolitan areas in the sample reported increases in white-collar workers between 2000 and 2006. Table 3 shows a slight continuation of 2000 and 2006 trends even after the global credit crisis. Washington, DC showed an increase in its white-collar population of 9 percent 2000 to 2006. This figure is interesting, because DC’s white and college educated population has also increased by nearly 9 percent from 2000 to 2006. These trends suggest that the District has certain

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9 See Figure 4 in the Appendix.
qualities drawing the “gentrifying demographic” of young, white professional residents to the area. This demographic was attracted to Washington for both aesthetic and employment purposes. While the nation struggled with an unemployment rate of nearly 9 percent in 2009, less than 6 percent of the District’s population was unemployed at the same time (Plumb 2009).

With the exception of Detroit, the average number of white collar workers increased in all the sample cities from 2000 to 2006. Detroit experienced a significant decline of 2.22 percent of its white-collar workforce from 2006 to 2009. As a point of comparison, blue-collar employment declined by nearly 49 percent from 2006 to 2009. The dramatic decline of white and blue collar workers is attributed to the overall loss of jobs in the rust belt city. Non-existent job opportunities in Detroit encouraged young college educated white collar workers to find better sources for employment elsewhere. When this target group of gentrifiers left the city, it seemed highly unlikely that current gentrification trends will continue upward.

**Economic Changes**

Total household income for residents in the sample increased during the nine-year period; however, real income increases slowed down during 2006 to 2009. Figure 3 illustrates the average household income increase for my sample during all three years in the study.

Figure 3:

Seattle, WA experienced the greatest increase in household income than any other city in the sample with a $23,337 increase in median income over a nine-year period. Memphis posted the lowest gains in average income growth during the same period with increase of $3,125 by 2009. In the contemporary gentrification landscape, significant increases in income are highly correlated with gentrification. In Seattle’s central business district, higher income whites are quickly replacing the city’s historically black Central District. From 1990 and 2004, “Seattle’s households earning more than 150 percent of median income ($90,000 in 2005) expanded faster than any other income category,” one-third of the city’s total (McGee 2007). While these
economic changes occur before the crisis, we know that gentrification in Seattle continues to trend upward. Seattle’s black populations are moving to the city’s outlying suburban areas in droves. As incomes continue to increase and whites exhibit a cultural preference for urban spaces, gentrification will not be reversed.

**Housing Changes**

Figure 4 illustrates the 34.75 percent in home prices for the sample from 2000 to 2009.

Figure 4:

![Mean House Value for MSA Sample 2000 - 2009](image)

During the ten-year period that includes progressive housing policy and an economic crisis, the data shows that the housing bubble deeply affected national house values. The Sunbelt and West Coast experienced the severe effects of the housing crisis. Los Angeles posted an additional decline of 13.7 percent while San Francisco also posted a surprising decrease of 7 percent from 2006 to 2009. Chicago, Detroit, Memphis, and Seattle posted small declines in prices (under 5 percent). In Detroit, the automotive industry crisis from 2008 to 2010 deeply affected the local economy, including prospective real estate investment. In 2010, the Guardian reported that the “average price of a home sold in the city last year was around $7,500” (Guardian 2010). Even though Detroit saw a small decline in home prices, the cost of purchasing a home in Detroit was already so low prior to the recession. This information suggests that cities already on the decline may experience only residual effects from housing crisis.

Only some cities experienced home price increases from 2006 to 2009. In Baltimore, MD, house values increased by 14.7 percent between 2006 and 2009. Baltimore’s sudden increase in home prices is also consistent with increasing levels of gentrification in Baltimore. High home prices in Washington, DC presume homeowners to look beyond the metro area. As a result, homeowners are flocking to Baltimore’s up-and-coming neighborhoods where they can take advantage of home bargains in urban areas.

As seen in Figure 5, gains in median rent occurred between 2000 and 2009.
Figure 5:

Charlotte, Washington DC, and New York City posted the highest gains with increases between 5 and 9 percent from 2000 to 2006. Despite declines in home value in most markets, the median rent has increased in all 14 of the MSAs from my sample. More importantly, rental gains increased for every MSA between 2006 and 2009. At the high end of the spectrum, median rents increased in Los Angeles 13.39 percent between 2006 and 2009. At the bottom end of the spectrum, Milwaukee, WI saw a 6.7 percent increase and Detroit saw a 0.3 percent increase in total median rent during the same time points. This trend of decreasing or flatling home values and increasing median rent values suggests that rental markets in the 14 sample MSAs may be more competitive in the wake of the crisis. Since 2006, the supply of rental units in MSAs has not matched increased demand for rental apartments. The rise in foreclosures coupled with the difficulty of accessing credit to buy a home, resulted in increased interest in rental units. One argument supports the idea that former homeowners or prospective homeowners migrate to urban areas under the guise of “bargain hunting” as renters or homeowners. If monthly rental prices are comparable to monthly mortgage payments, prospective renters may find themselves interested in capitalizing on the current downturn in the housing market. In response to the tightening of the residential mortgage market, real estate investors capitalized on consumer demand and began converting downtown condos into apartment buildings.

Cities with Little or No Change in Gentrification

While several cities continued their upward trend of gentrification, cities like Chicago and Los Angeles showed little or no gains in gentrification between 2006 and 2009. Both Los Angeles and San Francisco, two cities with a history of gentrification since the 1960s, were strongly affected by the foreclosure crisis. Given that both cities have highly educated populations with strong consumption preferences, one would expect gentrification patterns to continue trending upward. With the exception of the race measurement, California’s two major cities – San Francisco and Los Angeles share many similarities in terms of how their residents were affected
by the subprime mortgage crisis. The results showed that no major levels of gentrification or de-gentrification were observed in the two cities; however, the dynamic between declining home value as well as increases in median rent is an important observation. Flatlining homes values are driving residents in both cities to rent rather than own property. This option is economically preferable for residents wanting to maintain string consumption preferences.

Major metropolitan U.S. cities continued their patterns of gentrification despite the economic pressures to withdraw from residential development during the crisis. These results show that, on average, the share of white college educated residents increased over the course of time that I studied. Other measurements of gentrification such as household income and monthly rent also rose slightly in 2006 to 2009 compared to the pre-economic crisis period of 2000 to 2006. In economic terms, income rose 9.9 percent and monthly contract rents increased by 12 percent in the sample. Demand-side consumption preferences were so strong in the sample, that the desire to live in central business districts was largely unaffected by the housing crisis.
5. CASE STUDY ANALYSIS

Gentrification occurs in different places for different reasons. Since housing price dynamics can vary within cities, I will discuss gentrification trends at the neighborhood level. While the quantitative data provides a general analysis of patterns occurring at the macro level, the qualitative data provides context for the patterns I examine in the observations section. Case studies present an opportunity to study how neighborhoods develop their own unique growth patterns. More specifically, case studies are helpful in describing how the phenomenon of gentrification affects neighborhoods at the granular PUMA data. An analysis of my sample will provide additional qualitative insight into what happened to gentrification in the wake of the subprime mortgage meltdown.

New York City (Williamsburg and Greenpoint Neighborhoods)

Downtown Williamsburg (2012)

New York City’s Brooklyn borough is often referred to as gentrification’s ground zero. Brooklyn’s Park Slope neighborhood is often popularized in contemporary American culture as the “urban frontier.” In the 1970s, Park Slope was a predominantly black inner city neighborhood. “Brownstoning” changed the face of a community plagued by poverty and slum tenements. During the first stages of gentrification, prospective homebuyers were equally responsive to preference-driven gentrification or income-driven gentrification. Brooklyn drew in new settlers wanting to purchase historic homes at relatively lower prices than their Manhattan neighbors.
Several boroughs in New York City including Brooklyn illustrate the importance of consumption preferences fueling demand side gentrification. The neighborhoods of Williamsburg and Greenpoint in Brooklyn are flourishing as hipster capitals of the U.S. Both neighborhoods experienced gentrification pre-2000; however, they have recently transformed from heavily artistic enclaves into an epicenter of young professionals. Waterfront condos in addition to the area’s easy access to public transportation make these spaces attractive to highly educated, white populations.

The Williamsburg neighborhood of Brooklyn was home to several thriving ethnic enclaves. Brooklyn’s Hasidic Jewish community has roots in Williamsburg in addition to working-class Italians and Puerto Ricans. In the 1970s, creative classes looked to Williamsburg as an alternative counter-culture where identities could be created in isolation from the mainstream commercialism occurring in Manhattan. The bohemian set flocked to Williamsburg in large numbers during the 1980s and 1990s as other neighborhoods like SoHo/Tribeca began pricing out artists. Williamsburg had a reputation as a popular indie rock scene and home to a number of fledgling art galleries. The neighborhood’s close proximity to Manhattan allowed artists to easily commute to the island via the “L train” while still occupying cheap studio space in Brooklyn. Williamsburg has now become a capital of hipsters living in a community where consumption preferences represent their elite bohemian tastes.

Greenpoint’s close proximity to Williamsburg on the southwest border has also begun to gentrify. Displaced creative types are flocking to Greenpoint for both demand and supply side reasons. Historically, Greenpoint has been the epicenter of Brooklyn’s Polish community. Today, Polish newspaper stands border espresso bars and trendy brunch locales. A few luxury condos sit beside the neighborhood’s many green spaces; however, most of the community is filled with smaller-scale brownstones. Young Brooklynites seeking economic refuge from Williamsburg can still take advantage of the area’s social offerings while living in a more affordable neighborhood.

The demand-side argument (consumption preference) suggests that a housing crisis will not reverse a trend of gentrification. This preference is not necessarily reactionary to market prices but socio-political trends occurring in urban areas. Demand-side gentrifiers will seek urban space regardless of market volatility. Their demand is constant. These Gentrifiers seek neighborhoods with unique aesthetics and amenities that help construct their sense of “community.” Moreover, These unique consumption preferences build identity for a neighborhood outside of the mainstream (e.g. Manhattan). Other preferences for living space in Brooklyn include: the demand for neighborhoods with shorter commute times and closer-to-work locations. Local bloggers in New York City believe that their neighborhoods are no less affordable in the wake of the crisis. A Brooklyn community organizer highlights says, “…we’re in an area that is rapidly being gentrified in spite of the total economic crisis in the country, there’s money to be made here in Bushwick… part of that is because as the rents go up in Manhattan and people lose their positions and so forth, they’re seeking to find affordable housing, and this is one of the neighborhoods where there still exists such a thing” (Capital Bushwick 2009). It seems that Greenpoint’s new residents gentrify for economic purposes, and then remain for consumption purposes.

10 The neighborhoods of Williamsburg and Greenpoint share the same public microdata use area – number 4001.
In Williamsburg and Greenpoint, strong consumption preferences for waterfront property and elite cheese shops have helped maintain demand even in the wake of the crisis. Increased rents and house values in the PUMA encompassing Williamsburg and Greenpoint, show that the housing and economic crisis could not deter interest in these up and coming neighborhoods.

Despite the recession, the local economy indicates that gentrification is thriving and quickly expanding to other parts of the borough. Williamsburg’s newest battle over Duane Reade and Whole Foods in the neighborhood further illustrates that gentrification is happening and here to stay.

Washington, DC (Columbia Heights Neighborhood)

The income-driven argument suggests that a housing crisis will stop or reverse a trend of gentrification. Since income-driven homeowners will seek housing in depressed urban areas only when it makes fiscal sense, they will opt to gentrify when home prices are most affordable. Income driven buyers will flock to geographic areas with the best possible prices and the most available credit. In this case “Bargain Hunting” – the purchasing of real estate below market value – is heavily dependent on market prices.

The District of Columbia experienced widespread gentrification within the last decade. Columbia Heights is a neighborhood in the northwest part of Washington, DC. Early pioneers in the neighborhood were income-driven gentrifiers sought economic refuge from Georgetown and the nearby suburb of Arlington, VA. Once known as a hotbed of inner city crime, Columbia Heights is now home to rehabilitated row houses, yoga studios and most recently a Target store.
Today, final stage gentrifiers walk alongside new restaurants and a thriving nightlife in their community. Older residents of the neighborhood are now being priced out of the area and moving to the next city experiencing its own process of redevelopment.

Coincidentally, the gentrifying neighborhood also borders other gentrifying communities like the bustling U-Street/Shaw to the east and the trendy Adams Morgan to the north. Although, the African American and Latino community still have roots in the area, a young white population has exploded in the area within the last decade. Rodger Moore, Executive Director of the Development Cooperation of Columbia Heights said that when he came to the area in 2002, prospective buyers could get in the neighborhood for around $100,000 (Olson 2004). In 2004, everything in the area was at least $450,000 (Olson 2004). Gentrification in Columbia Heights as is the case with most of Washington, DC, largely survived the credit crisis. The area’s close proximity to downtown DC via metro continues to attract young urban professionals with consumption preferences common among gentrifiers. The metro line came during the height of the recession, when median rents and home prices also increased more than 10 percent. Now that Columbia Heights boasts its own metro line station, demand for the area will only increase. Gentrification is at the heart of the District’s significant demographic change. Home prices have soared and long-time residents have been displaced from the center-city. More surprising than the increase in the economic and housing measurements in DC, are the demographic changes in the city. The pattern of white, college educated residents in DC shows no sign of reversing or slowing down. It seems that these gentrifiers are here to stay for the long haul.

**Detroit**

Detroit, MI is the only city in the sample experiencing de-gentrification. Detroit’s local economy was depressed even before the subprime crisis. A legacy of deindustrialization has turned formally gentrified middle-class neighborhoods into vacant slums. While deindustrialization is the main contributor to Detroit’s collapse, the Second Great Contraction only...
worsened city conditions. From 2000 to 2006, Detroit experienced small pockets of gentrification primarily by middle and upper class African American residents. African Americans replaced other African Americans and older housing developments in neighborhoods like Victoria Park. Now that the Motor City’s ailing manufacturing industry is failing to retain the close-knit communities of African Americans that once fueled the city.

According to 2010 U.S. Census data, Detroit has just over 714,000 residents down from nearly 1.1 million a decade ago (Los Angeles Times 2011). In 2009, Detroit’s per capita income hovered around $15,310 compared to a national rate of $27,041 (Los Angeles Times 2011). Not only are Detroit’s gentrifying communities suffering from the city’s economic difficulties, all neighborhoods are feeling the pain of a city in decline. A lack of investment in rebuilding Detroit makes it difficult for demand-side consumption surface. Given that income-driven gentrification produces demand-side gentrification, it is highly unlikely that gentrification will return to Detroit without any strong incentive. Additionally it seems that Detroit’s ability to successfully re-gentrify in the future is very much dependent on a healthy job economy.

Gentrification is not synonymous with Detroit as it is with other areas like Brooklyn, NY. Metropolitan Detroit fails to offer the same type of consumption preferences common in other gentrifying areas. Today, most of the gritty city is nearly a ghost town with decaying historic commercial and residential properties. However, in Detroit there is a small-scale re-birth of gentrification. Detroit’s downtown areas are still plagued by high vacancy rates, poverty, and chronic unemployment; however, early-stage gentrifiers are looking to create a Williamsburg effect. Some levels of income-driven gentrification are occurring in one of Detroit’s remaining middle-class neighborhoods. As middle class residents are moving outside the city lines for better jobs and safer housing opportunities, a new class of white creative types is moving closer to the city center. These “bargain hunters” seem more cost conscious than their Portland or Brooklyn peers. Most first-stage gentrifiers seek depressed housing because it makes fiscal sense. With nearly one-quarter of Detroit’s homes in foreclosure, young hipsters and middle-aged professionals “are looking to trade up to a bigger home at a bargain” (Time Magazine 2009). It’s up to the next generation of pioneers to ensure that Detroit’s historic buildings are rehabilitated and attractive to a new class of artists and urban professionals.

6. CONCLUSION

Rising unemployment and withdrawals of financial investment forces many developers and homeowners to retreat from the housing market. Young, white and educated homeowners continue to seek out gentrified or gentrifying living spaces. Some of these prospective homeowners look for bargains in popular neighborhoods when they can capitalize on the temporarily low prices. Other prospective homeowners have strong consumption preferences to live in certain areas, and will pay a premium to move into the neighborhood regardless of the market. These demand-side gentrifiers are relatively wealthy, college-educated persons who have not been hit has hard by this economic downturn. Data from my sample shows that cities experienced homeowners with mixed preferences. Some residents gentrified for income reasons, and some continued to gentrify for consumption purposes.
Using Census and ACS data from 2000, 2006 and 2009, I was able to observe patterns of gentrification before and after the mortgage bubble. My MSA sample of 14 cities and 161 PUMAs shows that some cities and their corresponding PUMAs rebounded quickly from the housing crisis more than other geographic areas. Overall, the findings suggest that gentrifying cities before the year 2000 did not experience significant levels of de-gentrification as a result of the Subprime Mortgage Crisis and subsequent fallout in the global capital markets. In fact, gentrifying cities like Washington, DC, Charlotte, NC and New York City were exposed to greater level of demand for residential urban space. At the same time, the data showed that certain cities like Detroit could not sustain its redevelopment efforts.

My paper has attempted to observe what happens to gentrification in the wake of a housing crisis. Variations in the definition of gentrification as well as criteria for gentrification create a number of problems for scholars. The lack of consensus on how to measure levels of gentrification makes it difficult to advance the gentrification literature. Despite these variations, most of the social science literature has suggested several demographic, housing and economic variables that distinguish gentrifying neighborhoods from non-gentrifying areas.

Explaining patterns of gentrification throughout the U.S. is a task that has absorbed a considerable amount of time by sociologists, economists and political scientists. I have attempted to contribute to the literature with a descriptive analysis of gentrification in the wake of the crisis. Given that the subprime mortgage crisis is a recent development, further studies should look to advance the themes presented using descriptive statistics and regression analysis.

**Policy Implications**

Analysts often cite the housing crisis as the catalyst for sending the global markets into a tailspin. The Clinton and Bush Administration’s misguided housing and monetary policy is partly to blame for the foreclosure pandemic. As the government seeks to regulate the U.S. banking system and restructure government subsidized mortgage corporations, reevaluating government investment in urban areas is crucial. Additionally, this paper contributes to the longstanding policy discussion regarding the Community Reinvestment Act. Understanding trends in certain urban housing economies may spur greater levels of investment by government in gentrified areas. Government may consider additional policies driving investment in areas that can potentially withstand the effects of a severe housing crisis. The *American Prospect* paints a picture of New York City where investors too have speculated in a market highly driven by consumption preferences. More than 100,000 apartments in New York City are headed for foreclosure (*The American Prospect* 2009).

Most recently in New York City, Mayor Bloomberg initiated policies that would create affordable housing in gentrifying neighborhoods. Bloomberg is working with real estate investors to convert luxury condos into affordable housing units throughout Manhattan. Atlanta has also duplicated this policy to decrease its vacancy rates downtown. Although the polices aren’t ideal for real estate investors who are taking a loss on their developments, the government is able to secure affordable housing spaces in highly-densely populated gentrified neighborhoods. In the future, researchers should also look to address how government should respond to gentrification’s distributional consequences in the wake of a housing crisis.
Major displacement of lower-income households, most often occupied by residents of color and white immigrants, has forced community organizers and local government officials to reconsider the effects of changing social ecological patterns. Concerns over dynamic expansion in gentrifying neighborhoods promoted organizations like the Urban Institute to provide “strategies the local governments, developers and non-profit organizations can use to retain affordable housing in their communities” (Levy et al. 2006, 1). Smith (1996 as cited by Lees 2008, 139) explains, “gentrification is no longer about a narrow and quixotic oddity in the housing market but has become the leading residential edge of a much larger endeavor: the class remake of the central urban landscape.” Preferences for historic homes and downtown high-rises are a mainstay in today’s housing market. Clearly, these demand preferences have major policy implications beyond displacement.
APPENDIX.

Table A: Expanded Variable Table with IPUMS Detail

<table>
<thead>
<tr>
<th>Gentrification Variables and their Components</th>
<th>Measurement Detail</th>
<th>More Gentrification is:</th>
<th>Less Gentrification is:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Demographic Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Population</td>
<td>CITYPOP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>EDUC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>RACE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>OCC</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2. Economic Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median Household Income</td>
<td>HHINCOME</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3. Housing Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median House Value</td>
<td>VALUETH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median Rent</td>
<td>RENT</td>
<td></td>
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</tr>
<tr>
<td><strong>4. Geographic Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>City</td>
<td>CITY</td>
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</tr>
<tr>
<td>PUMA</td>
<td>PUMA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CITYPOP reports the population, in hundreds, for all identifiable cities.
EDUC indicates respondents’ educational attainment, as measured by the highest year of school or degree completed. This study separates persons into non-college educated and college educated.
RACE reports what racial group respondents consider themselves.
This study only considers white and non-white.
OCC reports the person's primary occupation, coded into a contemporary census classification scheme. This study separates persons into blue and white collar professions.
HHINCOME reports the total money income of all household members age 15+ during the previous year. For the census, the reference period is the previous calendar year; for the ACS and the PRCS, it is the previous 12 months.
VALUETH reports the value of housing units in contemporary dollars. 2000, 2000-2007 ACS/PRCS: $1,000,000 2008 ACS/PRCS topcodes by state.
RENT reports the amount of the household’s monthly contract rent payment. This count does not include homeowners. ACS/PRCS topcodes vary by state.
CITY identifies the city of residence, if the household was located in one of the cities identified in a given sample.
PUMA identifies the Public Use Microdata Area (PUMA) where the housing unit was located. The boundaries and PUMA codes are the same for the 2000 census and the 2005-onward ACS/PRCS samples.
This data comes from my data set compiling selected statistical information for all 14 MSAs from 2000 to 2009.

### Table 1: 2000 Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable of Interest</th>
<th>Variable Name</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Population</td>
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<td>41,364.44</td>
<td>30,439.75</td>
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<tr>
<td>Education</td>
<td>colled_ind</td>
<td>18.63%</td>
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<td>Race</td>
<td>white_var</td>
<td>44.73%</td>
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<tr>
<td>Occupation</td>
<td>whitecollar_ind</td>
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</tr>
<tr>
<td>Household Income</td>
<td>medpumaHHI</td>
<td>$45,205.48</td>
<td>15,634.44</td>
</tr>
</tbody>
</table>

**N = 939,464 households**

### Table 2: 2006 Descriptive Statistics

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<th>Variable Name</th>
<th>Mean</th>
<th>Std. Dev.</th>
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</thead>
<tbody>
<tr>
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<td>42,689.05</td>
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<td>24.34%</td>
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<tr>
<td>Race</td>
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<td>Occupation</td>
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<td>43.37%</td>
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<tr>
<td>Household Income</td>
<td>medpumaHHI</td>
<td>$55,869.79</td>
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</tr>
</tbody>
</table>

**N = 177,032 households**

### Table 3: 2009 Descriptive Statistics

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<th>Variable of Interest</th>
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<th>Mean</th>
<th>Std. Dev.</th>
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</thead>
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<tr>
<td>Occupation</td>
<td>whitecollar_ind</td>
<td>44.00%</td>
<td>0.50</td>
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<tr>
<td>Household Income</td>
<td>medpumaHHI</td>
<td>$61,441.42</td>
<td>23,806.35</td>
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</table>

**N = 715,833 households**
References


