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HOW DOES GENTRFICATION AFFECT MINORITY- OWNED BUSINESSES?

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How does gentrification affect minority-owned businesses?

Abstract: This research investigates the quantitative impacts gentrification has on minority-owned businesses. Gentrification is a general term for the process by which wealthier residents move into urban, typically low-income neighborhoods, subsequently increasing costs and displacing existing residents. Gentrification is believed to have profound demographic, social, and economic effects. This paper focuses on the economic effects of gentrification, specifically its impact on minority-owned businesses. This analysis is conducted by using econometric estimation techniques called Ordinary Least Squares (OLS) and Two Stage Least Squares (2SLS). Using data from the fifty largest cities from the United States Census' Survey of Business Owners (SBO) and the American Community Survey (ACS), simple regression OLS and 2SLS models were developed to assess the relationship between the number of minority-owned businesses and median income, which served as a proxy for gentrification. The OLS regression analysis revealed significant result for all groups except for nonblack minority-owned businesses. 2SLS regression analysis showed significant results that black-owned businesses were negatively correlated with median income, with a coefficient of -0.647, meaning that as median income increases by one dollar, the number of minority-owned-businesses decreases by 0.647.

I. Introduction

Gentrification is a widely discussed topic that generally does not have a standard definition. It is defined by different entities in various ways, focusing on its economic, demographic, and social impacts, among others. Understanding this variance, I define gentrification as “the profound economic, social, and spatial” changes of low-income, deteriorated neighborhoods as the result of the movement of middle-upper-class people into the neighborhoods (Smith and Williams). When these higher-class individuals move into these areas, the higher incomes result in rising properties that can lead to the displacement of existing residents. There is usually, but not always a racial component to the demographic changes. Most definitions specify the movement of wealthier white individuals into racial minority areas. A major complaint of gentrification aside from displacement is a culture change that can occur, wherein the new tastes and preferences of wealthier residents can clash with the current culture and tastes. This sparked an interest in if this change in tastes has any effect on the business communities in these areas.

Much research has been done on the impact of gentrification on the demographic of an areas, as well as residential changes. However, not much research has been done to understand the impact of gentrification on business communities of these areas, particularly minority-owned businesses. For predominately black communities, for which much literature exists on gentrification's impact, black-owned businesses serve a vital role. Not only do they provide valuable services to the community, they are also safe havens and can provide economic stability for the surrounding neighborhood. They have historically served black patrons through decades of segregation and discrimination, when black customers were denied respectable services elsewhere. Today, black businesses continue to uplift, build, and influence the community. They are important because they know the experiences of residents first-hand, which allows them to better serve the community. Recently, black neighborhoods have had to face a new cultural phenomenon, gentrification. Through gentrification, black businesses find themselves amidst

changing demographic and social landscapes. As vital contributors to black communities around the nation, it is important to examine the implications of these changes. Inquiry into this subject led to the research question: How does gentrification affect black businesses?

This paper analyzes gentrification's impact on minority-owned business, through regression analysis. Because gentrification is not a standard variable/identifier itself, median income will be used as its proxy. United States Census data from the Survey of Business Owners (SBO) and American Community Survey (ACS) from the years 2007 and 2012 will be used to determine the impact of gentrification on minority-owned businesses in select cities around the country. The ultimate goal of this research is to influence public policy that may help mitigate any negative effects of gentrification on black businesses and historically black communities.

II. Literature Review

Gentrification is a term that was coined in 1964 by Ruth Glass in her book, *London: Aspects of Change*. Glass observed changes she saw as “many of the working classes quarters of London have been invaded by the middle classes –upper and lower”. She notes that “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 whole social character of the district is changed”. Most early literature focuses on gentrification as the movement of the middle class to urban, lower class areas, affecting the housing market. However, since Glass’ early research, many scholars have called for a rethinking of theoretical framework in which gentrification is considered.

Beginning in the late 1980s, scholars decided that traditional gentrification studies were too narrow in scope. In *Gentrification of the City*, Neil Smith and Peter Williams argue that viewing gentrification as simply residential rehabilitation, as in Glass’s original analysis, fails to address the “profound economic, social, and spatial restructuring” that gentrification facilitates (Smith and Williams 3). Instead, they advise scholars to look at the process very broadly in order to encompass all the ways in which it affects communities. Chase Billingham (2015) criticizes sociological research of gentrification because of conflicting views on the breath and scope of the process in modern cities. In “The Broadening Conception of Gentrification: Recent Developments and Avenues for the Future Inquiry in the Sociological Study of Urban Change”, he suggests five ways to broaden gentrification study in order to extend the understanding of gentrification and its effects on communities. These include considering various geographic levels at which gentrification occurs, increasing the number of sites to analyze, including gentrifiers of various life-courses in research, examining other institutional forces that influence residential choices of gentrifiers, and further study to include all the possible positive and negative consequences of gentrification.

Another call for a broadening of gentrification study includes Loretta Lees’ “A Reappraisal of Gentrification: Towards A ‘Geography of Gentrification’”(2000) that critiques literature for its stagnant state of analysis on residential impacts. Lees argues that the evolution and change of gentrification processes are not reflected in academic writing and that scholars need to “rethink the true value of gentrification as a practical solution for urban decline in cities around the world”. Some new areas of focus she suggests are the new class of financiers who are gentrifying urban neighborhoods as opposed to just middle-class migrants, global cities, black/ethnic minority gentrification, and discourse. This charge for broadening gentrification discourse points to the changing landscape of gentrification research and the need for progressiveness in the field. However, there is dissension among these critiques. In “What Makes

Gentrification ‘Gentrification’”(2003), P.A. Redfern disagrees with Lees’ belief that the lack of advancement in gentrification research is due to the stagnant residential argument, which addresses whether the cause of gentrification is an excess supply of housing in an area or demographic and employment shifts that cause people to move to that area. He argues that the lack of progress in literature is because scholars study gentrification from the end, after housing is achieved, rather from the beginning as means. This type of analysis is imperative because it lays the theoretical framework of gentrification and characterizes it as a phenomenon charged by class. However, I would argue that this argument is useful for theoretical understanding of gentrification but does nothing to further gentrification research in relation to calls for its effects on neighborhoods.

Most previously literature such as Redfern’s and Lees papers focus on gentrification in a theoretical sense rather than its real-world implications. Old literature focuses on residential changes and the displacement of communities. New research focuses on gentrifiers. However, no research has been done on how gentrification affects black businesses. Minority businesses are an area of focus because gentrification usually affects minority neighborhoods. Most existing literature focuses on gentrification’s theoretical background or its impacts of displacement on individual residents. Very minimal research has been done on ways in which businesses in these areas are affected. Businesses are a crucial piece in analyzing gentrification. Small businesses are seen as a central part in the development and participation in a community. In "Urban Planning, Community Participation and the Roxbury Master Plan in Boston (2004) James Jennings analyzed how community participation played a vital role in the development of a minority community in Massachusetts. The developers promoted small business because owners and employees consider themselves to be a part of the neighborhood and their prosperity would strengthen the entire community, not just their business. This strengthens the idea that minority businesses serve vital roles in communities as hubs for community support.

There has been minimal research done on gentrification’s effect on minority business. Alexandra Hosford’s “The Impacts of Gentrification on the African American Business Community of Portland, Oregon” (2009) presents an investigation on gentrification’s impact. Using a mixed method approach of analyzing census tracts and interviews with black entrepreneurs, she finds that black business in Portland has deteriorated long before gentrification. Urban renewal of the 1950s and 1960s played an important role in wiping out black business in Portland and this, combined with limited economic resources, weaken the ability for black businesses to take advantage of new economic opportunities made available through gentrification. This case study is specific to Portland, Oregon, but raises interesting questions to the United States as a whole. This research paper will fill in this gap in literature by analyzing gentrification’s effect on the U.S. as a whole by surveying multiple cities.

III. Data Description

The data used in project comes from two surveys conducted by the United States Census Bureau: the American Community Survey (ACS) and the Survey of Business Owners (SBO). The ACS is conducted annually. About 3.5 million households are randomly selected to respond to the survey. The ACS provides detailed housing and population information. The SBO is conducted every five years. All nonfarm businesses that file taxes with the Internal Revenue Service are legally required to complete this survey. It provides comprehensive economic and demographic characteristics for both businesses and business owners. The years looked at are 2007 and 2012 because they are the last two releases available. Additionally, the SBO is only

conducted every five years and 2017 data is not yet available. The cities included in the study are the fifty largest cities for which both ACS and SBO data were completely available. From the American Community Survey I use data from the tables “industry by occupation for the civilian employed population 16 years and over” and “median income in the past 12 months”. The table I use from the SBO is “Statistics for All U.S. Firms by Industry, Gender, Ethnicity, and Race for the U.S. States, Metro Areas, Counties, and Places”.

IV. Summary Statistics

Table 1

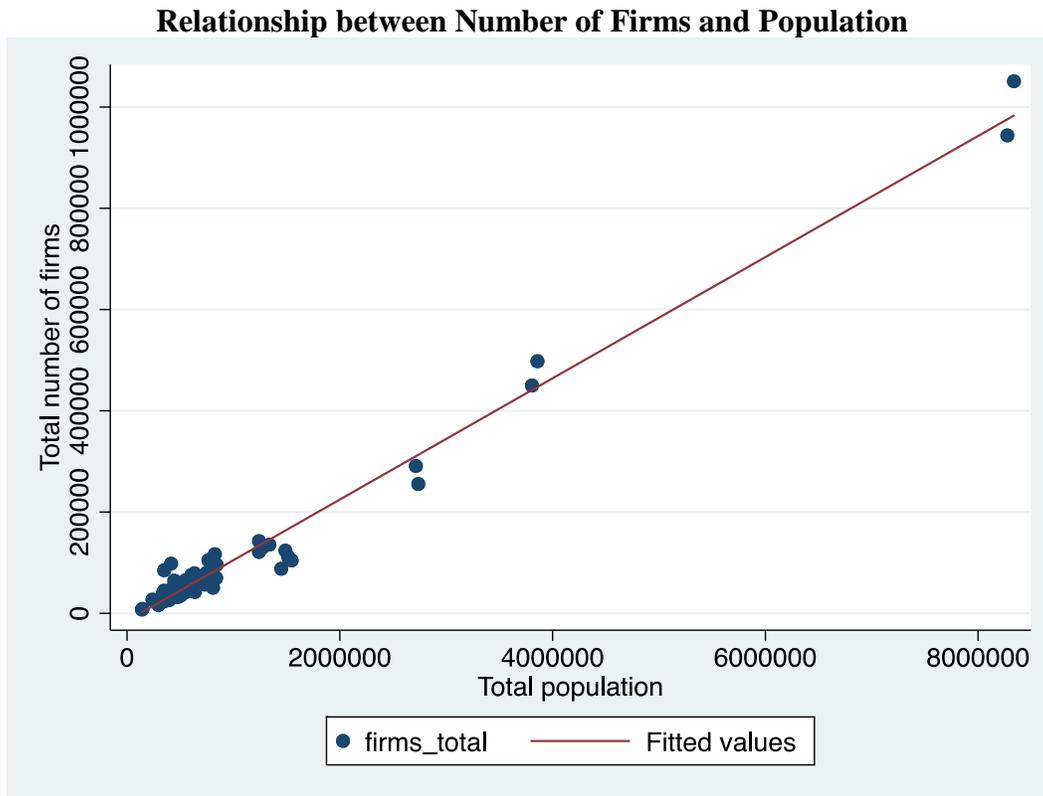
Variable	Number of observations	Mean	Standard deviation	Minimum	Maximum
Year	100	2009.5	2.512595	2007	2012
Firms	100	86,257.44	149,445.1	7,554	1,050,911
Minority-owned businesses	100	34,447.19	72,149.43	2,039	539,447
Black-owned businesses	100	12,774.34	24,617.44	354	165,512
Nonblack minority-owned businesses	100	21,672.85	50,772.18	829	373,935
Median income (dollars)	100	44,607.63	8,592.195	23,600	73,012
Population	100	841,835.2	1,236,294	139,866	8,336,697
Employment	100	390,806.5	570,428.8	59,992	3,836,042
Bartik instrument	50	395,512.2	589,483.1	60,475	3,929,830

V. Methods

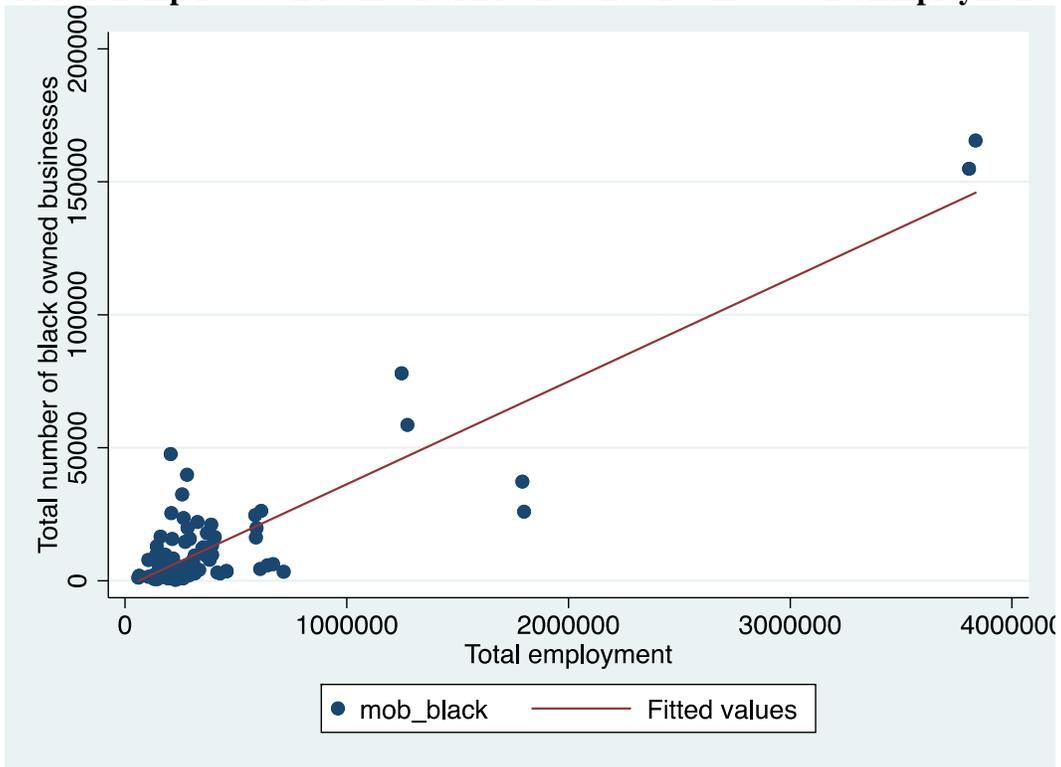
I am running a regression on median income’s affect on the number of minority-owned businesses. The dependent variable is the number of minority-owned businesses. The independent variable/explanatory variable will be median household income, a proxy for gentrification. Both Ordinary Least Squares and Two Stage Least Square regressions will be run. When running regressions, a problem arises with omitted variable bias. In this particular case, the cause of any change in the number of minority-owned businesses may have something to do with reasons other than gentrification. In order to avoid this, I will use the Bartik instrument, which will predict median income without affecting minority-owned business. The instrument used will control for exogenous shocks in various industries, using the industry composition data. These industry shocks will predict employment data, and that predicted value will be used to estimate the effect of gentrification on minority-owned businesses.

Graphical Summary

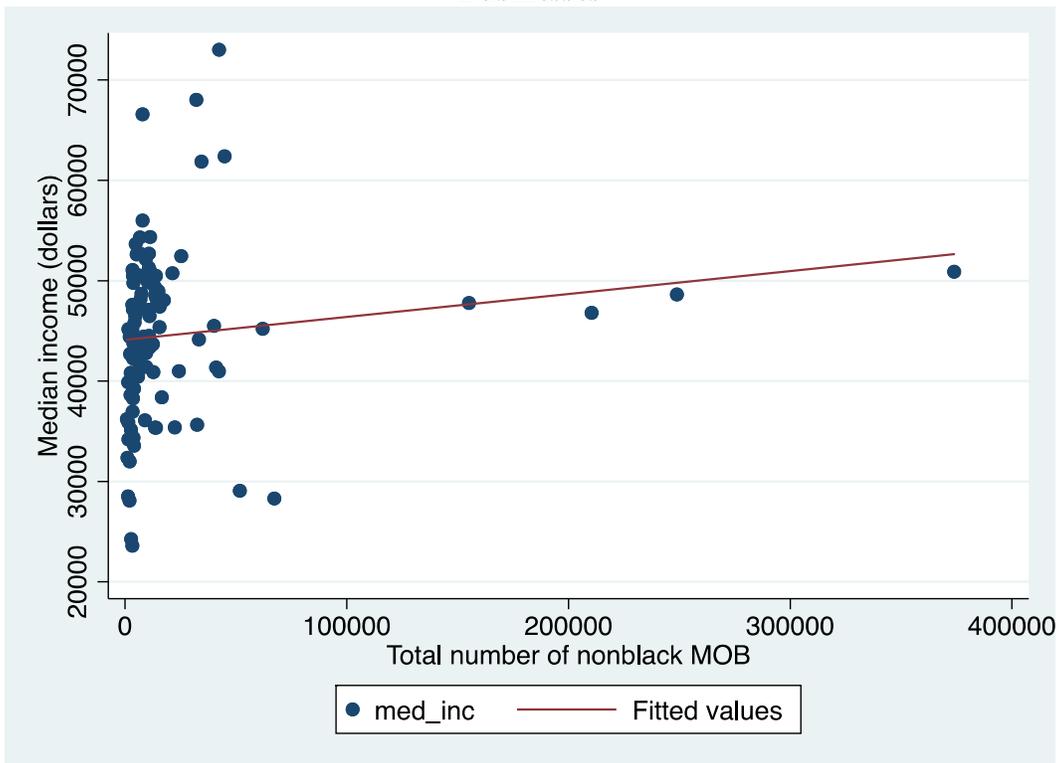
The graphs below represent various plotted data in order to check for any outliers. There is one city, New York City, which seems to be driving the results.



Relationship Between Number of Black-owned Businesses and Employment



Relationship Between Median Income and Number of Nonblack Minority Owned Businesses



Theoretical Model Simple Regression

$$\text{Number of minority-owned business} = \beta_1 + \beta_2 \text{Median Income} + \beta_3 \text{Employment} + \epsilon_i$$

Ordinary Least Squares

Ordinary Least Squares (OLS) is a regression estimation technique that calculates predicted values of the $\hat{\beta}$ s, which describes the change in the dependent variable in response to unit change in the explanatory variables. OLS is so widely used because it minimizes the sums of the squared residuals.

VI. Presentation of Results

Table 2: Effect of Median Income and Employment on Number of Minority-Owned Businesses

	Total MOB	Total MOB (weighted by population)	Black MOB	Black MOB (weighted by population)	Nonblack MOB	Nonblack MOB (weighted by population)
Median Income	-0.63*** (0.22) p= 0.005	-0.42 (0.34) p= 0.228	-0.51*** (0.12) P=0.000	-0.65*** (0.21) p=0.003	-0.12 (0.21) p=0.567	0.23 (0.28) p=0.414
Employment	0.12*** (.003) p=0.000	0.13*** (.001) p= 0.000	0.04*** (.002) P=0.000	0.04*** (.002) p=0.000	0.08*** (.003)	0.09*** (.002) p=0.000
Observations	100	100	100	100	100	100
F-stat	696.09	11427.93	241.88	147.05	342.40	1294.23
R-squared	0.9349	0.9749	0.8330	0.9377	0.8759	0.9393
Adjusted R Squared	0.9335		0.8295		0.8734	

Results show the relationship between the number of minority-owned businesses and median income.

*p < 0.10, ** p < 0.05, *** p < 0.01

Table 2 shows results for multiple OLS regression specifications. Simple regressions are run for each sub group of minority-owned businesses. Then, OLS regressions are run including weighting by population. There are positive significant results on employment for all regressions. An increase in employment by one person is correlated with an increase in minority-owned businesses by 0.12, holding all other variables constant. When weighted by population, this effect increases by 0.13. In the non-weighted regression, the coefficient on median income is -0.63 and it is significant, meaning a one person increase in employment is associated with a decrease in the total number of minority owned businesses by 0.63.

Black-owned businesses also see significant effects for both median income and employment. In the non-weighted regression, an increase in median income is negatively correlated with an increase in the number of black-owned businesses, which decreases by 0.51.

In the weighted regression, this number makes a small rise, as an increase in median income by one dollar correlates to a 0.65 decrease in the number of black-owned businesses.

Median income does not produce significant effects for nonblack minority owned businesses. Although not significant, the weighted and non-weighted results produce two different signs, with non-weighting indicating a negative effect and weighted indicating a positive relationship.

Instrumental Variable

When using OLS, there are a number of issues that can potentially cause biased and inconsistent results. One such issue is simultaneity (endogenous) bias, which occurs when the explanatory variable is reversely correlated with the dependent variable. That is, X causes Y but Y also causes X. In this particular case, it may be that median income affects the number of minority-owned businesses, but the number of minority-owned businesses also affects median income. Simultaneity bias will produce biased betas if nothing is done to mitigate it. One solution to this is to find a variable that is both uncorrelated with the error term and correlated with the explanatory (X) variable. This instrumental variables helps identify the hidden correlation between the explanatory variable and the Y variable, allowing the ability to see the true correlation between the variables. Although instrumental variables are an excellent way to mitigate simultaneity bias, they are not perfect. An instrument may not be completely uncorrelated with the error term because it is impossible to observe. Alternatively, economic theory is relied on to find instrumental variables that are uncorrelated with the error term.

One alternative to OLS is to implement instrumental variables is a regression analysis called Two-Stage Least Squares. In the first stage, a new variable is created using the instrument variable. In the second stage, the predicted values from stage one are used in place of the actual values that cause bias to compute an OLS model. The instrumental variable used in this project is the Bartik instrument (Bartik 1991).

The Bartik instrument is primarily used as an instrument for unemployment. When using unemployment in a regression, there is usually some omitted variable bias wherein the cause of unemployment might have something to do with the area itself. The “other reason” affects both unemployment and the dependent variable. For this paper, there may be some omitted variable that is affecting both unemployment and the number of minority owned businesses. The Bartik instrument measures the change in a region’s labor demand that is caused by changes in the national demand for products in different industries. This will help produce a predicted level of a city’s employment based on local shares and national trends. Using the Bartik instrument should help remove some omitted variable bias.

Table 3: Instrument Variables: Total Number of Minority-Owned Businesses with Year Dummies and Weighting

Total number of minority-owned businesses	Coef.	Robust Std. Err.	z	P> t	[95% Conf. Interval]	
Total employment	0.15	.001	144.81	0.000	.145	.149
Median income	-0.62	.35	-1.79	0.73	-1.299	0.06
Year 2012	0					
_cons	6200.79	16934.59	0.37	0.714	-26990.39	39391.97

Number of obs =	50
F(2, 49) =	10510.01
Prob > F =	0.0000
Centered R2 =	0.9942
Uncentered R2 =	0.9964
Root MSE =	15262

Table 6 are the results of a two stage least square regression using the Bartik instrument as the instrumental variable. The first step to qualifying the strength of the instrumental variable is to inspect the first stage results. Table 7 shows these results and a summary.

Table 4: First-Stage of Two Stage Least Squares Regression

Total number of minority-owned businesses	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
Bartik instrument	.9710655	.0012039	806.60	0.000	.9686436	.9734875
Median income	1.208204	.3402657	3.55	0.001	.523678	1.892731
Year 2012	0					
_cons	-43799.69	16665.84	0.012	0.714	-77327.04	-10272.34

Summary results for first-stage regressions

Variable	F(1, 49)	P-val	SW Chi-sq(1)	P-val	SW F(1, 49)
Emp_total	6.5e+05	0.0000	6.9e+05	0.0000	6.5e+05

The important result to look at from the summary results from the first-stage regression is the F-test. The traditional rule is that an F-statistic more than 10 implies a strong instrumental variable.

In this case the F-statistic is significantly over 10, at $6.5e+05$, so the instrumental variable should be fine.

Table 3 shows the final regression results after instrumentation. The coefficient of median income is -0.62. This can be interpreted as a one-dollar increase in median income is correlated with an decrease in minority-owned businesses by 0.62. This number is significant with a low p-value.

Regressions will be run on black owned businesses and nonblack minority-owned businesses to see if there is any effect based on these distinctions. The above regression on the total number of minority-owned businesses will also be included.

Table 5: Effect of Median Income and Employment on Minority Owned Businesses Using the Bartik Instrument through 2SLS

	Total MOB (weighted by population)	Black MOB (weighted by population)	Nonblack MOB (weighted by population)
Median Income	-0.62* (0.34) p= 0.073	-0.65*** (0.24) p=0.007	0.03 (0.27) p=0.919
Employment	0.15*** (.001) p= 0.000	0.04*** (.002) p=0.000	0.10*** (.002) p=0.000
Observations	50	50	50
F-stat	10510.01	270.80	1968.24
R-squared	0.9964	0.9605	0.9777

Results show the relationship between the number of minority-owned businesses and median income.

*p < 0.10, ** p < 0.05, *** p < 0.01

These results show that there is a negative correlation between median income and the total number of minority-owned businesses and black-owned businesses. A one-dollar increase in median income is correlated with a -0.65 decrease in the number of black owned businesses, holding all other variables constant. This coefficient is statistically significant with a p-value of 0.007. There is high confidence that the true beta does not equal zero.

The coefficient on median income's effect on nonblack minority-owned businesses is 0.03, interpreted as, a one-dollar increase in median income is positively correlated with an increase in the number of nonblack minority-owned businesses by 0.03. This coefficient is insignificant with a p-value of 0.919.

Table 6: Effect of Median Income on Number of Minority Owned Businesses (Elasticity)

	Total MOB	Total MOB (weighted by population)	Black MOB	Black MOB (weighted by population)	Nonblack MOB	Nonblack MOB (weighted by population)
Median Income	-0.91** (0.036) p=0.014	-0.83* (0.43) p= 0.057	-2.26*** (0.462) P=0.000	-2.44*** (0.59) p=0.000	-0.72 (0.53) p=0.174	0.84 (0.52) p=0.116
Employment	1.195*** (0.06) p=0.000	1.27*** (.04) p= 0.000	1.25*** (0.09) P=0.000	1.34*** (.09) p=0.000	1.17*** (.09) p=0.000	1.32*** (.06) p=0.000
Observations	100	100	100	100	100	100
F-stat	193.24	555.07	98.89	181.33	342.40	265.10
R-squared	0.6750	0.9211	0.4935	0.7894	0.8759	0.8700

Results show the relationship between the number of minority-owned businesses, and median income and employment.

*p < 0.10, ** p < 0.05, *** p < 0.01

Table 6 shows the same regression analysis as before but done in elasticities. The coefficient of median income's effect on the total number of minority-owned businesses is -0.91. The interpretation of this is that a 1% increase in median income results in a 0.91% decrease in the number of minority-owned businesses in the non-weighted regression. The value is significant. For black-owned businesses, a 1% increase in median income results in a 2.44% decrease in the number of black-owned businesses when weighted by population. Median income has insignificant effects on nonblack minority-owned businesses.

Table 7: 2SLS Effect of Median Income on Number of Minority Owned Businesses (Elasticity)

	Total MOB (weighted by population)	Black MOB (weighted by population)	Nonblack MOB (weighted by population)
Median Income	-0.92** (0.39) p= 0.017	-2.38*** (0.599) p=0.000	0.59 (0.46) p=0.193
Employment	1.27*** (.037) p= 0.000	1.30*** (.09) p=0.000	1.34*** (.06) p=0.000
Observations	50	50	50
F-stat	612.98	94.57	242.01
R-squared	0.9257	0.7740	0.9969

Results show the relationship between the number of minority-owned businesses, and median income and employment.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7 shows results for a 2SLS regression analysis reported in elasticities. All have significant results in relation to median income's effect except for nonblack businesses. A 1% increase in median income results in a 0.92% decrease in the total number of minority-owned businesses. A 1% increase in median income correlates to a decrease in the number of black-owned businesses by 2.38%.

Discussion of Results

The OLS results showed significant results for median income's correlation to the total number of minority-owned businesses and black and nonblack businesses, but insignificant results for nonblack minority-owned businesses. It also showed a negative correlation between median income except for nonblack minority-owned businesses, which had positive results. The Two Stage Least Square Models also shows insignificant results for median income's effect on number of nonblack minority-owned businesses. It is also important to note that all regressions showed a positive relationship between median income and nonblack minority-owned businesses. These results show that nonblack minority-owned businesses are not significantly affected by changes in median income. The 2SLS models reported the highest effect for all minority-owned firms and black-owned business. A 1% increase in median income resulted in a decrease in the number of black-owned businesses by 2.38%. The total number of minority-owned businesses saw a decrease by 0.92% as median income rose by 1%. Using instrumental variables over OLS produced significant results two of the business groups. The F tests were also significantly greater in 2SLS regressions using the Bartik instrument than the OLS regressions. Using an instrumental variable proved to eliminate some of the omitted variable and simultaneity bias.

VI. Conclusion

This project sought to add to gentrification literature by finding real economic data on gentrification's impact on minority-owned businesses. The regression analyses in this paper in this paper show that rises in median income, a proxy for gentrification, have significant effects on black-owned businesses, but not on nonblack minority-owned businesses. This leads to further inquiry on why black-owned businesses, and possible majority black neighborhoods, experience and are affected by gentrification on different scales. The OLS model proved to be a weak regression because it did not mitigate simultaneity or omitted variable bias. However, using instrumental variables in a two stage least squares strengthened the regression. It is important to note that there are limits to the instrumental variable used, because although it had a large F-statistic, it may not be completely uncorrelated with the error term.

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