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The Effect of Changes in Racial Composition on Housing Prices: A Study of the Most Diverse Place in the World

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by

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Abstract

Housing prices differ and fluctuate for a multitude of reasons. This study observes the effects of minorities moving into a neighborhood on housing prices in the most ethnically diverse place in the world, Queens, New York. This paper obtained demographics data by zip code from the American Community Survey and recorded house sales by zip code from the NYC Department of Finance. The following econometric tools are implemented in this analysis: quantile regression, hedonic regression, OLS regression, and linear regression model using fixed effects. Using a panel dataset, this paper will focus on Queens, NY between the years 2011 and 2015 and will attempt to illustrate that an increase in minority residents may lead to a decrease in housing prices.

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1. Introduction

The New York City housing market is quite unique. From old houses, classic brownstones, townhouses and tiny apartments to high-rise apartments, skyscraper condominiums and now the ultra-luxury residential skyscrapers on 57th street's "Billionaire's Row", many factors play a role in determining the value of a house, such as the number of bedrooms, bathrooms, location, access to transportation, lot size, year built, and the quality of neighborhood schools. However, due to prejudices still present in today's society, many homeowners and potential buyers analyze the racial composition of a neighborhood in order to determine whether or not a neighborhood is 'good', thus potentially affecting house prices. The purpose of this paper is to determine whether there is an effect on housing prices when the racial composition of neighborhoods change with a focus on the most ethnically diverse area in the world, Queens, NY.

Are New Yorkers self-interested and rational beings? In the most diverse area in the world, does prejudice and discrimination play a role in their decision-making and if so, to what extent? Prejudice is having a negative view of a certain group of people while discrimination is acting on that negative view which results in the mistreatment of that group. An example of prejudice is when property values are affected by racial composition of a neighborhood. An example of discrimination in the housing market is seen when identical houses are sold at different prices to people of different races (Kiel 1995). House sellers and neighbors participate in discrimination when they consider leaving their

neighborhoods due to an influx of minorities. According to Ellen (1999), white homeowners and homes with children are more likely to be averse to an influx of minorities.

Blockbusting and redlining are two examples of policies that use prejudice and discrimination and were implemented in the United States. These two factors play significant roles in house valuations and relate to the racial composition of neighborhoods. Redlining is a form of discrimination where financial institutions make it extremely difficult for people living in certain neighborhoods to obtain mortgages. If approved for a loan, unfavorable rates are given and house prices are higher for people of certain races. This is prevalent in a report published by Turner et al. (2012), which demonstrates that blacks were less likely to get an in-person appointment with a real estate agent. The practice of blockbusting occurs when real estate agents attempt to exploit the prejudice of house owners in hopes that the owners will sell due to fears of the growing minority population. Ellen (1999) concluded in her paper that exit decisions are made if the homeowner's distaste for change in the racial composition of the neighborhood is greater than the cost of moving. Blockbusting and redlining have affected house prices and the decisions of people of all races in purchasing homes.

The gentrification that has occurred in the Brooklyn neighborhoods of Williamsburg, Bushwick, Greenpoint, and Bedford-Stuyvesant is now happening in Queens. The neighborhoods of western Queens, particularly Long Island City, Astoria and Sunnyside have seen large changes in racial composition over the last decade or so. Gentrification occurs when properties are deemed

undervalued and they are restored to raise future prices when sold. Gentrification is occurring in the neighborhoods along the East River waterfront. The area along the waterfront is close to midtown and Wall Street in Manhattan. These neighborhoods in Queens are in close proximity to major New York City transportation hubs. The effects of gentrification are lower rates of violent crimes and higher property values. This is shown in Michael Barton's 2016 paper where he discovers an inverse relationship between gentrification and assault, robbery, and homicide in New York City.

This study will observe the relationship between changes in neighborhood racial composition and house prices using various econometric tools in Queens, New York between 2011 and 2015.The remainder of this paper is structured as follows: section 2 is the literature review; section 3 introduces and describes the dataset; section 4 is describes the econometric tools and methods applied; section 5 rationalizes the results, and section 6 provides a conclusion to the study.

2. Literature Review

When it comes to measuring the effects of racial composition on housing prices, most studies use the American Housing Survey (AHS) as their source of data (Myers 2004; Ellen 1999; Follain 1980; Kiel 1995). These studies predominantly use a hedonic regression framework to measure the relationship between race and house prices (Yinger 2014; Myers 2004; Follain 1980; Kiel

1995; Harris 1995). The hedonic regression regresses the house price on all the available attributes of a house. It attempts to control for differences in the attributes of the houses. The calculated coefficients on each of these attributes can be interpreted as the average price the market places on each of those characteristics. The hedonic regression is popular in real estate appraisal because of the ability to quantify attributes of a home such as the value of an addition bedroom or bathroom.

The literature suggests that prospective house buyers are on average willing to or forced to pay a premium to live in neighborhoods with certain racial compositions. For example, Yinger (2014) reports that some households prefer largely minority neighborhoods while other households prefer largely non-minority neighborhoods. Relative to a neighborhood that was 90% black, prices were about 2% higher in a neighborhood that was 100% black. House prices were 5% higher for houses in a 100% white neighborhood relative to those in neighborhoods that were 90% white.

Similarly, studies have shown that blacks and Hispanics had to pay a premium ranging between 1-4% and averaging around 2% across 4 metropolitan areas relative to whites for comparable housing (Bayer et al. 2013). When observing the race of the seller, we find that while blacks and Hispanics do pay a higher premium than whites, they will pay the average premium regardless of the seller's race. In other words, blacks and Hispanics will pay a premium even when buying from a black or Hispanic seller. When controlling for neighborhood composition, the price premium paid by blacks did not greatly vary relative to

neighborhoods with variable racial composition. The converse was found to be true for Hispanic buyers. The premium that Hispanic buyers once faced almost became insignificant when they purchased houses in predominately white neighborhoods. Myers (2004) finds that in any given neighborhood, blacks pay a 10% premium relative to their white counterparts.

On the contrary, Follain et al. (1980) came to the conclusion that on average, blacks pay less than non-blacks and that the average discount for blacks was about 15%. Myers (2004) concluded that house prices decrease as the black population increases. Kiel et al. (1995) found that a non-white homeowner's home would be valued 20.2% less than a white homeowner with a similar quality home in Philadelphia. This was also found to be true in Chicago but to a lesser degree, at 4.18%. Harris (2001) found that as the black population increases, at a certain point, both black and whites would cease to find that neighborhood attractive.

Race plays a significant role in determining entry and exit of prospective homebuyers and prospective home sellers. Ellen (1999) came to the conclusion that supported the race-based neighborhood projection hypothesis. The race based neighborhood projection hypothesis states that households are more interested in future expected neighborhood conditions than the present racial composition. It's concluded that white households and households with children are more likely to be averse to racially mixed neighborhoods than childless households and renters. Conversely, Kiel et al. (1995) found that in Denver, the race of a homeowner was insignificant when looking at house valuation.

Dekker (2012) tests the racial proxy hypothesis, which states that the racial composition of a neighborhood is a proxy for the socioeconomic characteristics of that neighborhood and deals with neighborhood satisfaction. The racial proxy hypothesis is important when considering preferences and quality of neighborhoods, thus, dealing with racial composition and implicitly house prices. Contrary to Harris (2001), she concludes that her analysis did not support the racial proxy hypothesis and that it cannot be confirmed. Harris (2001) states that there is a powerful relationship between household preferences and neighborhood characteristics. Harris (1995) found that houses in neighborhoods with a black population of 10% or more lost at least 16% of its value.

3. Data

Analyzing the relationship between neighborhood racial composition and house prices requires data on home sales and on neighborhood characteristics. The NYC Department of Finance makes data on each residential house and condominium sale from 2003 onward available for download.

I limit my sample to sales in Queens between 2011 and 2015. I select these years to avoid confounding effects of the Great Recession. The resulting dataset contains the address, zip code, building class category, land in square feet, gross square feet, year built, sales price, and sales date for each individual residential home and condominium sale in Queens.

I use zip code level data from the 5-year pooled samples of the American Community Survey (ACS) to get information on demographic characteristics of Queens' zip codes. This includes population composition by sex, age group, race and ethnicity for each year between 2011 and 2015. While zip code level estimates are based on five-year pooled samples of the ACS, a new one is available each year, using pooled data from that year and the prior four years.

The two datasets have merged by zip code and year and focus on single-family homes (refer to figure 1). I limit my analysis sample to single family homes given limited sample size of sales of multiple family homes and condominiums in some zip codes and years. I also drop sales for which a sales price of "$0" was recorded, because they were transfers of ownership rather than actual sales. In order to avoid skewness, houses that were built two years within the sales date are excluded because many higher quality homes were being built and sold in a short period effectively provides us with biased results. The age of the sold homes ranged between 0 and 213 years old.

The demographic variables in the model are black, Asian, multiracial, Hispanic, and age group variables. The reference race group is 'other' which includes races that are not Asian, black, or multiracial people. The 'other' variable contains whites, Native-Americans, Hawaiians and those classified as 'other'. Table 1 presents the demographic statistics of Queens for the years of 2011 and 2015. The black population has decreased slightly from 21.64% in 2011 to 20.43% in 2015. The 'other' population has decreased by slightly less than 1% from 53.9 to 53%. The Asian population grew by approximately 1.3% from

21.67% to 22.98%. The multiracial population saw a .8% increase between 2011 and 2015, increasing from 2.8% to 3.6%. The Hispanic population grew by .67% between 2011 and 2015. The Hispanic population in 2011 was 23.63% and it grew to 24.30% in 2015. Table 2 presents the original house prices data and the mean of the median house prices, which is $495,303.1. Table 3 presents the merged ACS and house prices dataset; the median price is $497,090.10. An explanation for the increase is that there were many houses that were valued at $0 meaning they were transfers of ownership and that dragged down the price. The median house age in table 3 is 78.63 years old while in table 2 the median house age was 77.83 years old. The median lot size variable didn't change very much; it was 3162.05 in table 2 and 2,999.08 in table 3. The same was true for the median gross feet. Table 4 presents the median house price of sales by year; in 2011 the median house price was $449,568, which grew to $575,770 for a 28% increase in a five-year period.

4. Methods

4.1 Calculating Measures of Local House Prices

Estimating the relationship between house prices and racial composition requires a measure of relative house prices or house price changes in each zip code and year. There are a multitude of methods used in calculating relative house prices across geographic areas and across time. Each of these methods

has their own strengths and weakness and one method may be better than the others depending on available data.

The most rigorous approach to calculating house price changes in an area involves using repeat sales of the same homes. The repeat sales method paints a clear picture of the changes in housing prices because it looks at the repeat sales of homes over many years. The benefits of tracking repeat sales are that you can hold house characteristics constant, control for heterogeneity and you can observe price appreciation or depreciation over time. The shortcomings are that large numbers of observations and years are required for it to be accurate which can be difficult to obtain. However, given the limitation of publicly available data for New York City, this method was not used.

An approach to calculating relative house prices across areas and time is the hedonic regression. Contrary to the repeat sales method, the hedonic method does not require panel data on the same homes over time. Unlike the repeat sales method, this method does not assume that the quality of a home is constant over time. The hedonic regression regresses the house price on all the available characteristics (i.e. number of bedrooms, land size, house age, and number of bathrooms) of a house. The goal is to attempt to control for differences in the attributes of the houses. The estimated coefficients on each of these attributes can be interpreted as the average price the market places on each of those characteristics. The residual from the regression is the share of the house price that cannot be explained by observable characteristics. The average of the residuals in a particular zip code can be interpreted as the house price premium

in that zip code. If there are enough observations with many tracked attributes then the hedonic method could be the most accurate in determining the relative values of homes across areas and time, while controlling for differences in attributes across areas and time. The accuracy of the hedonic regression relies on the robustness of the attributes included in the regression. While I have limited attributes on home sales in Queens, I will use this approach to measure the relative value of homes across zip codes.

As a robustness check, I use a second approach, median prices within zip codes. Median house prices are widely used in many publications and by numerous policy makers due to large observations in spite of its shortcomings. For instance, although tracking and obtaining this data is inexpensive and straightforward, the data could be skewed by new construction and building complexes being sold. This is because an increase in quality, even if the prices in the other homes stayed constant, would lead to a higher median price. I attempt to remedy this by excluding all houses sold within two years of being built.

4.2 Estimating the Relationship Between Racial Composition and Local House Prices

Using the two measures of zip-code level house prices, median prices and house price premiums, described above, I estimate regressions of these prices on zip code racial composition. I run three different types of regressions (OLS, Fixed Effects, and Quantile regression) on two dependent variables median

house prices and the median house price premium. The median house prices are the aggregated median prices for homes sold within each zip code for each year. The median house price premium is calculated using the hedonic regression and is then aggregated by calculating its median.

Ordinary Least Squares (OLS) is used to analyze the relationship between sales prices when there is a change in racial composition. Fixed effects models are needed in order to observe the racial composition and time changes within zip codes on house prices. The fixed effects models are imperative in attempting to control for variables not in the model such as median household income, crime rates, distance from the city center, and neighborhood amenities. The quantile regression is also used in order to compare and contrast the effect of racial composition changes on the bottom and top 25% as well as the median of the houses sold. It was a tool that was applied in order to deal with the issue of extreme outliers.

Regressions for median prices and median house premium can be modeled as:

(1) $P_{it} = F(H_{it}, R_{it}, A_{it}, T_{it}, e_{i,} u_{it})$

where P is one of the two measures of house prices: the housing premium (median difference between the actual sale price and the predicted sales price from the hedonic regression) or the median price in neighborhood i. H is a vector

of house characteristics, R is a vector of racial composition in the neighborhood, A is a vector of age composition in the neighborhood, the age groups are divided into the following groups: under 19 years old, 20-34 years old, and 35 to 64 years old, with the reference group being 65 years old and older. T is a vector of dummy variables for each year included in the regression, e is a measure of unobserved, time-invariant, zip code characteristics that are could affect house prices, such as distance to subways, u is a measure of unobservable zip code characteristics that vary over time such as school quality, crime, and cultural amenities.

The model for the median house price premium is the same as equation (1) barring the vector of house characteristics, which were excluded due to being used when calculating the housing premium through the hedonic regression. The model for the quantile regression is also represented by equation (1) for both median prices and median house price premium. As previously stated, house characteristics are excluded from the regression.

5. Results

Table 5 presents the OLS estimates for the house premiums and median prices across zip codes. Column (1) of table 5 presents the regression with the median house price premium. We find that relative to the 'other' reference group, house prices are expected to decrease by almost $2,600 for a 1 percentage point higher black population, increase by $970.9 for a 1 percentage point higher Asian

population, decrease by about $15,800 for a 1 percentage point higher multiracial population, and decrease by about $1,400 for a 1 percentage point higher Hispanic population.

When observing the dependent variable median prices, in column (2), we find that the house characteristics of land in square feet and house age are insignificant but the gross square feet variable is significant and the coefficient is positive. For each additional gross foot, the expected price of a home increases by about $205. When looking at the racial composition of neighborhoods, all the race controls were significant and we find very similar coefficients and the same explanatory variables significant in column (1) are significant here. The magnitudes of the coefficients slightly differ, for example, in column (1), the Asian coefficient is 970.9 while in column (2) it's 1,616.5. When observing age characteristics, we find that the only groups that are significant are the under 19 group and 35-64 age groups. Relative to the 65 and over group, for a 1 percentage point higher age 19 and under population, you can expect about a $13,000 decrease in prices. For a 1 percentage point higher population for the 35-64 year old age group, the expected price of a house is expected to decrease by about $6,000.

Table 6 presents fixed effects estimates of changes in house prices within zip codes over time. Fixed effects remove the time invariant and neighborhood characteristics to observe the net effect of the independent variables on the dependent variable. Column (1) reports that black and multiracial are significant while column (2) reports black as the only significant variable. The coefficients of

variable black are 14,947.6 and 13,083.5, while the coefficient for the multiracial variable is 8,844.7. These values have the opposite signs and magnitudes that the OLS linear regressions give us. There were a few neighborhoods in Queens where gentrification was occurring, causing some neighborhoods to be outliers, two of them being Far Rockaway and Woodhaven. These neighborhoods had significant increases in the white population but also had declining or flat house prices.

Table 7 presents the quantile regression on a panel dataset observing the median house price premium. The quantile regression is a tool that aids us in observing the extreme outliers of the dataset. Columns (1-3) observe the bottom 25%, the median of the median prices, and the top 25% of houses sold in the distribution and how they respond to the independent variables. Table 8 also uses the quantile regression on a panel dataset observing median prices. The columns in this table use the same quantiles as table 7, except column (2) in table 7 looks at the median of the house price premium. In both tables 7 and 8, all the race variables seem to be insignificant. Two reasons for this could be that there weren't many outliers at the extremes and the dataset isn't quite large enough to capture and properly estimate the coefficients.

6. Conclusion

In this paper, I analyze the relationship between changes in the racial composition of a neighborhood and house prices in Queens, NY. Two methods

of measuring house prices and three different econometric tools were applied to determine whether or not a relationship exists between changes in the racial composition of a neighborhood and house prices. The results of the OLS linear regressions are consistent with past studies. The OLS regressions tell us that as the black, Hispanic, and multiracial populations get higher relative to the 'other' group, house prices decrease. This is consistent with the findings of Myers (2004) who found that as the black population grew, house prices decreased. This coincides with the findings of Harris (1995), who concluded that houses in neighborhoods with a black population of 10% or more lost at least 16% of its value. Similarly, Kiel et al. (1995) found that a non-white homeowner's house would be valued 20.2% less than a white homeowner with a similar quality home in Philadelphia and to a lesser magnitude in Chicago.

The fixed effects model showed the opposite of what I was expecting to see. The black and multiracial variables are found to be significant and positive. This supports the findings of Yinger (2014) who reports that some households prefer large minority neighborhoods while other households prefer largely non-minority neighborhoods. Relative to a neighborhood that was 90% black, price were about 2% higher to live in a neighborhood that was 100% black.

The results of the quantile regression were inconclusive because all explanatory variables were found to be insignificant. This was likely due to not having a large number of observations and outliers at the upper and lower quantiles. Due to the limitations of the dataset, a few things were not accounted such as neighborhood amenities, business, number of bedrooms and bathrooms.

Future research should perhaps study New York City as a whole and over a longer period of time while controlling for more house and neighborhood characteristics.

7. References

Barton, Michael S. “Gentrification and Violent Crime in New York City.” *Crime & Delinquency*, vol. 62, no. 9, Oct. 2016, pp. 1180–1202., doi:10.1177/0011128714549652.

Bayer, Patrick, et al. “Estimating Racial Price Differentials in the Housing Market.” *NBER*, Apr. 2013, www.nber.org/papers/w18069.ack.

Dekker, Karien. “Testing the Racial Proxy Hypothesis: What Is It That Residents Don’t Like About Their Neighbourhood?” *Understanding Neighbourhood Dynamics*, 2012, pp. 225–254., doi:10.1007/978-94-007-4854-5_11.

Ellen, Ingrid Gould. “Race-Based Neighbourhood Projection: A Proposed Framework for Understanding New Data on Racial Integration.” *Urban Studies*, vol. 37, no. 9, 1 Aug. 2000, pp. 1513–1533., doi:10.1080/00420980020080241.

Follain, James R., and Stephen Malpezzi. “Another Look at Racial Differences in Housing Prices.” *Urban Studies*, vol. 18, no. 2, 1981, pp. 195–203., doi:10.1080/00420988120080351.

Harris, David R. “"Property Values Drop When Blacks Move in, Because...": Racial and Socioeconomic Determinants of Neighborhood Desirability.” *American Sociological Review*, vol. 64, no. 3, 1999, p. 461., doi:10.2307/2657496.

Harris, David R. “Why Are Whites and Blacks Averse to Black Neighbors?” *Social Science Research*, vol. 30, no. 1, 2001, pp. 100–116., doi:10.1006/ssre.2000.0695.

Kiel, Katherine A., and Jeffrey E. Zabel. “House Price Differentials in U.S. Cities: Household and Neighborhood Racial Effects.” *Journal of Housing Economics*, vol. 5, no. 2, 1996, pp. 143–165., doi:10.1006/jhec.1996.0008.

Myers, Caitlin Knowles. “Discrimination and neighborhood effects: understanding racial differentials in US housing prices.” *Journal of Urban Economics*, Academic Press, 19 June 2004, www.sciencedirect.com/science/article/pii/S0094119004000397.

Ouazad, Amine. “Blockbusting: Real Estate Brokers and the Dynamics of Segregation.” *By Amine Ouazad :: SSRN*, 18 Mar. 2011, papers.ssrn.com/sol3/papers.cfm?abstract_id=1788223.

Turner, Margery Austin, et al. “Housing Discrimination against Racial and Ethnic Minorities 2012: Full Report.” *Urban Institute*, 11 June 2013,

www.urban.org/research/publication/housing-discrimination-against-racial-and-ethnic-minorities-2012-full-report.

Yinger, John. “Hedonic Estimates of Neighborhood Ethnic Preferences.” *Public Finance Review*, vol. 44, no. 1, 2014, pp. 22–51., doi:10.1177/1091142113520562.

Table 1: Queens Zip Code Racial/Ethnic Demographic Statistics

	(2011)	(2015)
Black	21.64	20.43
	(29.13)	(28.16)
Asian	21.67	22.98
	(15.67)	(16.41)
Other	53.89	53.01
	(24.21)	(23.23)
Multiracial	2.80	3.59
	(1.515)	(1.846)
Hispanic	23.63	24.30
	(15.24)	(15.14)
Observations	57	57

mean coefficients; sd in parentheses

Table 2: Characteristics of Queens Home Sales, 2011-2015

House Price Data	
Median Price	495,303
	(172,725.00)
Median Lot Size	3,162.05
	(852.60)
Median Gross Feet	1,458.69
	(201.60)
Median House Age	77.83
	(9.68)
Observations	31,244

mean coefficients; sd in parentheses

Table 3: Characteristics of Home Sales and Zip Code Demographics, by Queens Zip Code, 2011-2015

	ACS + House Price Dataset
Median Price	497,090
	(164,216)
House Price Premium	17,705
	(149,639)
Median Lot Size	2,999.08
	(959.20)
Median Gross Feet	1,487.96
	(222.20)
Median House Age	78.63
	(10.48)
Other	53.41
	(23.62)
Black	21.00
	(28.43)
Asian	22.26
	(15.93)
Hispanic	24.01
	(15.12)
Multiracial	3.33
	(1.84)
Under 19	22.89
	(4.02)
20-24 Years Old	22.67
	(4.803)
35-64 Years Old	40.97
	(2.776)
Observations	285

mean coefficients; sd in parentheses

Table 4: Median House Price of Queens Home Sales by year, 2011-2015

	2011	2012	2013	2014	2015
Median Price	449,568	453,101	480,492	526,520	575,770
	(145,013)	(130,669)	(153,631)	(162,475)	(192,162)
Observations	57	57	57	57	57

mean coefficients; sd in parentheses

Table 5: OLS Estimates of Median House Price Premium and Median Prices

	House Price Premium	Median Price
Black	-2,575.40***	-2,184.30***
	(-9.98)	(-8.37)
Asian	970.90**	1,616.50***
	(2.57)	(3.99)
Multiracial	-15,777.20***	-16101.80***
	(-6.08)	(-6.12)
Hispanic	-1,434.20***	-1,532.90***
	(-3.09)	(-3.21)
Under 19	-12,567.60***	-13,192.90***
	(-5.91)	(-5.36)
20-24 Years Old	2,981.60	-1,298.60
	(1.64)	(-0.55)
35-64 Years Old	-3,506.40	-6,284.80*
	(-1.24)	(-1.89)
Year 2012	15,462.50	4,655.90
	(1.15)	(0.35)
Year 2013	44,056.70***	32,013.20**
	(3.26)	(2.38)
Year 2014	90,230.70***	85,693.90***
	(6.60)	(6.26)
Year 2015	153,055.60***	142,983.20***
	(11.18)	(10.12)
Median Lot Size		1.55
		(0.24)
Median Gross Feet		205.30***
		(8.19)
Median House Age		-537.80
		(-0.93)
Constant	440,213.07**	865,274.80***
	(2.47)	(3.84)
Observations	285	285

t statistics in parentheses
Source: Pricedemo.dta
* p<0.10, ** p<0.05, *** p<0.

Table 6: Fixed Effects Estimates of Median House Price Premium and Median Prices

	House Price Premium	Median Price
Black	14,947.60***	13,083.50***
	(6.09)	(5.64)
Asian	-158.6	129.8
	(-0.07)	(0.06)
Multiracial	8,844.70**	4,146.01
	(2.19)	(1.10)
Hispanic	-2,972.70	-553.4
	(-1.31)	(-0.26)
Under 19	11458.5**	10465.4**
	(2.24)	(2.21)
20-24 Years Old	-2,501.10	-5,263.50
	(-0.46)	(-1.04)
35-64 Years Old	9,595.20	2,243.01
	(1.62)	(0.41)
Year 2012	15,004.20*	4,995.40
	(1.76)	(0.64)
Year 2013	51,654.50***	41,149.80***
	(5.71)	(4.88)
Year 2014	102,149.40***	99,051.50***
	(10.19)	(10.40)
Year 2015	174,494.90***	160,322.40***
	(16.07)	(15.00)
Median Lot Size		-17.36**
		(-2.19)
Median Gross Feet		108.20***
		(4.01)
Median House Age		-1406.0**
		(-2.09)
Constant	-918,014.60**	-52,643.40
	(-2.03)	(-0.13)
Observations	285	285

t statistics in parentheses
Source: Pricedemo.dta
* p<0.10, ** p<0.05, *** p<0.001

Table 7: Quantile Regression Estimates of Median House Price Premium

	Bottom 25%	Median	Top 25%
Median Lot Size	4,925.00	3,158.10	949.90
	(1.12)	(1.38)	(1.42)
Median Gross Feet	-1,101.80	18,835.80	2,574.40
	(-0.31)	(0.97)	(0.74)
Median House Age	-571,043.60	-278,906.40	-76,114.80
	(-1.02)	(-0.99)	(-0.88)
Black	-213,280.70	-293,828.20	-56,567.70
	(-1.25)	(-1.32)	(-1.18)
Asian	475,858.40	220,409.80	-16,301.60
	(1.63)	(1.47)	(-0.51)
Multiracial	461,864.10	-170,011.20	-37,269.20
	(0.26)	(-0.19)	(-0.20)
Hispanic	-301,864.00	-763,96.20	104,390.01
	(-0.88)	(-1.03)	(1.76)
Under 19	-970,655.30	-981,600.80	-179,216.10
	(-1.50)	(-1.30)	(-1.13)
20-24 Years Old	-132,2950.90	-250,2939.80	92,788.30
	(-1.50)	(-1.48)	(0.53)
35-64 Years Old	-214,650.70	-202,696.70	-21,674.30
	(-0.35)	(-0.43)	(-0.21)
Observations	285	285	285

t statistics in parentheses
Source: Pricedemo.dta
* p<0.05, ** p<0.01, *** p<0.001

Table 8: Quantile Regression with Median Prices

	Bottom 25%	Median	Top 25%
Median Lot Size	1,145.90	2,158.80	482.60
	(1.47)	(0.79)	(0.27)
Median Gross Feet	749.10	-10,191.60	1,872.00
	(0.27)	(-1.24)	(0.48)
Median House Age	-233,787.90	-418,654.01	-293,466.30
	(-1.23)	(-1.12)	(-1.03)
Black	-114,262.30	-681,003.30	-212,940.01
	(-1.28)	(-1.34)	(-1.46)
Asian	194,163.70	432,673.40	326,328.60
	(1.77)	(1.28)	(1.33)
Multiracial	533,364.40	2,242,196.40	1,295,345.30
	(0.86)	(0.74)	(0.74)
Hispanic	-124,855.50	-365,704.60	-15,570.40
	(-0.82)	(-1.01)	(-0.11)
Under 19	-344,822.80	-672,382.60	-745,115.10
	(-1.11)	(-1.12)	(-1.41)
20-24 Years	-1,019,667.10	-4,919,955.20	533,868.90
	(-1.54)	(-1.87)	(0.79)
35-64 Years Old	-725,568.40	-1,047,643.80	247,201.30
	(-1.65)	(-1.23)	(0.68)
Observations	285	285	285

t statistics in parentheses
Source: Pricedemo.dta
* p<0.05, ** p<0.01, *** p<0.001

Figure 1: Infographic of Panel of House Prices and Demographics Dataset