REFRAMING THE METROPOLITAN GROWTH PROPOSITION: PREDICTING METROPOLITAN GROWTH AND PROSPERITY THROUGH AN ECONOMIC INCLUSION SIMULATION

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By
Gerald Hubbard Smalls
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Examining Committee Members:

Dr. Peter Chinloy, Advisory Chair, Finance Department
Dr. Matt Wray, Sociology Department
Dr. Ram Mudambi, Strategic Management Department
Dr. Bruce Cole, External Member, Chair, Department of Accounting and Finance, Columbia College

ABSTRACT

In terms of income, the cities of the United States now have the greatest income inequality than any other democratic nation in the developed world. However, if you assess the economy of the United States through the lens of traditional indicators—inflation, unemployment, increases/decreases of the Dow Jones average, and gross domestic product—the country in general, along with great cities of the country display optimistic economic growth (Pre-Covid-19). The disconnect between traditional notions of economic growth and many families' well-being/prosperity remains a by-product of an inefficient income distribution eco-system. This study/simulation at its core attempts to assess various causal conditional propositions and increase the knowledge regarding these relationships in regards to the creation and distribution of income. The intent of the study is to provide policy makers with needed insight to assist with the development of a solution to these social and economic problems by taking an in-depth look at the historical business investment and income distribution of two geographical sectors of the country—Michigan and New Mexico metropolitan regions.

By creating an unique economic inclusion simulator that links correlation with quantitative based models, the question presented is whether a correlation exists between various growth, prosperity, and economic inclusion variables and the potential future impact on the economic growth of various metropolitan statistical areas, federal, state and local tax revenue receipts. The most important contribution of this research is the reframing of the issue that the business phenomena (metropolitan economic low growth) rest in the markets failure to effectively incorporate/include a large share of the cities'

population into the wealth and capital creation process—a business proposition for long-term growth and prosperity for metropolitan areas could be impacted significantly by public policies that enhance economic inclusion. This simulation will demonstrate various levels of impact with the goal to enhance the knowledge and practical application of economic and taxation growth models at the metropolitan level. This model will use growth and prosperity variables as they relate to economic inclusion variables to achieve this goal, quantifying why or why not successful economic inclusion will increase the economic growth of the metropolitan sectors of America.

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Dr. Peter Chinloy, Advisory Chair
Dr. Ram Mudambi
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Sincerely Yours,

Gerald Hubbard Smalls

Gerald Hubbard Smalls

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CHAPTER 1
INTRODUCTION

This research modality links two traditional analytical methods of analysis: (1) correlations and (2) simulation. By using a quantitative economic growth model, the research creates an application-based thesis, which can be applied and duplicated by various metropolitan areas throughout the world. The main premise of the simulation and/or thesis is to initially identify correlations between various growths, prosperity, and economic inclusion variables, which is achieved through phase one of the economic inclusion index model. The second phase of the model is a simulation using favorable economic inclusion assumptions to predict potential quantitative based economic growth outcomes (e.g. increases in federal, state and local tax receipts for the metropolitan area. The correlation phase (phase 1) of the model uses two economic inclusion indicators (1) change in gross metropolitan product and (2) the change in family poverty rate to illustrate the relationship between economic inclusion variables, prosperity variables (income per capita) and growth variables (metropolitan domestic product). The model uses income per capita to represent prosperity by capita and the metropolitan domestic product as a reflection of the economic growth of metropolitan area. By using an analytical scatterplot matrix chart the research attempts to illustrate the nature of the relationship between these three economic growth variables.

Phase two of the study builds on the data from phase one and seeks to demonstrate the potential future impact that a more favorable inclusion variable will have on the quantitative value of economic growth and tax receipts for various metropolitan areas. Hence, phase two is an economic simulator, created to predict economic growth and tax receipts as a consequence of favorable inclusion initiatives and policies. This simulation attempts to quantify the assumed improvements to the current economic distribution imbalances in a metropolitan sector, thus creating a business proposition for and/or against enhanced economic inclusion initiatives. The final phase, which in the "eyes" of many is the most difficult, uses the case study method to assess the quantitative results from the simulation to support the development and ultimate implementation of economic inclusion technics and methods, which we call "promising strategies" for metropolitan areas. In this phase we capture the methods and technics used by the United States Chamber of Commerce to analyse the process by which "promising strategies" are discussed by business leaders of specific metropolitan sectors through the development of a unique community engagement model called the "business roundtable". This research study attempts to develop a unique "road map" for metropolitan policy leaders to engage the leadership of the business sector in the economic growth of the community. The study uses a case study method to outline and illustrate the development of the "business roundtable" business community engagement model with an eye at creating a duplicative framework for use by the leadership of various metropolitan areas.

The research study focuses on the following metropolitan statistical areas ("MSAs") in New Mexico and Michigan. The metropolitan areas of these two states were selected because of my unique access to well developed historical secondary research, knowledge and data on these regions of the country. [1] The specific MSAs below in New Mexico and Michigan were selected because of their size and relevant representation of the general population of the State:

Figure 1: Michigan and New Mexico MSAs (select MSAs are used throughout the study)

Michigan MSAs

- Detroit
- Grand Rapids
- Lansing
- Flint
- Kalamazoo
- Saginaw
- Ann Arbor

New Mexico MSAs

- Albuquerque
- Las Cruces
- Santa Fe
- Farmington

In general, the simulation reflects high to moderate correlation level results for all the MSAs. The correlation level of inclusion to growth variables for the metropolitan areas of the states represents the following results; 60% high levels and 40% moderate levels of correlations. The correlation level of inclusion to prosperity variables for the metropolitan areas of the states represents 30% high and 70% moderate levels of correlations. Below are the initial results of the research simulation related to the correlations and the potential economic impact on the various communities in the target markets of Michigan and New Mexico.

[1] Currently engaged in a contractual relationship with U.S. Chamber of the United States

Table 1: Initial Research Simulation Results- (Correlation Level and Economic Impact Summary – baseline data is from the U.S. Census)

Enhancing Minority Median Household to 100% of Non-Minority Median Household Income

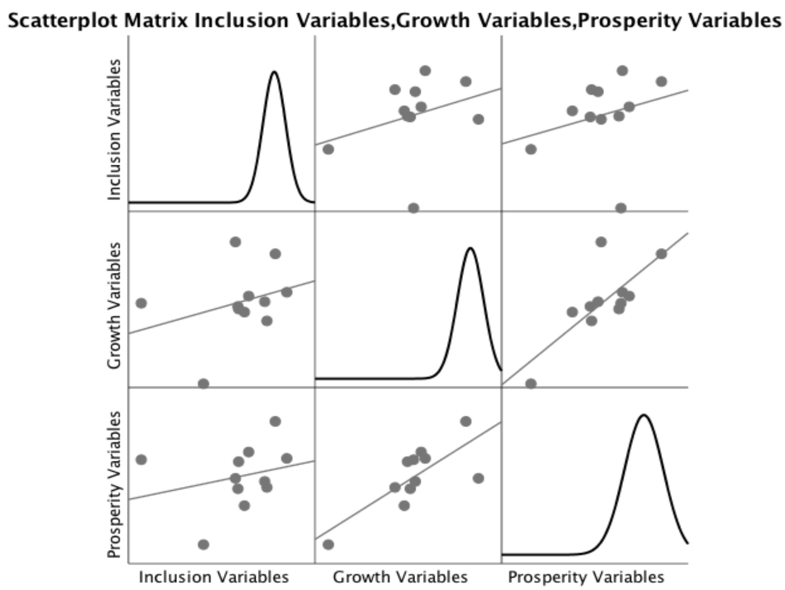
		Phase I						Phase 2 & 3					
		Inclusion to Growth Correlation Level			Inclusion to Prosperity Correlation Level			Potential Economic Growth (Increases)					
MSAs	Gini Index	High	Moderate	Low	High	Moderate	Low	Minority MHI ($K)	(All) MHI ($K)	GMP Impact %	GMP $MM	Federal Tax Reciept $MM	State/Local Reciepts($MM)
Detriot	0.470	X			X			25.4	30.7	1.16%	$3,101.9	$527.3	$307.1
Grand Rapids	0.476	X				X		29.7	55.7	14.14%	$8,714.6	$1,481.5	$862.7
Lansing	0.476		X			X		29.1	36.9	6.55%	$1,645.4	$279.7	$162.9
Flint	0.472		X			X		22.2	25.7	8.08%	$1,086.7	$184.7	$107.6
Kalamazoo	0.472	X			X			25.0	34.8	7.27%	$910.4	$154.8	$90.1
Saginaw	0.476	X				X		20.8	28.9	14.97%	$1,215.4	$206.6	$120.3
Albuqerque	0.465		X			X		40.9	48.1	4.78%	$2,048.3	$348.2	$202.8
Las Cruces	0.462	X			X			34.3	41.2	5.79%	$435.6	$74.0	$43.1
Santa Fe	0.462	X				X		45.0	51.6	3.24%	$188.5	$32.0	$18.7
Farmington	0.476		X			X		47.0	52.6	3.26%	$189.3	$32.2	$18.7

In regards to the three hypotheses (see Figure 2), the results of the simulation reflect that hypotheses A, B and C are proven in part with several surprising outcomes when assessing employment based inclusion variables (decrease in the unemployment rate). However, the results have mixed findings under a more detail correlation based SPSS linear regression analytical review.

Figure 2: Three Hypotheses

The scatterplot matrix analysis used in phase one of the study indicates what seems to be positive high to moderate correlation among inclusion, growth and prosperity variables (See Figure 3- City of Santa Fe, Mexico Data Set). Hence, providing initial evidence that hypothesis C is a highly probable thesis in most cases.

Figure 3: Phase 1 Simulation Model – Santa Fe



However, the phase one model as discussed earlier struggles to hold under more intensive analytical review, which reflects low levels of both significant and coefficient beta for most MSAs (See Figure 4: SPSS Correlation Analytics – Santa Fe). The differences in the level of significance are relative to the MSAs, which supports the thesis conclusion that an individual MSA analysis is necessary for each phase one model testing in lieu of a broad diagnosis of correlations among the variables.

Figure 4: Phase 1 Correlation Model - SPSS Correlation Analytics – Santa Fe

Santa Fe — Coefficients

Model	Unstandarized Coefficients B	Unstandarized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
Constant	-0.383	0.974		-0.394	0.703
Inclusion Variables	0.21	0.214	0.31	0.979	0.353

Dependent Variable: Growth Variables

Santa Fe — Coefficients

Model	Unstandarized Coefficients B	Unstandarized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
Constant	-1.156	1.554		-0.744	0.476
Inclusion Variables	0.275	0.342	0.259	0.804	0.442

Dependent Variable: Prosperity Variables

These results challenge the assumption of a broad view/application of the phase 1-correlation tests but tend to emphasize the need for specific testing of the models at the individual MSA level, specifically if applied to smaller cities regardless of the similarities in demographics.

In general, this study creates "if-then" statements, which represent abstract theoretical assumptions and presents them in testable and observable terms. A fundamental variance model is used with antecedents and consequences, in addition to the creation of a contextual model to significantly improve the robustness of the analysis. By better understanding which independent variables have a disproportionate impact on the dependent variables that effect community growth, prosperity and economic inclusion will hopefully provide the public and private sector with needed information to affect needed and targeted incentives to address this economic growth challenge. The critical economic challenge regarding the disproportionate distribution of income and the potential impact on metropolitan community's ability to grow and avoid the societal ills of underfunded public services (schools, criminal justice organizations, healthcare providers) and poverty—inadequate education systems, crime, homelessness, gangs, and lack of social economic mobility—is the overarching picture this study attempts to increase the empirical knowledge about.

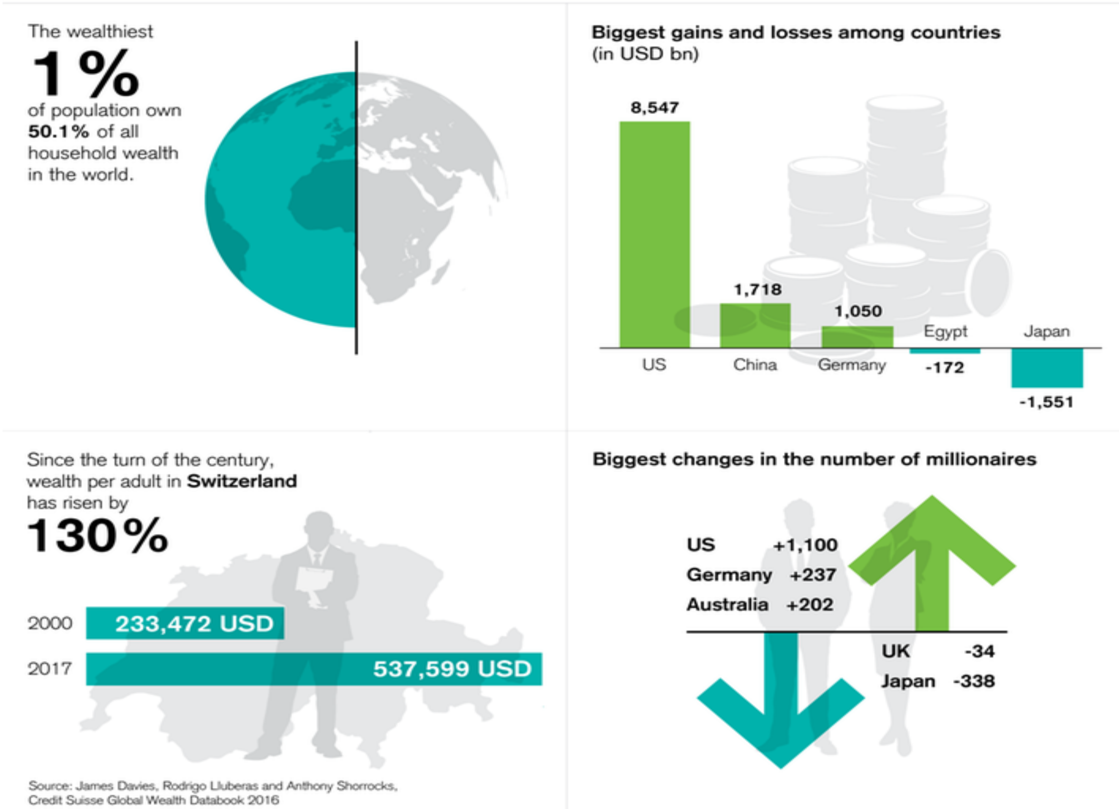
Research Motivation

(Metropolitan Economic Growth Challenges are Ubiquitous)

It's well known that a minority of Americans controls the majority of wealth in the U.S, specifically in the metropolitan cities of the nation. For example, a study by Levy Economics Institute found that 0.3% of wealth was held by the bottom 40% of the American population, and 84% of wealth was held by the top 20% (Levy, 2019). But for many families-almost half of the families in America—can't afford the basic necessities of life. Nearly 51 million United States metropolitan households—or 43% of the total household population—don't earn enough to cover monthly bills for housing, food, childcare, healthcare, transportation and a cellphone bill according to the recently released United Way ALICE report (2018). These results have been exacerbated by the worldwide health related pandemic of 2020.

The globe's richest 1% own half the world's wealth, according to a new report by Credit Suisse. The report states that "world's richest people have seen their share of the globe's total wealth increase from 42.5% at the height of the 2008 financial crisis to 50.1% in 2017, or $140 trillion. The share of the top 1% has been on an upward path ever since [the crisis], passing the 2000 level in 2013 and achieving new peaks every year thereafter. On a global level metropolitan wealth inequality has certainly been high and rising in the post-crisis period" (Credit Suisse, 2018).

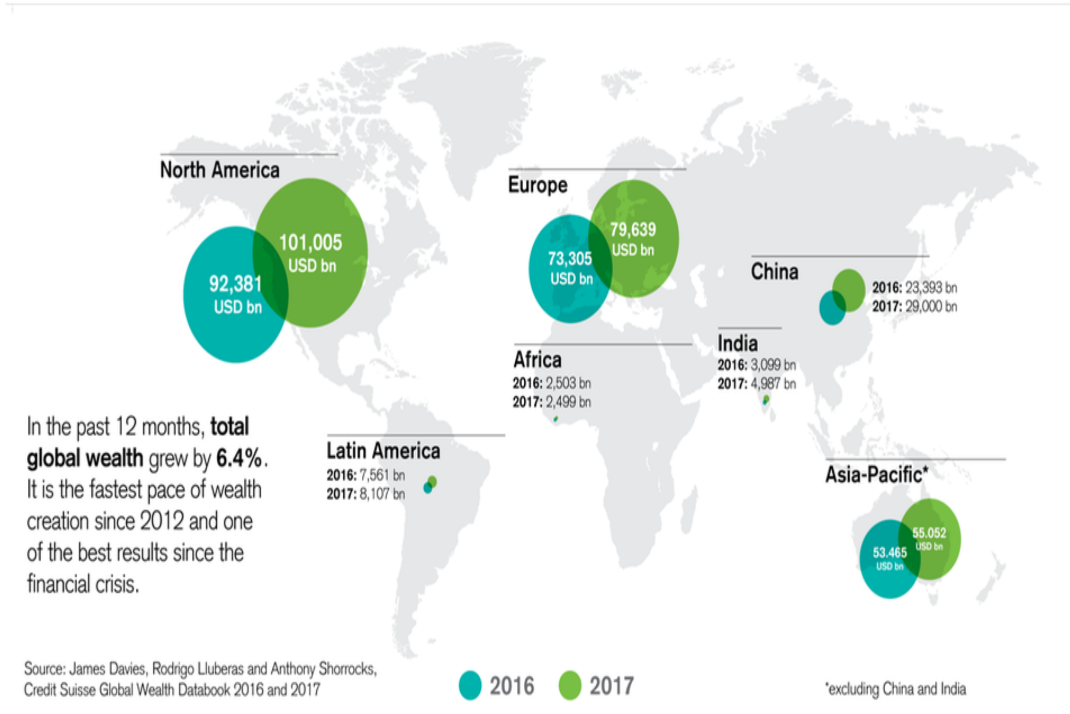
Figure 5: The Metropolitan Economic Challenge is linked to Global Wealth Inequality



The increase in global wealth has led to the creation of 2.3 million new dollar millionaires over the past year, taking the total to 36 million. "The number of millionaires, which fell in 2008, has recovered substantially since the financial crisis, and is now nearly three times the 2000 figure (Credit Suisse, 2017).

Figure 6: Global Level of Metropolitan Wealth Data

These millionaires – who account for 0.7% of the world's adult population – control 46% of total global wealth ($280 trillion). Unfortunately, the world's 3.5 billion poorest adults each have assets of less than $10,000. Collectively, the poorest adults, who account for 70% of the world's working age population, represent only 2.7% of global wealth. The business phenomena rest in the global markets failure to effectively incorporate a larger share of the world's population into the wealth and capital creation process (Credit Suisse, 2017).

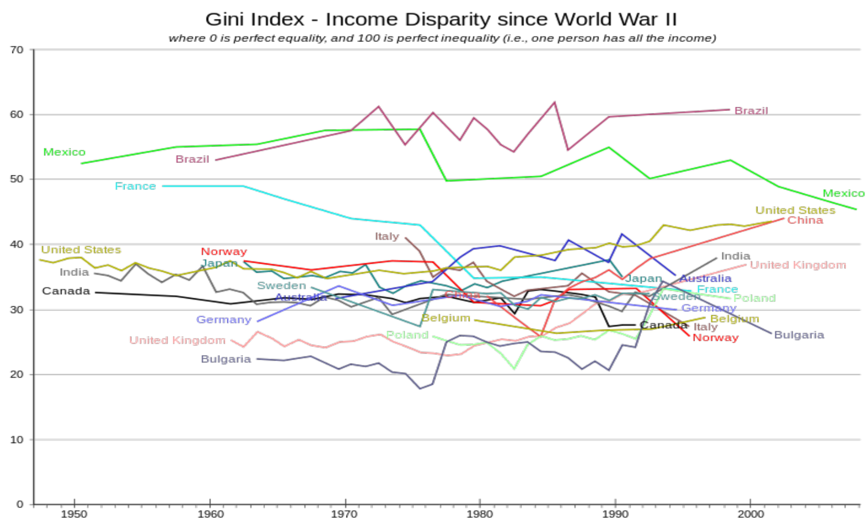


As the international corporate culture embraces the value created through globalization, there looms a social conscientiousness that resents the underlining wealth economic inequity, which is an unfortunate consequence of the world expansion phenomenon and metropolitan economic decline. This paper will attempt to stimulate a conversation regarding how we assess national wealth and international businesses' social responsibility and "passionate capitalism" in partnership with targeted government and business initiatives to broaden the economic growth of metropolitan cities and ultimately lowers the "Gini Index" (economic inequality measurement) at the local level.

Figure 7: The Nation’s Gini Index/Coefficient is linked to the Metropolitan Gini Index/Coefficient

Gini Index/ Coefficient

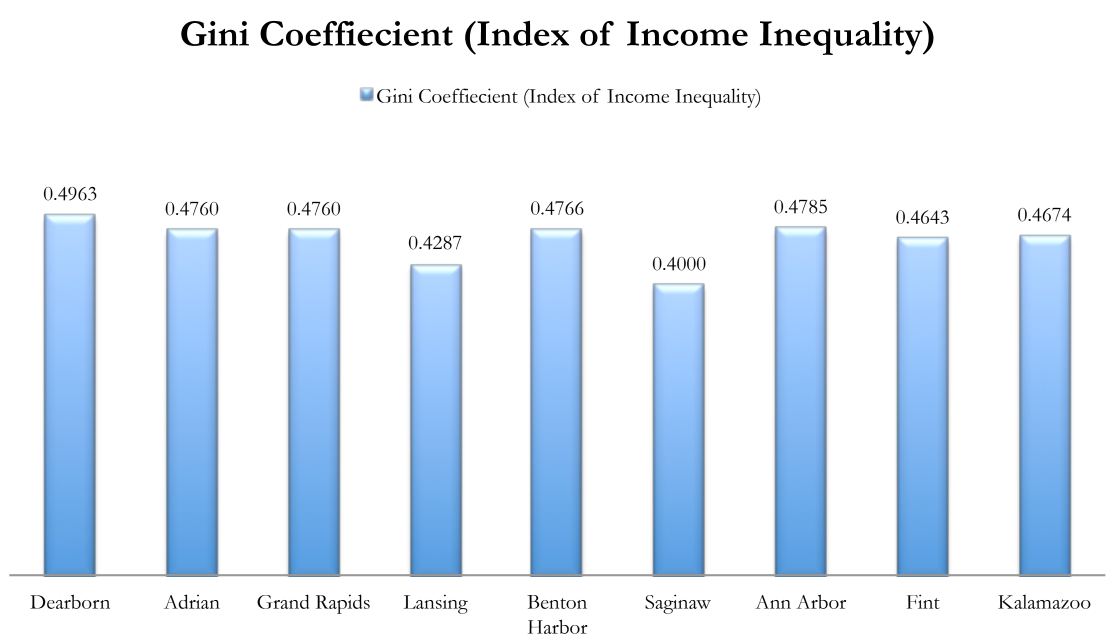
*Gini Index - Measures the inequality among values of a frequency distribution (e.g. income).



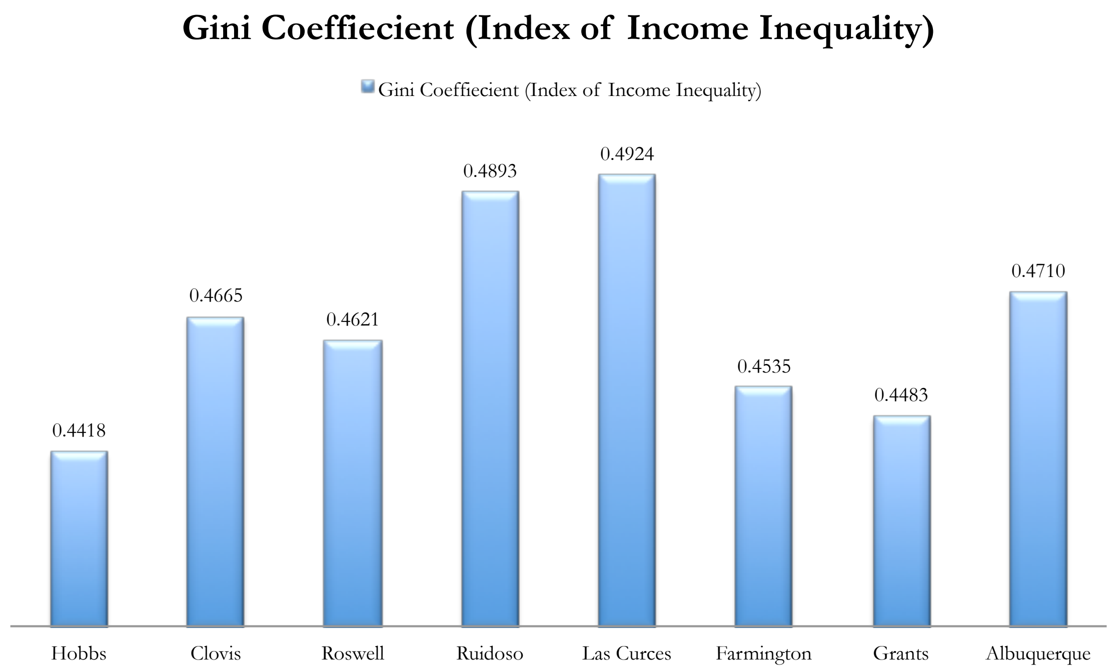
The Credit Suisse’s report coins the existing wealth inequity as the “Heritage of the 2008 Crisis”. Although there have been significant gains in wealth creation and distribution over a broader global footprint, the remaining negative heritage of the financial crisis continues to be wealth inequality. Wealth inequality has risen in all parts of the world since 2007 (Credit Suisse, 2017).

Traditionally the outlook of the world’s wealth growth is measured by various variables (increase in the number of millionaires, increase in GDP, increase of wealth per capita-mean calculation). Over the last 11 years, the outlook for GDP, wealth per capita and the millionaire segment is more optimistic than for those at the bottom of the wealth pyramid (less than 10,000 dollars per adult). The millionaire segment is expected to rise by 22 percent, from 36 million people today to 44 million in 2022, while the group occupying the lowest tier of the pyramid is expected to shrink by only 4 percent (Credit Suisse, 2017). Without an asserted effort to combat income inequity - the "Heritage of the Crisis" will continue indefinitely and the metropolitan economic growth struggle will intensify.

Figure 8: Metropolitan Gini Index/Coefficient[2] (U.S. Census Data Base)



2 https://worldpopulationreview.com/countries/gini-coefficient-by-country/



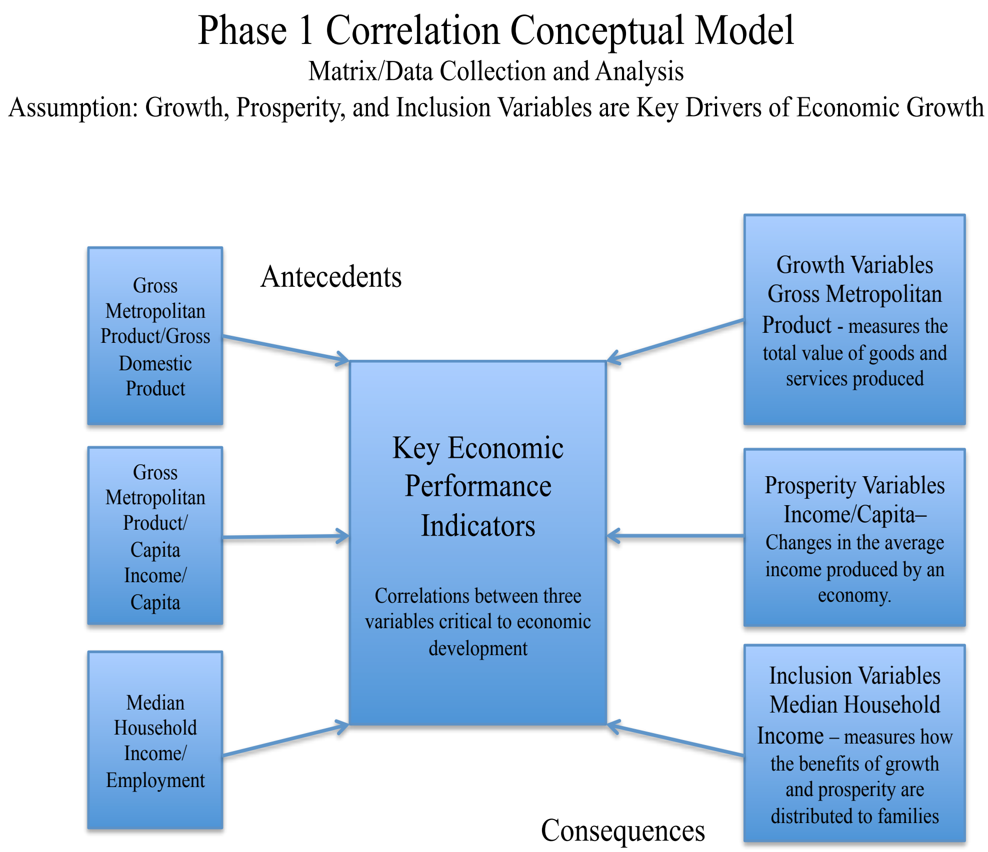
This research effort will attempt to narrowly look at the global issue of wealth distribution within the confines of the metropolitan areas of two states (New Mexico and Michigan). Our effort will attempt to assess this globally ubiquitous social economic challenge from the lens of a progressive public organization's goal to preserve an adequate public funding tax accounting baseline under a changing demographic landscape. In short, as the demographic makeup of the urban metropolitan population becomes more diverse, assuming the applicability of current wealth distribution challenges, it is likely that the public funding tax accounting baseline of the cities will be impacted in a negative way over time.

Actionable Assumptions

In coming decades, a significant share of the population of major urban cities, including but not limited to cities under this study will be composed of minorities. Hence, the minority community will drive the population growth of many cities and become even more important to the tax base and economic stability of the people in the city. The financial well being of the minority community will be central to ensuring the long-term growth and prosperity of the city. Unless the net worth of the minority communities demonstrates growth, the aggregate magnitude of wealth disparity will increase and the prosperity of cities will be adversely impacted. This research approach seems particularly well suited to assess the data and compare and contrast the extent of the matter in a contemporary manner, thus providing the city policy leaders with practical and actionable information (e.g. the business roundtable engagement model).

Developing proforma tax accounting revenue projections is critical to public organizations ability to adequately anticipate public service needs, shortfalls, and excesses. The widening gap in wealth distributions has enhanced the complexity of developing such tax accounting revenue projection proforma models. Hence, population increases, decreases and even stable results must be further assessed in regards to the racial makeup of the populations due to the widening racial wealth distribution gaps in taxable income levels. This research effort will attempt to create an accounting based variance conceptual model as an instrument for linking wealth distribution theories with data in terms of function, representation, and learning. The variance model will use the following antecedents and consequences to seek explanations of continuous change driven by deterministic causation, with independent variables acting upon and causing changes in dependent variables.

Figure 9: Antecedents and Consequences

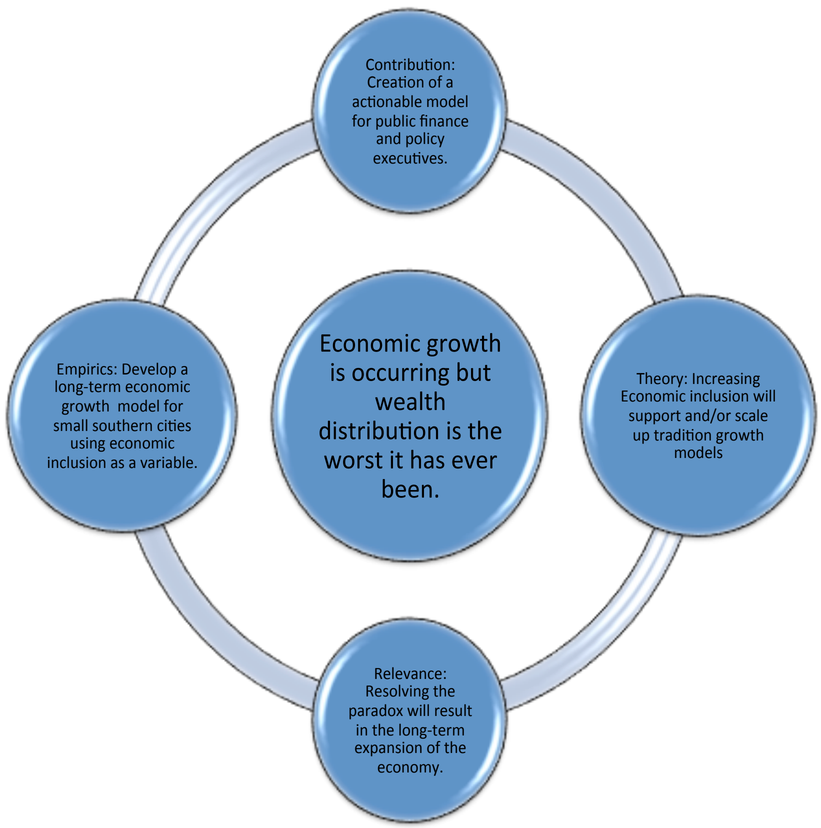


Research Question

Whether a correlation exists between median household income (Inclusion Variable) and other growth (GMP) and prosperity (Income/Capita) variables and if so, then what is the potential economic impact if the median household income (inclusion variable) of one minority group is enhanced?

Figure 10: The Dilemma

Pictorial Framework of the Episode
"What is the Dilemma"?



Research Focus and Expectation of Research Contribution

The renowned Harvard University professor, Michael Porter, states that the large social problems of our society must be solved by corporate resources and "know how" (Porter, 2013). The limited resources acquired through taxation to fund the public sector and the modest donations providing capital for non-government organizations lacks adequacy and long-term sustainability to address the various issues confronting our society (Porter, 2013). William Wilson, one of the foremost authorities on race and poverty, through his writings in "When Work Disappears", challenges decades of liberal and conservative pieties to look squarely at the devastating effects that joblessness has had on our urban communities. Wilson persuasively argues that problems endemic to America's inner cities--from fatherless households to drugs and violent crime--stem directly from the disappearance of blue-collar jobs in the wake of a globalized economy. Wilson's achievement is to portray this crisis as one that affects all Americans and must be addressed by all (Wilson, 1996).

The population wealth distribution analysis being proposed is an attempt to assess the issues proposed by Wilson and the ALICE report through comparing and contrasting existing hypothesis and theories with secondary research data collected using subpopulation groups in metropolitan cities. This research project was influenced by a discussion with officials from the City of Columbia South Carolina in an attempt to gather contemporary information on the relationship between various growth, prosperity, and economic inclusion variables regarding its population. This paper contributes to the body of knowledge addressing wealth disparities in metropolitan America. Using secondary data from Economic Research Federal Reserve Bank of St. Louis (FRED), Census ACS 1-year Survey Reports, United States Department of Commerce Bureau of Economic Analysis and the United States Census reports this paper seeks to compare and contrast this data using the various variables used by the Brookings Institution and the Kellogg Foundation but uniquely linked and analyzed in this study. Using the variables used by these world-renowned research institutions, this research effort will collect detail data according to the population in Michigan and New Mexico. This data will be used to confirm and/or refute various hypothesis and theories summarized through deductive reasoning by previous research and supported by the data.

Although, just the City of Columbia, South Carolina initially requested assistance with analyzing the financial health of its citizenry, by using cities of New Mexico and Michigan in the study, I have decided to broaden the scope to include similar metropolitan major economic centers. Other American cities are concerned that the financial wealth of its population is not growing in proportion to various other major cities in the United States. Along with this concern, cities are coupled with an increase in the minority population and are anxious about their ability to embrace the economic needs of a more diverse population. Based on these facts, concerns, and inferences this study has developed, through deductive reasoning, an actionable assumption that has led to this research effort.

Through this research, I expect to enhance the robust discussion on metropolitan wealth distribution and equality created by resent studies, including the W.K. Kellogg

Foundation “The Business Case for Racial Equity”. The Kellogg study concluded “if the average incomes of minorities were raised to the average income of whites, total U.S. earnings would increase by 12%, representing nearly $1 trillion today. By closing the earnings gap alone would increase the GDP by 2.3% ($1.9 trillion dollars).” My hope is to stimulate decision based discussions and actions that include the business sector that may result in a more prosperous society for all. As stated by Dr. Porter, the great challenges of our time can’t be resolved by the limited resources of the government but by the collective talents of all sectors of our environment: corporate, government, and non-government not-for-profits (Porter, 2013).

CHAPTER 2
LITERATURE REVIEW

In 1999, Roger Waldinger dived into the metropolitan economic growth debate with a work called “Still the Promised City”. In what he called the “The New Urban Reality”, he states “the new urban vitality notwithstanding, cities remain deeply troubled…the paradox of urban plenty is that comparatively few of the city’s residents have been able to enjoy the fruits of growth. Even in good times the number of poor people living in metropolitan cities has not fallen but risen, and dramatically so” (Waldinger, 1999).

Since the early 1990s, common themes such as the “Hour Glass” economy and the “Mismatch Hypothesis” theory have been used to explain the metropolitan growth dilemma. One of Waldinger’s core theories is that many metropolitan cities’ residents have failed to develop multi-generational sustainable business sector niches (Waldinger, 1999). This concept was enhanced by Taylor (2009) that states that metropolitan growth is enhanced by two sets of materialist mechanisms: (1) creation of economic clusters within cities and (2) connectivity processes creating economic networks between cities (Taylor, 2009).

The concept around the metropolitan growth as a product of shared knowledge and skills was enhanced by Mudambi, Narula & Santagelo (2018), who stated that the collocation behavior of business in metropolitan areas could enhance knowledge spillover and increase growth potential. The common theme among these dynamic metropolitan growth theories is centered on deliberate business communication and intentional strategic business partnerships (Mudambi et al., 2018).

In a broader sense, the creation of wealth is seen by most as a ubiquitous universal desire and hope of all individuals, families, businesses, and governments (Oliver et al., 2006). In Horatio Alger's famous story, "Ragged Dick", a plucky boot shiner improves his lot through hard work, honesty and learning his "three R's (reading, riting and rithmetic). The marks of his success are a suit, an office job and a new name, "Richard Hunter, Esq". More sophisticated measures are used these days by economists, business leaders and public officials to gauge wealth creation and success. They measure mobility over a lifetime (rags to riches, or the reverse) between generations and how children do relative to their parents, in absolute terms, whether children are richer or poorer than their parents (Charles at el., 2003).

When countries are experiencing economic growth, there is normally advances in the area of absolute upward economic mobility. In most emerging economies children almost invariably earn more than their parents (Charles et al., 2003). Even in America, despite slow growth and widening income gaps most people do better than the generation above them: a recent study by the Pew Charitable Trusts found that 84% of adult Americans had higher real incomes than their parents (Charles et al., 2003).

The more important gauge of a meritocracy, however, is relative mobility, particularly between generations. In a society with broad equality of opportunity, the parents' position on the income ladder should have little impact on that of their children (Osoro et al., 2013). However, there are various studies that measure how much parents' position has influenced their adult children's relative income or education. The resulting coefficient, the inelegantly named "inter-generational elasticity of income", is the modern measure of social mobility (Charles et al., 2003). The higher the coefficient, the less mobility there has been. On a global view, Scandinavian societies tend to be very mobile. Only around 20% of parents' relative wealth (or poverty) is passed on to their kids. China, in contrast, is fairly immobile: 60% of income differences persist between generations. The big surprise is the United States, where parental income explains around half of the differences in adult children's income, much more than in Canada, and more than in any European country except Italy and Britain. According to this measure, social mobility in America now is lower than most European countries (Charles et al., 2003).

Another way to measure economic opportunity is to tease out what share of inequality can be explained by factors over which people have no control: race, gender, birthplace, parent's education and occupation (Oliver et al., 2006). The smaller the factor the greater a country's equality of opportunity. Such an "Inequality of Opportunity Index" was pioneered by Francisco Fereira of the World Bank. At one extreme lies Norway, where only 2% of the—already low—inequality can be explained by accidents of birth (Oliver et al., 2006). At the other extreme, in Brazil a third of the high-income inequality is due to people's background. America is closer to Brazil than to Norway in this analysis. Social scientists also gauge equality of opportunity by measuring disparities in children's access to basic services that will influence their prospects, such as education (Oliver at el., 2006).

Since the great recession most Americans' in metropolitan areas standard of living has stagnated or declined. Economic inequality in most metropolitan areas is at historic highs (Shapiro et al., 2017). But inequality's impact differs by race; African Americans' net wealth is just a tenth that of white Americans, and over recent decades, white families have accumulated wealth at three times the rate of black families. Shapiro goes on to argue that wealth disparities must be understood in tandem with racial inequities—a dangerous combination he terms "toxic inequality." In "Toxic Inequality", Shapiro reveals how these forces combine to trap families in place. Following nearly two hundred families of different races and income levels over a period of twelve years, Shapiro's research vividly documents the recession's toll on parents and children, the ways families use assets to manage crises and create opportunities, and the real reasons some families build wealth while others struggle in poverty. The structure of our neighborhoods, workplaces, and tax code—much more than individual choices—push some forward and hold others back (Shapiro et al., 2017). A lack of assets, far more common in families of color, can often ruin parents' careful plans for themselves and their children. America's growing wealth gap and its yawning racial divide have been forged by history and preserved by policy, and only bold, race-conscious reforms can move us toward a more just society (Shapiro et al., 2017).

The widening wealth gap in the United States is a worrisome sign that millions of families nationwide do not have enough in assets to offer better opportunities for future generations (Blau et al.,1990). Wealth (or net worth) provides a more complete picture of the disparity than the narrower measure of income (Blau et al., 1990). While income is a flow that provides a snapshot of a family's resources at a given point in time, wealth reflects the stock that a family accumulates over the long term. Whereas income helps families cover their current needs, wealth allows them to make investments in homes, in education, and in business creation. It provides safety during times of family crisis or economic insecurity. Without being able to draw upon liquid assets such as savings accounts, a head of household must pay for his or her family's financial needs from current or future income (that is, by borrowing)—which, for many in the United States, is often insufficient to cover large and critically important unexpected expenses (Baum et al., 2010).

Wealth accumulation is vastly unequal in the United States, with a small population owning most of the wealth (Saez, 2014). Such wealth disparities are problematic in this country. Nationally and regionally, economic growth would be greater if wealth were dispersed more evenly, some economists argue (Rugaber, 2013). Even former Federal Reserve Chair Janet Yellen has stated that "the extent of and continuing increase in inequality in the United States greatly concerns" her. She has asked whether this trend of widening wealth inequality " is compatible with values rooted in our nation's history, among them the high value Americans have traditionally placed on equality of opportunity" (Yellen, 2014). In addition, wealth is transmitted inter-generationally—with the few who own wealth bequeathing inheritances and house down payments to their children, which serves to perpetuate inequality in wealth and impeded social mobility for those who are not similarly advantaged (Menchik et al., 1997).

In part, differences in net worth are derived from racially based differences in inco,me and other key factors because minorities generally earn less (Gittleman and Wolff, 2007). However, racial differences in income and racial differences in wealth are only weakly correlated. Rather, the racially based gulf in wealth accumulation widens as income increases (Tippett et al., 2014) and because wealth differences reflect an accumulated lifetime of income disparities, compounded by asset returns (or lack thereof), the racial wealth gap is much greater than the income differences (Tippett et al., 2014). Over the past 30 years, this gap has widened. Black families who attain higher levels of income typically have greater transfer demands from their less well-off kin networks in comparison to their white peers, further reducing the resources earmarked for savings (Chitegi and Hamilton, 2002; Heflin and Pattillo, 2000). Furthermore, intergenerational transmissions of wealth and the opportunities these provide are also unequal by race (Blau and Graham, 1990l Menchik and Jianakoplos, 1997; Gittleman and Wolff, 2007). Consequently, non-whites have more limited opportunities—lacking parents who can provide college educations, down payments, or inheritances. Although a lot of the wealth disparity on the basis of race will persist in part because of lower rates of intergenerational transmission of assets, which is a scope of research for the future; our effort will not address this important long-term wealth creation issue.

Conceptual Model and Hypothesis

This research effort is inspired and guided in general by the NASCC survey studies conducted in Boston, Los Angeles, Miami, Tulsa and Washington DC over the last 5 years. I rejected initial requests that the data collected be based on the framework of the NASCC survey, which is designed to gather information about specific assets, liabilities, financial resources, personal savings and investment activities at the household level. This survey also collected information on the home ownership and the equity status of families. The survey replicates questions from the Panel Study of Income Dynamic (PSID) and the Multi-city Study of Urban Inequality (MCSUI) and has user-friendly interpretive perspective. In lieu of the use of primary data, this research will use the abundance of secondary data to develop a dyad model using local economic output (gross metropolitan product) and various other variables used in the Brookings Institute and Kellogg Foundation model. In lieu of employing mediation and moderation analysis using various independent variables (family homeownership, debt, savings and income), this research effort will take a broader view of growth creation and segment this idea of community wealth into three specific areas—growth, prosperity, and economic inclusion at the metropolitan level.

The research approach will use a more traditional positive framework with the development of various hypothesis and testing models. It is my opinion that the most appropriate means of investigating the topic from this perspective is comparison and contrast, through hypothesis testing and simulation.

In this project, the research effort will explore the use of secondary data sources such as the Environmental Services Research Institute database systems (ESRI) and U.S. Census Bureau's databases, Bureau of Economic Analysis United States Department of Commerce databases, Economic Research Federal Reserve Bank of St. Louis (FRED), Census ACS 1-year Survey Reports, United States Department of Commerce Bureau of Economic Analysis and the United States Census reports along with using the National Asset Scorecard for Communities of Color, Panel Study of Income Dynamic and Multi-City Study of Urban Inequality survey variables.

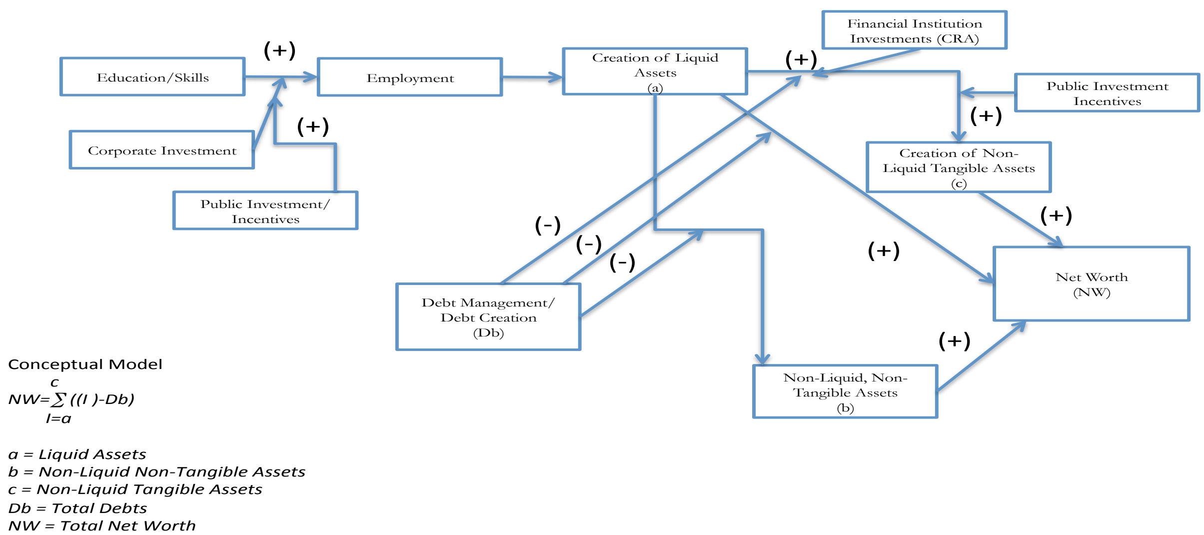
In particular, the research effort will focus on correlating, comparing and contrasting existing growth, prosperity, and economic inclusion models with the data collected on the local output of major economic centers in New Mexico and Michigan, through the use of these secondary subpopulation databases. This study should provide insights into the range of wealth and overall growth, prosperity and economic inclusion of the populations of metropolitan economic centers. The study will also test the usefulness of local economic output when compared to and contrasted with large secondary data methods and assumptions in the local areas of economic creation. The primary aim and my hope is to accomplish the goal of providing the metropolitan economic centers with a reasonable range and perspective on the relationship between the local economic centers economic output, prosperity, and growth creation in their metropolitan area.

The research effort's primary focus will be to engage secondary data on the community regarding various dependent and independent variables around the issue of growth, prosperity and economic inclusion in various local economic centers in the states of New Mexico and Michigan as a basis for application in other metropolitan areas. This research aspect of the project will be executed through the acquisition and application of various database systems, which have long-standing income, local output, and net worth models based on various datasets. During the final phase of the project, the research effort will conduct an analysis and comparison of the various sources of data with the desire to draw important inferences and trends from the exercise that will lead to a range of data regarding the impact of favorable economic inclusion efforts.

Hypothesis Development

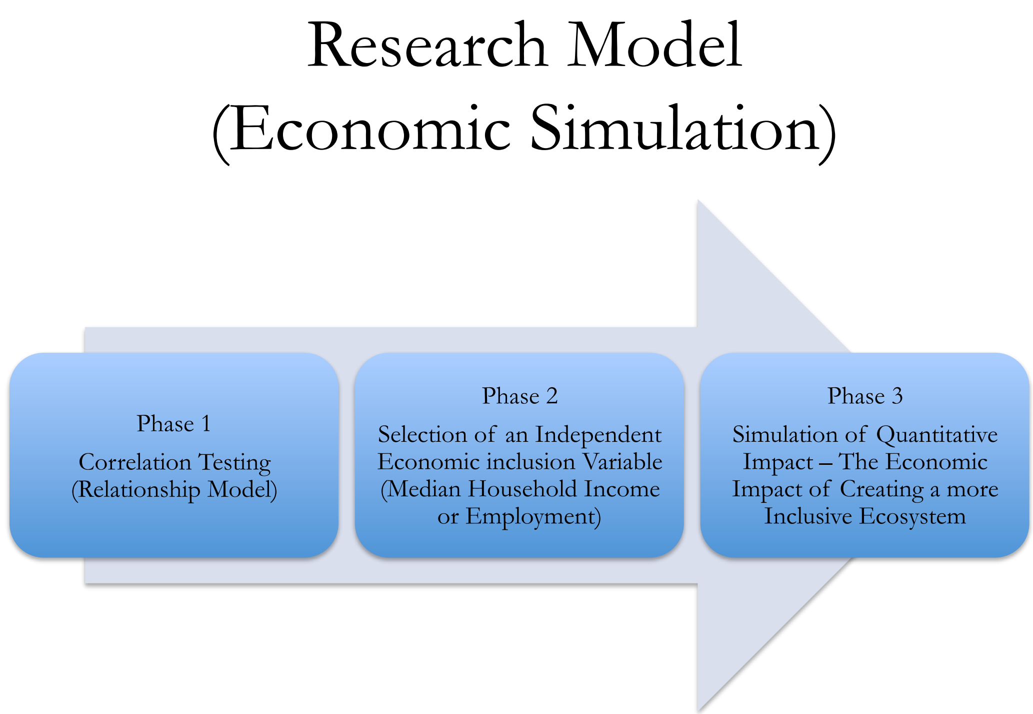
I think the most appropriate means of investigating the topic of metropolitan growth is from a solution-oriented perspective using comparison and contrast, through hypothesis testing. The general premise in prior studies was based on a belief and assumption that the more assets a family possesses, with a certain amount of importance placed on annual income, the greater the net wealth worth of the family and growth of the metropolitan area. The assumption seldom reflects a more in-depth analysis of various other important variables, which impact the dependent variable of wealth. The general overall conceptual model reflects the relationships between liquid assets, non-liquid non-tangible assets, non-liquid tangible assets and what we are labeling as inter-generational assets, which can fall in either of the later categories (liquid assets, non-liquid non-tangible assets or non-liquid tangible assets). Figure 11 outlines the general conceptual relationship between various wealth variables.

Figure 11: General Conceptual Relationship between Various Wealth Variables



Although the model is an attempt to simplify a more complex independent/dependent relationship between variables, which have a causal connection, additional research is needed to reflect the impact of education and the intelligent use of resources gained through employment and the long-term impact of inter-generational assets on a family's net worth. The educational level of families will not be addressed in this study but the importance of this factor in a family's ability to acquire employment and income wages can't be ignored. This study uses this model only as a premise for developing a broader user-friendlier conceptual framework, which centers on—economic growth variables, community prosperity variables and economic inclusion variables. As previously stated, my research model will take a different approach by uniquely linking elements of the economic inclusion model (correlations) and the business case for equity model (quantitative analysis) using a simulation framework.

Figure 12: Research Model



This study is using two proven models (correlation testing and simulation) to test the hypothesis as stated below within the paper. The model is being used as "if-then" statements to link relationships between variables and strengthen the overall conclusions from the research. Each of the two models has a proven record of rigor and validity and is focused on a different element of the metropolitan growth phenomena. The correlation matrix is centered on identifying whether there is a significant relationship between variables associated with metropolitan economic advancement; growth variable (gross metropolitan product), prosperity variable (income per capita) and economic inclusion variable (median household income and/or employment). The model will use SPSS to employ a correlation matrix to identify a significant relationship between the various variables. Notwithstanding the above mentioned topic areas this study will address several hypothesis and assumptions.

Hypothesis A: There is a correlation between various growth variables and various economic inclusion variables.

The idea that economic growth in the form of increased output is an indicator of community well being is a long standing contemporary assumption. The belief that a correlation between local economic output and the median family income is logical but rebuttable when reviewing wealth distribution models such as the well-known Gini coefficient. However, our broad economic models continue to assert a positive relationship between the economic output of a region and the financial well being of people and families living in these areas. This hypothesis is crafted to test this assumption in a local southern region of the country in the same way it is used in New Mexico and Michigan.

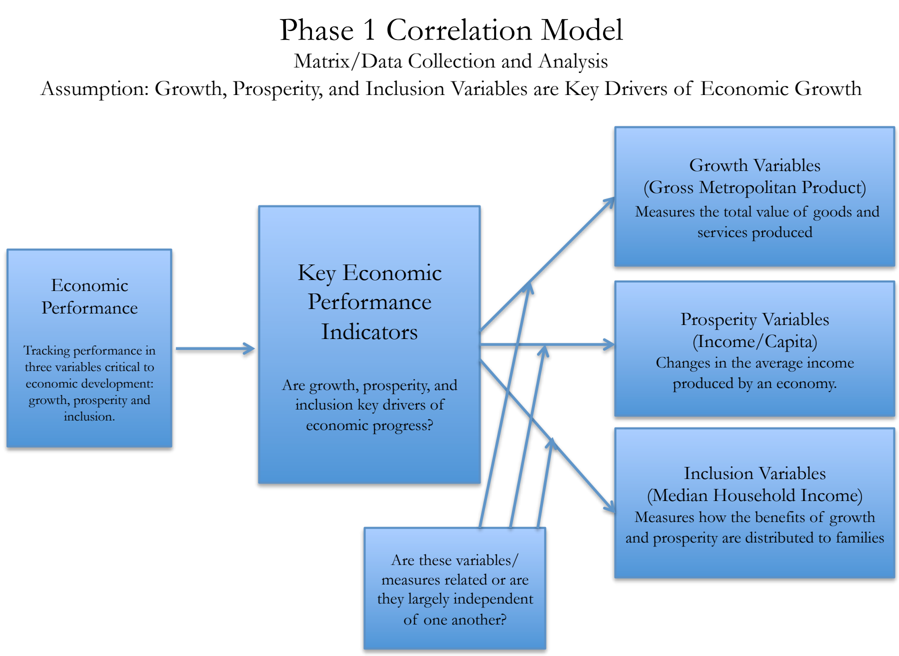
Hypothesis B: There is a correlation between various prosperity variables and various economic inclusion variables.

This assumption is based on the belief that net income per capita is directly tide to the median income of a family. This test supports the importance of income in the accumulation of wealth and economic inclusion. This assumption implies that liquidity has a major impact on the median family income more so than other independent variables. The belief that liquid assets have a disproportionate impact on median family income is consistent with various financial models that emphasis liquidity as a symbol of the financial healthiness of a firm/family.

Hypothesis C: There is a correlation between various growth, prosperity, and economic inclusion variables.

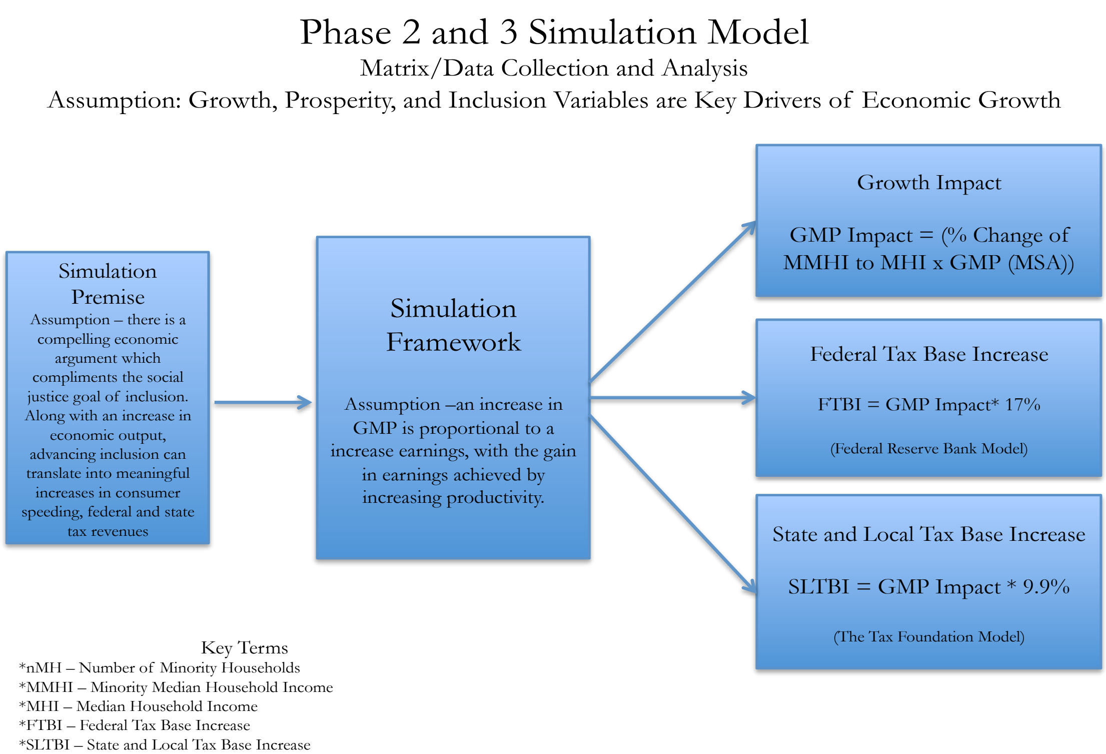
This hypothesis focuses on all three variables—growth, prosperity, and economic inclusion. In keeping with the belief that economic inclusion can create a health environment for expansion in growth variables, which leads to increased general family prosperity as a "trickles down" concept is plausible. This research effort will use the above-mentioned hypothesis in an attempt to discover whether a correlation exists between various economic variables of the population of MSAs in New Mexico and Michigan with the potential for use in developing a model for various MSAs in America.

Figure 13: Phase 1 Correlation Conceptual Model



If and when a correlation is identified it is appropriate for the research model to implement Phase 2 of the study to assess the potential economic impact on the region. When using Phase 2 of the study, the assumption will incrementally equalize the economic inclusion variable across racial lines using 25%, 50%, and 75% are targets.

Figure 14: Phase 2 & 3 Simulation Conceptual Model



CHAPTER 3

METHODOLOGY AND ANALYSIS

The data collection will be executed through the use of numerous existing analytical platforms. These platforms range from government based instruments to private sector analytical based institutes. The government-based platforms are limited by data collection timeframes that in many cases is regulated by existing laws and standards. The private sector analytical platforms are rooted in an element of caution due to relative uncertainty of the methodology used in the collection of data and in some cases the use of undisclosed predictive and forecast models. The primary analytical platforms used in the research effort are the follow:

Table 2: Data Collection

Data Collected	Analytical Platform	Description of Platform
Location Demographic Information Descriptive Statistics for Local Areas	United States Census Database	United States Census Bureau; officially the Bureau of the Census, as defined in Title 13 USC Section 11) is a principal agency of the U.S. Federal Statistical System, responsible for producing data about the American people and economy. The Census Bureau is part of the U.S. Department of Commerce.
Location/City/Regional Net Worth/Wealth Data	Environmental Systems Research Institute – Business Analytical Database	Environmental Systems Research Institute is an international supplier of geographic information system (GIS) software, web GIS and geodatabase management applications. The company is headquartered in Redlands, California.
Local Economic Output (labeled local real GMP)	Bureau of Economic Analysis	The Bureau of Economic Analysis (BEA) of the United Sates Department of Commerce

		is a U.S. government agency that provides official macroeconomic an industry statistics, most notably reports about the gross domestic product (GDP) of the United States and its various units—states, cities, townships, counties and metropolitan areas. Also provide information about personal income, corporate profits, and government spending in their national Income and Product Accounts (NIPAs).

Data will be analyzed over a 10 to 20-year period using primarily linear regression with the IBM-SPSS statistical package. The data will be displayed in numerical tables and graphical (figures) to illustrate trends, linear and non-linear relationships among the various variables. For this research study, metropolitan areas will be separated into local economic centers (major metropolitan cities in the states of Michigan and New Mexico). Step one of phase one is the simple alignment of variables such that the inclusion variables are reflected in median household income data, growth variables are represented by gross metropolitan product and prosperity variables are illustrated by income per capita data.

Figure 15: Three-Step Methodology – Phase 1 Step 1

Methodology

(Data Collection and Analysis)

Phase 1 Methodology - seeks to ascertain whether there is a correlation between various growth, prosperity, and economic inclusion variables

Step 1: Align Variables

Inclusion Variable - Align with Median Household Income (Source: Census ACS 1-year Survey Report

Growth Variable – Align with Gross Metropolitan Product (Source: FRED – Economic Research Federal Reserve Bank of St. Louis

Prosperity Variable – Align with Income per Capita (Source: US Department of Commerce Bureau of Economic Analysis

Figure 16: Three-Step Methodology - Phase 1 Step 2

Methodology

(Data Collection and Analysis)

Phase 1 Methodology - seeks to ascertain whether there is a correlation between various growth, prosperity, and economic inclusion variables

Step 2: Conduct an Historical Analysis of the year to year % change in the major variables (Example: Detroit Historical Analysis)

Phase 1 Historical Analysis Model - Detriot

% Change	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
Inclusion Variables - Detroit	-1.75	-3.87	-7.14	-2.31	-1.51	0.61	1.57	-0.52	2.05	3.36	1.85
Growth Variables - Detroit	1.66	-5.55	-7.75	6.72	4.94	6.05	3.62	3.78	5.75	4.07	2.56
Prosperity Variables - Detroit	-0.25	-5.18	-10.04	6.29	3.95	1.95	0.49	1.82	2.42	1.55	2.52

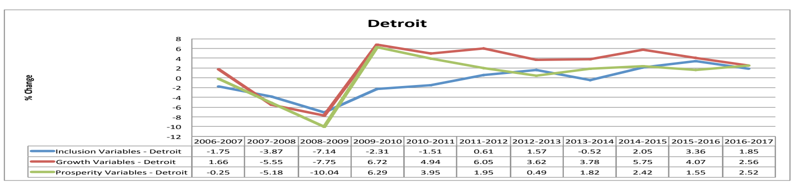


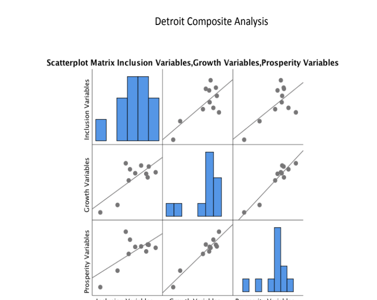
Figure 17: Three-Step Methodology – Phase 1 Step 3

Methodology

(Data Collection and Analysis)

Phase 1 Methodology - seeks to ascertain whether there is a correlation between various growth, prosperity, and economic inclusion variables

Step 3: Conduct composite relationship analysis using IBM – SPSS which reflects the association of one variable to another (Example: Detroit Composite Analysis)



Detroit		Correlations	
		Inclusion Variables	Growth Variables
Inclusion Variables	Pearson Correlation	1	0.739
	Sig. (2-Tailed)		0.009
	N	11	11
Growth Variables	Pearson Correlation	0.739	1
	Sig. (2-Tailed)	0.009	
	N	11	11

*Correlation is significant at the .01 level (2-Tailed)

Detroit		Correlations	
		Prosperity Variables	Inclusion Variables
Inclusion Variables	Pearson Correlation	1	0.953
	Sig. (2-Tailed)		0.000
	N	11	11
Prosperity Variables	Pearson Correlation	0.953	1
	Sig. (2-Tailed)	0.000	
	N	11	11

When and if a correlation is determined using the Phase 1 model, the Phase 2 model will be used to ascertain the value of enhancing economic inclusion. Additional analysis using a distinct inclusion variable related to poverty (unemployment rate as an inclusion variable) was used and results are available in the appendix. This exercise was used to test and/or validate the use of median household income as the primary inclusion variable for this study, which is the Phase 2 of the simulation model. The selection of a inclusion variable for the simulation Phase of the study may vary based on the results of the Phase 1 correlation tests; however, I chose to use median household income in this study.

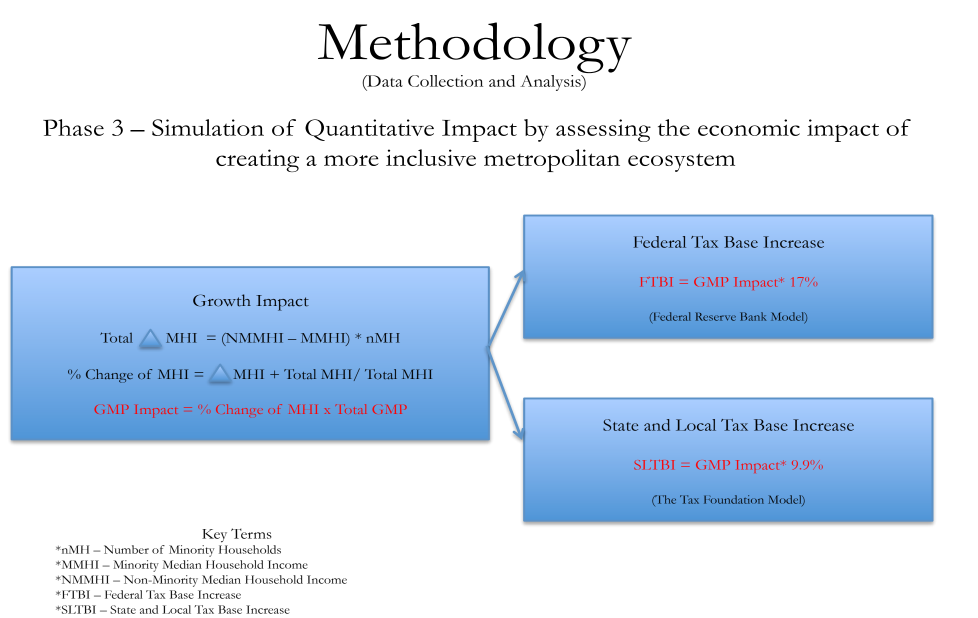
Table 3: Phase 2 - Selection of Median Household Income as Inclusion Variable for Simulation Model

Inclusion (Employment) to Prosperity (Per Capita Income)						Inclusion (Employment) to Growth (Gross Metropolitan Product)				
Metropolitan Area	n	Pearson Correlation	Sig. (2 - tailed) - P Value	Correlation Significant (P<.05)		Metropolitan Area	n	Pearson Correlation	Sig. (2 - tailed) - P Value	Correlation Significant (P<.05)
Michigan						Michigan				
Detroit	11	0.953	0.000	X		Detroit	11	0.739	0.009	na
Saginaw	11	0.275	0.414	na		Saginaw	11	0.449	0.166	na
Farmington	11	0.316	0.343	na		Farmington	11	0.237	0.483	na
Ann Arbor	11	0.444	0.171	na		Ann Arbor	11	0.649	0.031	X
Kalamazoo	11	0.365	0.270	na		Kalamazoo	11	0.328	0.325	na
Lansing	11	0.218	0.520	na		Lansing	11	0.291	0.384	na
New Mexico						New Mexico				
Albuquerque	11	0.193	0.570	na		Albuquerque	11	0.149	0.663	na
Las Cruces	11	-0.006	0.986	na		Las Cruces	11	-0.094	0.783	na
Santa Fe	11	0.259	0.442	na		Santa Fe	11	0.310	0.353	na

Phase 3 of the research model involves the application of various data for each metropolitan area. The framework of the simulation is built around the calculation of the "Growth Impact". The "Growth Impact" in this study is formed by assessing the change in the median household income between minority households and non-minority households multiplied by the number of minority households in the metropolitan area. The growth of minority median household income is incrementally adjusted to reflect a gradual increase in economic inclusion range from 25% to 75% of non-minority median household income for a metropolitan area. The percentage change in median household income created by the incremental adjustments in economic inclusion is used as a ("1 X 1") multiple to the existing metropolitan areas' gross metropolitan product, thus creating the "Growth Impact".

To ascertain the tax impact for the incremental economic inclusion growth ("Growth Impact"), two well-known tax receipt models are deployed. The Federal Reserve federal and the Tax Foundation impact models, which both use the "Growth Impact" calculation as an index to assess potential tax receipts under the economic simulation. Under the Federal Reserve Bank model the Federal Tax Base is increased by a multiple of 17% of the GMP Impact. The Tax Foundation model computes the State and Local Tax Base increase as 9.9% multiple of the GMP Impact.

Figure 18: Phase 3 Simulation of Quantitative Impact



The aim of this data collection and analysis is to test the four hypothesis using various statistical tools and methods. Identifying significant correlations between the various variables, which could imply causation or a generality of explanations, could lead to enhanced knowledge and/or theory creation when linked to the simulation model.

CHAPTER 4
DISCUSSION OF RESULTS

As part of the research, I conducted a quantitative data analysis using information on two states, which are the current focus of the W.F. Kellogg Foundation (Michigan and New Mexico). The study attempts to use over 10 years of data; however, as a preliminary assessment, this effort collected 6 years of data from 2010 to 2016 of the following areas:

Table 4: Data Collection

Key Variables	Subgroup	Source of Information
Growth Variable	Gross Metropolitan Product	FRED-Economic Research Federal Reserve Bank of St. Louis
Prosperity Variable	Gross Metropolitan/Per Capita, Income/ Per Capita	US Department of Commerce Bureau of Economic Analysis
Inclusion Variable	Median Household Income, Employment Rate	Census ACS 1-Year Survey Report

The data was collected and analyzed using a year-to-year percent change from 2010 to 2016. The use of the data from these two states allowed me to leverage a considerable amount of secondary information and knowledge, along with assisting with conducting a quantitative and qualitative analysis, as the lead executive consultant to a W.F. Kellogg Foundation grant between the organization and the United States Chamber of Commerce (USCC). The grant, which is conducting an in-depth study of the "business case for enhancing equity" within the two focused states, is implementing an 18-month pilot program that will create a dialogue within the business community around the Business Case for Racial Equity. Through this effort, I have been given access that enables me to assess the perceptions of business owners and influencers on racial equity, collect data and develop best approaches for engaging the business community. This project clearly aligns with the data collection and analysis of my research effort.

In partnership (as the executive consultant with the USCC) with the largest business advocacy organization in the world, the USCC represents the interests of over 3 million businesses, local chambers of commerce and leading industry trade associations. The underlining goal of the research effort is to assess the potential economic expansion (increase in tax collection--government receipts and gross domestic product and economic productivity growth) in a more racially equitable society. This research effort has unique synergistic linkages to USCC's efforts in the area of job creation and the expansion of the economy in metropolitan regions in America. In an effort to further support the research effort and demonstrate a significant relationship among urban cities, I conducted a quantitative analysis with the following New Mexico and Michigan cities.

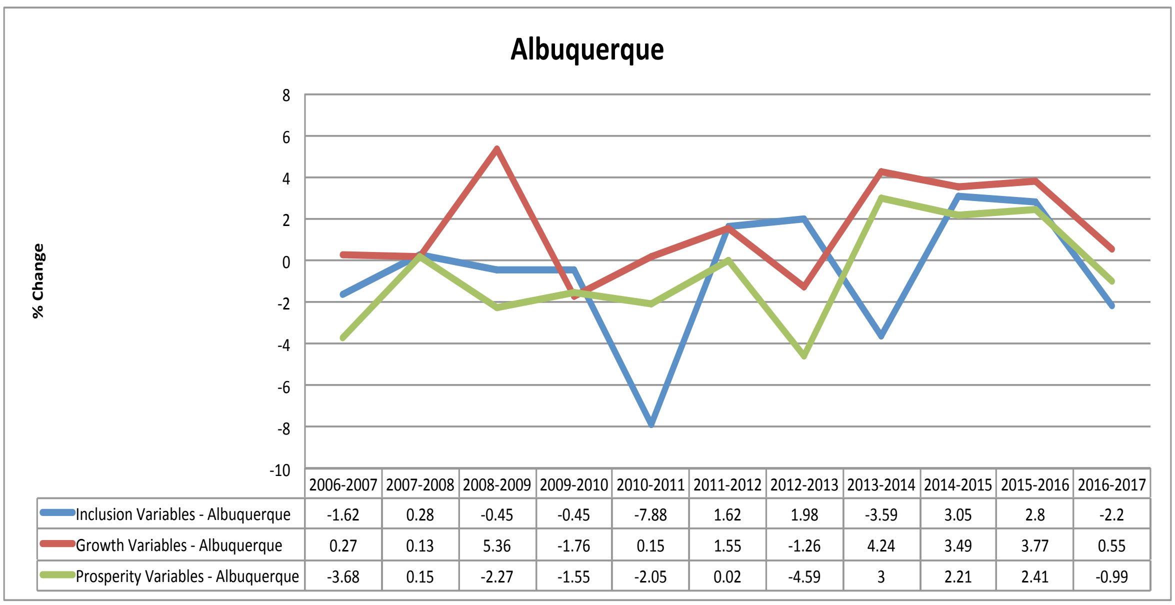
State Of New Mexico Data Analysis

The data collected on the inclusion, growth and prosperity variables for the city of Albuquerque reflects a very fluid level of economic experiences over the last 10 years. During the pre-great recession period (2006 – 2007), Albuquerque experienced a downturn in prosperity and inclusion variables, which was followed by positive growth results in 2007-2008. As expected all three variables experienced levels of downturns during the great recession of 2007 – 2010. The variables demonstrate a considerable level of correlation regarding time periods of growth and decline.

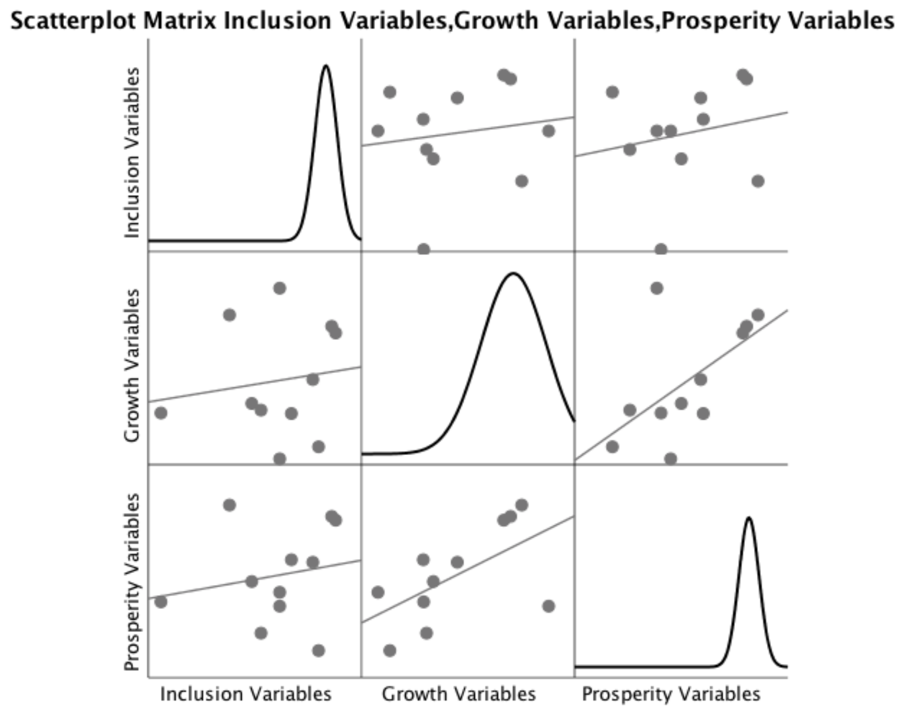
Figure 19: Albuquerque Matrix/Data Sets

Brookings Institute Model - Albuquerque
Matrix/Data Collection and Analysis

% Change	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
Inclusion Variables - Albuquerque	-1.62	0.28	-0.45	-0.45	-7.88	1.62	1.98	-3.59	3.05	2.8	-2.2
Growth Variables - Albuquerque	0.27	0.13	5.36	-1.76	0.15	1.55	-1.26	4.24	3.49	3.77	0.55
Prosperity Variables - Albuquerque	-3.68	0.15	-2.27	-1.55	-2.05	0.02	-4.59	3	2.21	2.41	-0.99



Albuquerque Scatterplot



Albuquerque		Coefficients			
	Unstandarized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
Constant	1.563	0.757		2.067	0.069
Inclusion Variables	0.11	0.243	0.149	0.451	0.663

Dependent Variable: Growth Variables

Albuquerque	Coefficients				
	Unstandarized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
Constant	-0.579	0.792		-0.732	0.483
Inclusion Variables	0.15	0.254	0.193	0.589	0.57

Dependent Variable: Prosperity Variables

Albuquerque	Correlations	Prosperity Variables	Inclusion Variables
Inclusion Variables	Pearson Correlation	1	0.193
	Sig. (2-Tailed)		0.57
	N	11	11
Prosperity Variables	Pearson Correlation	0.193	1
	Sig. (2-Tailed)	0.57	
	N	11	11

	Correlations	Inclusion Variables	Growth Variables
Inclusion Variables	Pearson Correlation	1	0.315
	Sig. (2-Tailed)		0.346
	N	11	11
Growth Variables	Pearson Correlation	0.315	1
	Sig. (2-Tailed)	0.346	
	N	11	11

Variable Prediction Models

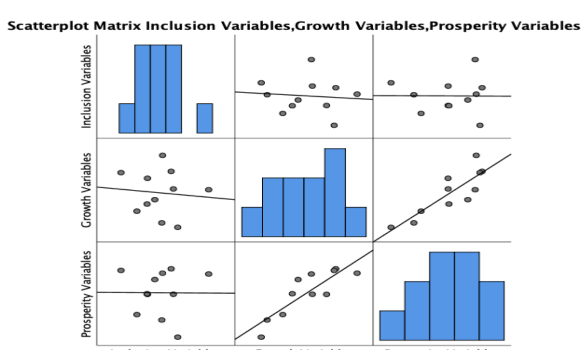
Prediction Model
Y (% change in Growth Variable) =.11 X (% change in Inclusion Variable) + 1.563

Prediction Model
Y (% change in Prosperity Variable) =.15 X (% change in Inclusion Variable) + -.579

The data collected on the inclusion, growth and prosperity variables for the city of Las Cruces reflects varying levels of economic experiences over the last 10 years. From the pre-great recession period (2006 – 2007) through the great recession period (2007 – 2010), Las Cruces experienced a downturn in four of five periods for the inclusion variables. Whereas, the city's growth and prosperity variables experienced negative growth in three of five periods, following the great recession period, both growth and prosperity variables had significant downturns (2011-2012), which has leveled off to modest but stable period of year to year growth in all variable sectors.

Figure 20: Las Cruces Matrix/Data Sets

Las Cruces Scatterplot



Las Cruces

Coefficients

Model	Unstandarized Coefficients B	Unstandarized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
Constant	0.239	0.95		0.252	0.807
Inclusion Variables	-0.073	0.258	-0.094	-0.284	0.783

Dependent Variable: Growth Variables

Las Cruces

Coefficients

Model	Unstandarized Coefficients B	Unstandarized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
Constant	-0.349	0.801		-0.436	0.673
Inclusion Variables	-0.004	0.217	-0.006	-0.019	0.986

Dependent Variable: Prosperity Variables

Las Cruces		Correlations	
		Inclusion Variables	Growth Variables
Inclusion Variables	Pearson Correlation	1	-0.094
	Sig. (2-Tailed)		0.783
	N	11	11
Growth Variables	Pearson Correlation	-0.094	1
	Sig. (2-Tailed)	0.783	
	N	11	11

Las Cruces		Correlations	
		Prosperity Variables	Inclusion Variables
Inclusion Variables	Pearson Correlation	1	-0.006
	Sig. (2-Tailed)		0.986
	N	11	11
Prosperity Variables	Pearson Correlation	-0.006	1
	Sig. (2-Tailed)	0.986	
	N	11	11

Variable Prediction Models

Prediction Model

Y (% change in Growth Variable) =-.073 X (% change in Inclusion Variable) + .239

Prediction Model

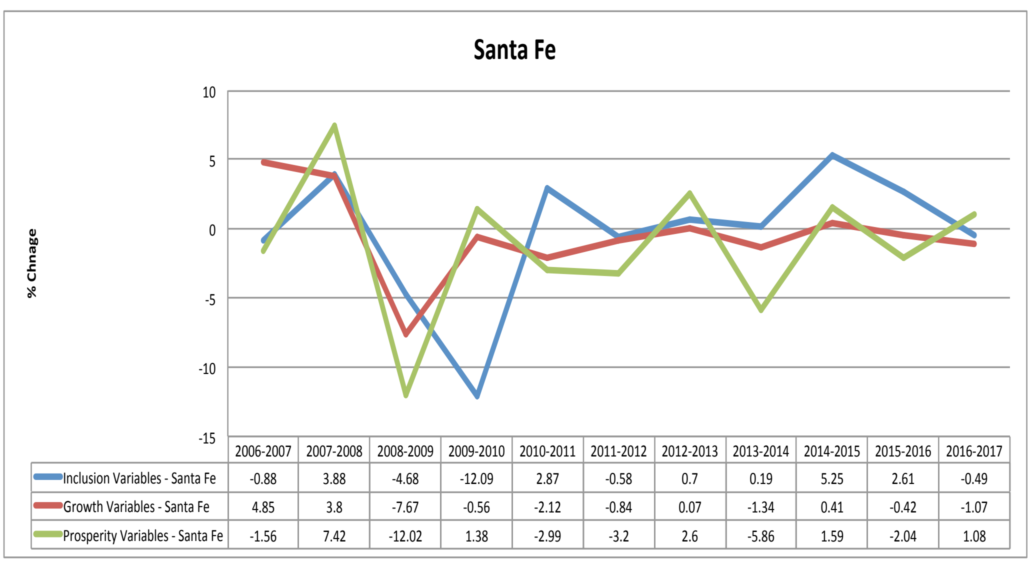
Y (% change in Prosperity Variable) =-.349 X (% change in Inclusion Variable) + -.004

The data collected on the inclusion, growth and prosperity variables for the city of Santa Fe reflects a very high level of correlation over the last 10 years. During the pre-great recession period (2006 – 2007) through the great recession period (2007 – 2010), Santa Fe experienced significant downturns in the inclusion and prosperity sectors of over 12 percentage points. Following the great recession period, both growth and inclusion variables leveled off, whereas the prosperity sector continued to show varying results of growth and decline.

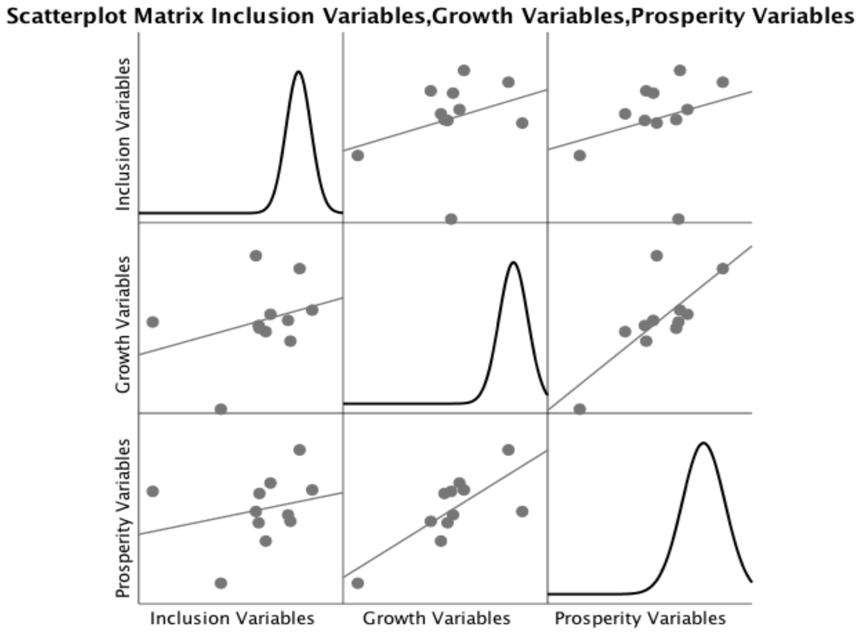
Figure 21: Santa Fe Matrix/Data Sets

Brookings Institute Model -Santa Fe

% Change	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
Inclusion Variables - Santa Fe	-0.88	3.88	-4.68	-12.09	2.87	-0.58	0.7	0.19	5.25	2.61	-0.49
Growth Variables - Santa Fe	4.85	3.8	-7.67	-0.56	-2.12	-0.84	0.07	-1.34	0.41	-0.42	-1.07
Prosperity Variables - Santa Fe	-1.56	7.42	-12.02	1.38	-2.99	-3.2	2.6	-5.86	1.59	-2.04	1.08



Santa Fe Scatterplot



Santa Fe Coefficients

Model	Unstandarized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
Constant	-0.383	0.974		-0.394	0.703
Inclusion Variables	0.21	0.214	0.31	0.979	0.353

Dependent Variable: Growth Variables

Santa Fe		Coefficients			
	Unstandarized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
Constant	-1.156	1.554		-0.744	0.476
Inclusion Variables	0.275	0.342	0.259	0.804	0.442

Dependent Variable: Prosperity Variables

Santa Fe		Correlations	
		Inclusion Variables	Growth Variables
Inclusion Variables	Pearson Correlation	1	0.31
	Sig. (2-Tailed)		0.353
	N	11	11
Growth Variables	Pearson Correlation	0.31	1
	Sig. (2-Tailed)	0.353	
	N	11	11

Santa Fe		Correlations	
		Prosperity Variables	Inclusion Variables
Inclusion Variables	Pearson Correlation	1	0.259
	Sig. (2-Tailed)		0.442
	N	11	11
Prosperity Variables	Pearson Correlation	0.259	1
	Sig. (2-Tailed)	0.442	
	N	11	11

Variable Prediction Models

Prediction Model

Y (% change in Growth Variable) =.21 X (% change in Inclusion Variable) + -.383

Prediction Model

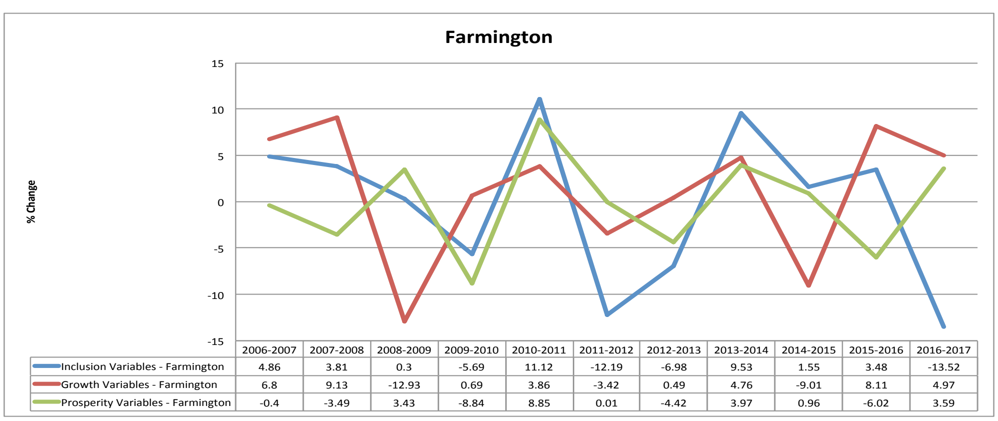
Y (% change in Prosperity Variable) =1.142 X (% change in Inclusion Variable) + 3.145

The data collected on the inclusion, growth and prosperity variables for the city of Farmington reflects numerous levels of economic experiences over the last 10 years. From the pre-great recession period (2006 – 2007) through the great recession period (2007 – 2010), Farmington experienced early growth and steep downturns in the later periods for all the sectors. Following the great recession period, both growth and inclusion variables experienced significant downturns in respective periods (2014-2015) and (2016 – 2017).

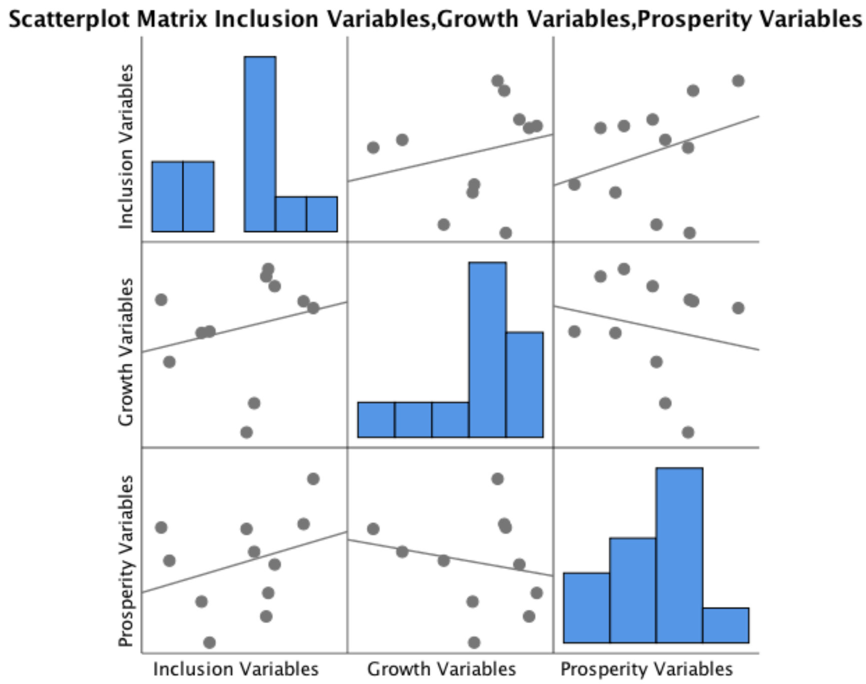
Figure 22: Farmington Matrix/Data Sets

Brookings Institute Model - Farmington

% Change	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
Inclusion Variables - Farmington	4.86	3.81	0.3	-5.69	11.12	-12.19	-6.98	9.53	1.55	3.48	-13.52
Growth Variables - Farmington	6.8	9.13	-12.93	0.69	3.86	-3.42	0.49	4.76	-9.01	8.11	4.97
Prosperity Variables - Farmington	-0.4	-3.49	3.43	-8.84	8.85	0.01	-4.42	3.97	0.96	-6.02	3.59



Farmington Scatterplot



Farmington	Coefficients				
	Unstandarized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
Constant	1.292	2.190		0.590	0.570
Inclusion Variables	0.204	0.279	0.237	0.731	0.483

Dependent Variable: Growth Variables

Farmington		Coefficients			
	Unstandarized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
Constant	-0.147	1.555		-0.095	0.927
Inclusion Variables	0.198	0.198	0.316	1.001	0.343

Dependent Variable: Prosperity Variables

Farmington		Correlations	
		Inclusion Variables	Growth Variables
Inclusion Variables	Pearson Correlation	1	0.237
	Sig. (2-Tailed)		0.483
	N	11	11
Growth Variables	Pearson Correlation	0.237	1
	Sig. (2-Tailed)	0.483	
	N	11	11

Farmington		Correlations	
		Prosperity Variables	Inclusion Variables
Inclusion Variables	Pearson Correlation	1	0.316
	Sig. (2-Tailed)		0.343
	N	11	11
Prosperity Variables	Pearson Correlation	0.316	1
	Sig. (2-Tailed)	0.343	
	N	11	11

Variable Prediction Models

Prediction Model

Y (% change in Growth Variable) = .204X (% change in Inclusion Variable) + 1.292

Prediction Model

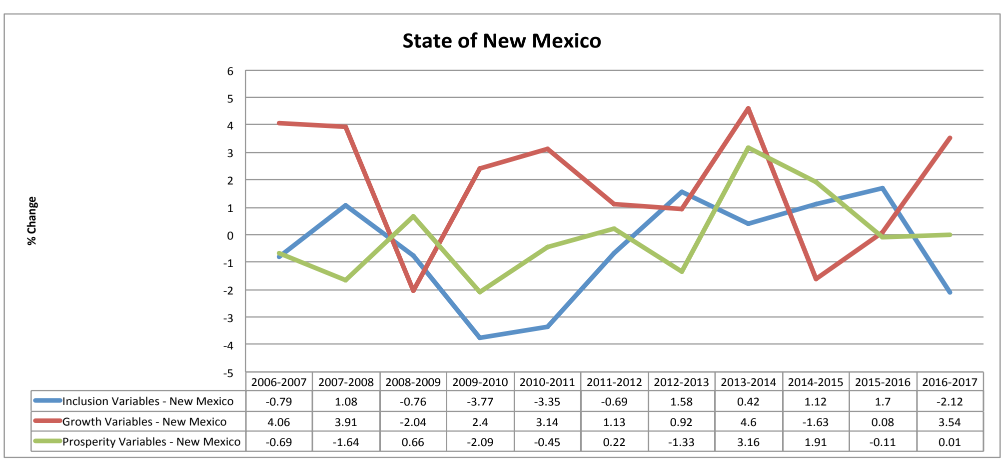
Y (% change in Prosperity Variable) = .198 X (% change in Inclusion Variable) + -.147

The data collected on the inclusion, growth and prosperity variables for the overall state of New Mexico reflects modest levels of volatility over the last 10 years. From the pre-great recession period (2006 – 2007) through the great recession period (2007 – 2010), New Mexico experienced a downturn in four of five periods for the inclusion variables. Whereas, the city's growth variables experienced small negative growth during the 2008 – 2009 period, and following the great recession period, all variables leveled off to modest but stable period of year-to-year growth with various periods of small negative growth.

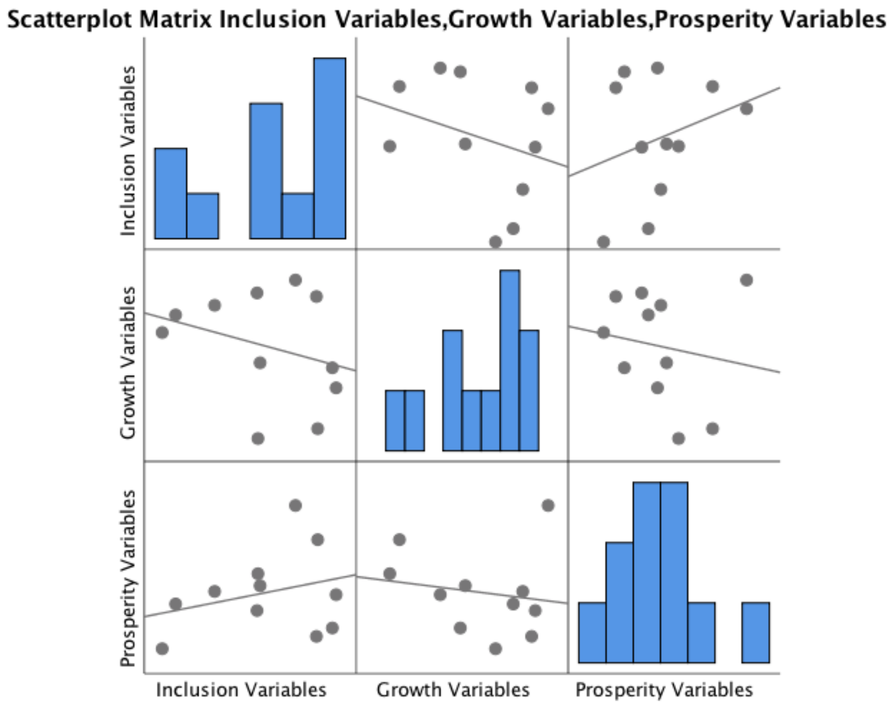
Figure 23: State of New Mexico Matrix/Data Sets

Brookings Institute Model - New Mexico

% Change	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
Inclusion Variables - New Mexico	-0.79	1.08	-0.76	-3.77	-3.35	-0.69	1.58	0.42	1.12	1.7	-2.12
Growth Variables - New Mexico	4.06	3.91	-2.04	2.4	3.14	1.13	0.92	4.6	-1.63	0.08	3.54
Prosperity Variables - New Mexico	-0.69	-1.64	0.66	-2.09	-0.45	0.22	-1.33	3.16	1.91	-0.11	0.01



State of New Mexico Scatterplot



State of New Mexico Coefficients

Model	Unstandarized Coefficients B	Unstandarized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
Constant	1.643	0.726		2.265	0.05
Inclusion Variables	-0.364	0.382	.-303	.-952	0.366

Dependent Variable: Growth Variables

State of New Mexico	Coefficients				
	Unstandarized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
Constant	0.085	0.485		0.176	0.864
Inclusion Variables	0.231	0.256	0.288	0.902	0.39

Dependent Variable: Prosperity Variables

State of New Mexico		Correlations	
		Inclusion Variables	Growth Variables
Inclusion Variables	Pearson Correlation	1	-0.303
	Sig. (2-Tailed)		0.366
	N	11	11
Growth Variables	Pearson Correlation	-0.303	1
	Sig. (2-Tailed)	0.366	
	N	11	11

State of New Mexico		Correlations	
		Prosperity Variables	Inclusion Variables
Inclusion Variables	Pearson Correlation	1	0.288
	Sig. (2-Tailed)		0.39
	N	11	11
Prosperity Variables	Pearson Correlation	0.288	1
	Sig. (2-Tailed)	0.39	
	N	11	11

Variable Prediction Models

Prediction Model
Y (% change in Growth Variable) =-.364 X (% change in Inclusion Variable) + 1.643

Prediction Model
Y (% change in Prosperity Variable) = .231 X (% change in Inclusion Variable) + .085

State of Michigan Data Analysis

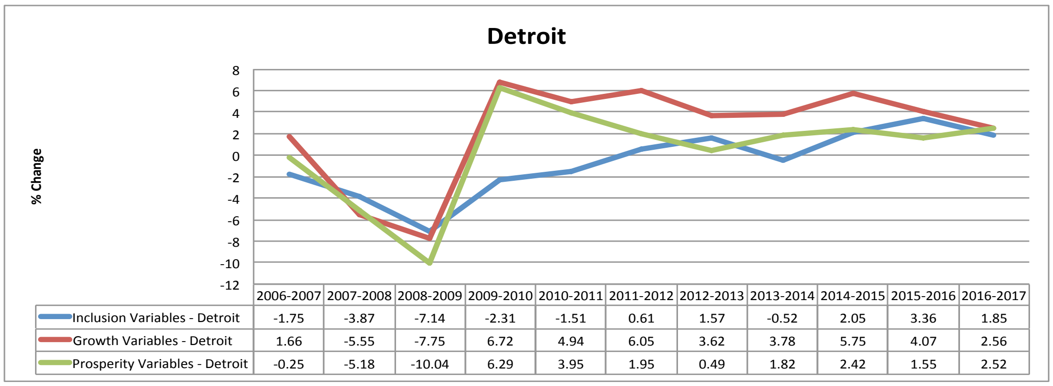
The state of Michigan has an estimated population of 9.9 million citizens with a Gini index of .469, which 28th amongst all states (South Carolina .473- 33th state; New Mexico .476 – 34th state). The data collected on the inclusion, growth and prosperity variables for the state of Michigan reflects a very fluid economic experience for the state over the last 10 years. During the pre-great recession period (2006 – 2007) through the great recession, the state of Michigan experienced a considerable downturn in all the variable sectors. However, following the great recession period, all three variables have experienced growth. The variables under the Phase 1 model demonstrate a considerable level of correlation regarding time periods of growth and decline.

The data collected on the inclusion, growth and prosperity variables for the city of Detroit reflects a high level of volatility over the last 10 years. From the pre-great recession period (2006 – 2007) through the great recession period (2007 – 2010), Detroit experienced high levels of downturn in the three periods for all the variable sectors. However, the city's growth, prosperity and inclusion variables experienced steady growth following the great recession period.

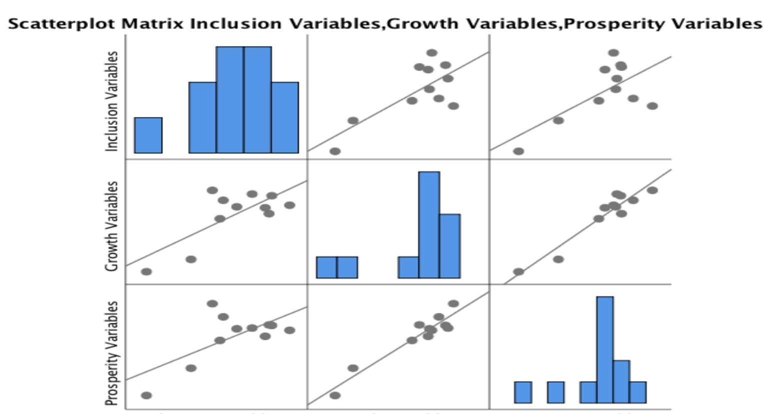
Figure 24: Detroit Matrix/Data Sets

Brookings Institute Model - Detriot

% Change	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
Inclusion Variables - Detroit	-1.75	-3.87	-7.14	-2.31	-1.51	0.61	1.57	-0.52	2.05	3.36	1.85
Growth Variables - Detroit	1.66	-5.55	-7.75	6.72	4.94	6.05	3.62	3.78	5.75	4.07	2.56
Prosperity Variables - Detroit	-0.25	-5.18	-10.04	6.29	3.95	1.95	0.49	1.82	2.42	1.55	2.52



Detroit Scatterplot



Detroit	Coefficients				
	Unstandarized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
Constant	3.145	1.038		3.028	0.014
Inclusion Variables	1.142	0.347	0.739	3.292	0.009

Dependent Variable: Growth Variables

Detroit	Coefficients				
	Unstandarized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
Constant	1.184	1.097		1.079	0.309
Inclusion Variables	0.979	0.366	0.665	2.674	0.025

Dependent Variable: Prosperity Variables

Detroit	Correlations		
		Inclusion Variables	Growth Variables
Inclusion Variables	Pearson Correlation	1	0.739
	Sig. (2-Tailed)		0.009
	N	11	11
Growth Variables	Pearson Correlation	0.739	1
	Sig. (2-Tailed)	0.009	
	N	11	11

*Correlation is significant at the .01 level (2-Tailed)

Detroit		Correlations	
		Prosperity Variables	Inclusion Variables
Inclusion Variables	Pearson Correlation	1	0.953
	Sig. (2-Tailed)		0.000
	N	11	11
Prosperity Variables	Pearson Correlation	0.953	1
	Sig. (2-Tailed)	0.000	
	N	11	11

Variable Prediction Models

Prediction Model
Y (% change in Growth Variable) =1.142 X (% change in Inclusion Variable) + 3.145

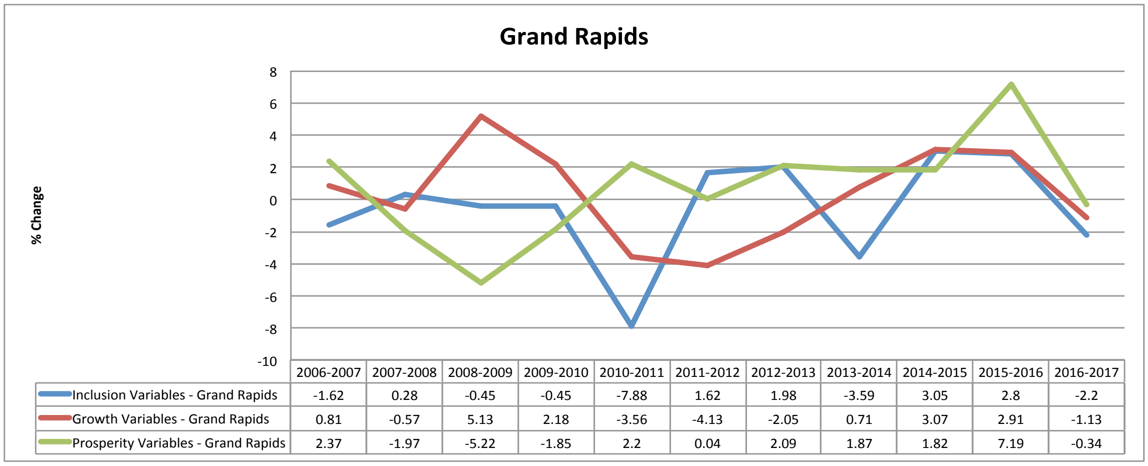
Prediction Model
Y (% change in Prosperity Variable) = .979 X (% change in Inclusion Variable) + 1.184

The data collected on the inclusion, growth and prosperity variables for the city of Grand Rapids reflects a unique level of volatility over the last 10 years for the growth variable. From the pre-great recession period (2006 – 2007) through the great recession period (2007 – 2010), Grand Rapids' growth variable experienced a steady increases throughout that period; however, following the great recession the city went through three back-to-back periods of decline. Whereas, the city's inclusion and prosperity variables experienced a more normal pre-recession and recession decline with steady growth in periods following the recession.

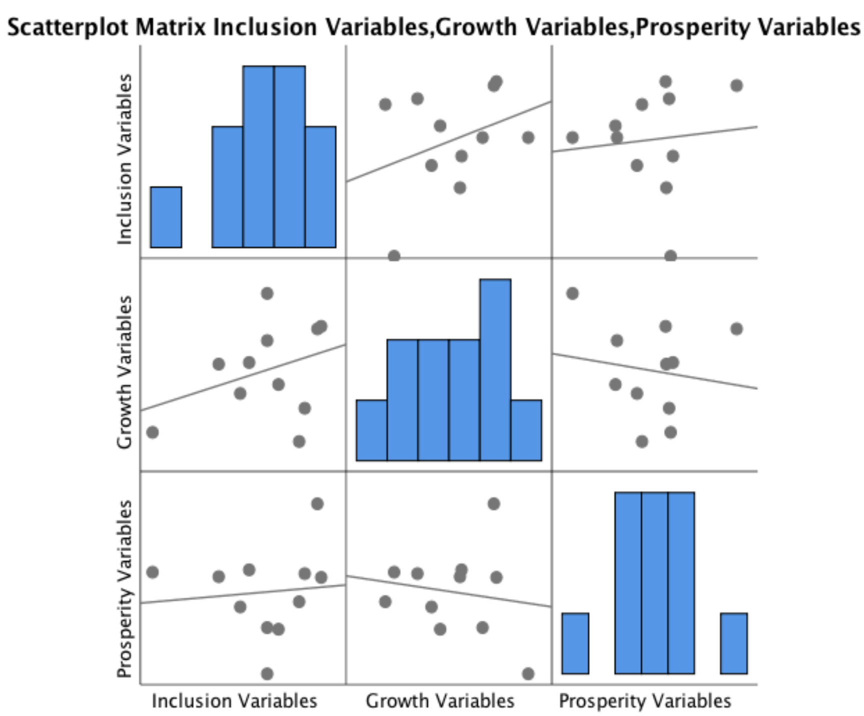
Figure 25: Grand Rapids Matrix/Data Sets

Brookings Institute Model - Grand Rapids

% Change	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
Inclusion Variables - Grand Rapids	-1.62	0.28	-0.45	-0.45	-7.88	1.62	1.98	-3.59	3.05	2.8	-2.2
Growth Variables - Grand Rapids	0.81	-0.57	5.13	2.18	-3.56	-4.13	-2.05	0.71	3.07	2.91	-1.13
Prosperity Variables - Grand Rapids	2.37	-1.97	-5.22	-1.85	2.2	0.04	2.09	1.87	1.82	7.19	-0.34



Grand Rapids Scatterplot



Grand Rapids	Coefficients				
	Unstandarized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
Constant	0.846	0.693		1.222	0.253
Inclusion Variables	0.232	0.222	0.328	1.041	0.325

Dependent Variable: Growth Variables

Grand Rapids	Coefficients				
	Unstandarized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
Constant	0.804	1.028		0.782	0.454
Inclusion Variables	0.099	0.330	0.100	0.300	0.771

Dependent Variable: Prosperity Variables

Grand Rapids		Correlations	
		Inclusion Variables	Growth Variables
Inclusion Variables	Pearson Correlation	1	0.328
	Sig. (2-Tailed)		0.325
	N	11	11
Growth Variables	Pearson Correlation	0.328	1
	Sig. (2-Tailed)	0.325	
	N	11	11

Grand Rapids		Correlations	
		Prosperity Variables	Inclusion Variables
Inclusion Variables	Pearson Correlation	1	0.100
	Sig. (2-Tailed)		0.771
	N	11	11
Prosperity Variables	Pearson Correlation	0.100	1
	Sig. (2-Tailed)	0.771	
	N	11	11

Variable Prediction Models

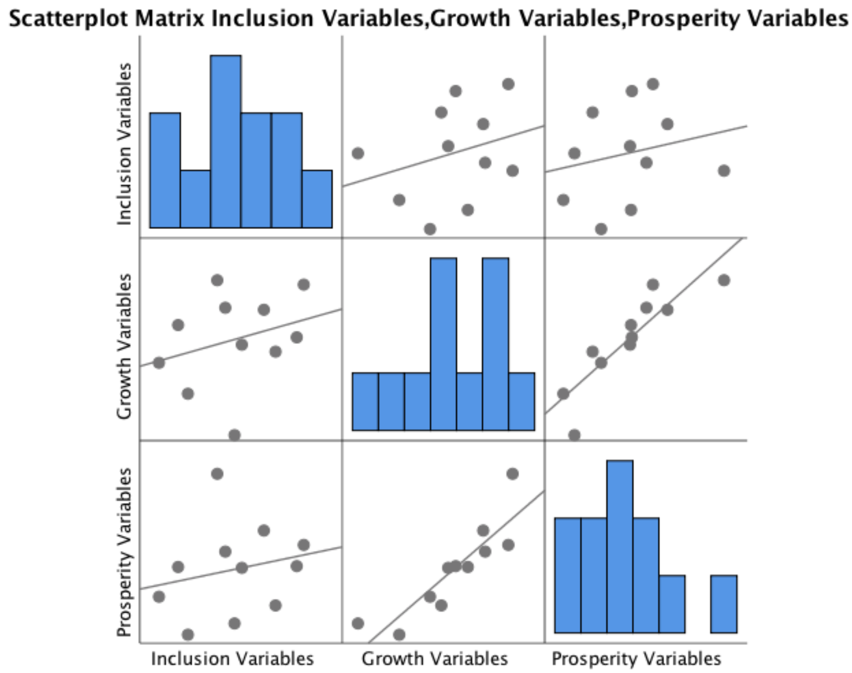
Prediction Model
Y (% change in Growth Variable) =.232 X (% change in Inclusion Variable) + .846

Prediction Model
Y (% change in Prosperity Variable) =.099 X (% change in Inclusion Variable) + .804

The data collected on the inclusion, growth and prosperity variables for the city of Lansing reflects unique results for the inclusion variable levels over the last 10 years. From the pre-great recession period (2006 – 2007) through the great recession period (2007 – 2010) and for the period after the recession, the inclusion variable demonstrated a steady decline. Whereas, the city's growth and prosperity variables experienced negative growth during the 2007 – 2009 periods, but reflected a significant rebound in growth during the 2009 – 2010 period and steady increase in the following periods.

Figure 26: Lansing Matrix/Data Sets

Lansing Scatterplot



Lansing		Coefficients			
	Unstandarized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
Constant	1.909	1.091		1.750	0.114
Inclusion Variables	0.33	0.361	0.291	0.914	0.384

Dependent Variable: Growth Variables

Lansing	Coefficients				
	Unstandarized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
Constant	-0.229	1.097		-0.209	0.839
Inclusion Variables	0.243	0.363	0.218	0.669	0.52

Dependent Variable: Prosperity Variables

Lansing		Correlations	
		Inclusion Variables	Growth Variables
Inclusion Variables	Pearson Correlation	1	0.291
	Sig. (2-Tailed)		0.384
	N	11	11
Growth Variables	Pearson Correlation	0.291	1
	Sig. (2-Tailed)	0.384	
	N	11	11

Lansing		Correlations	
		Prosperity Variables	Inclusion Variables
Inclusion Variables	Pearson Correlation	1	0.218
	Sig. (2-Tailed)		0.520
	N	11	11
Prosperity Variables	Pearson Correlation	0.218	1
	Sig. (2-Tailed)	0.520	
	N	11	11

Variable Prediction Models

Prediction Model
Y (% change in Growth Variable) = .330X (% change in Inclusion Variable) + 1.909

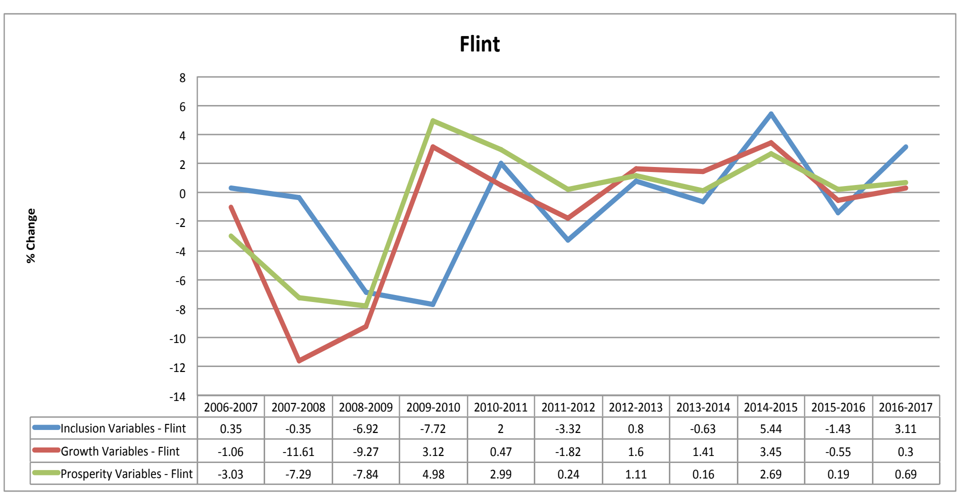
Prediction Model
Y (% change in Prosperity Variable) = .243 X (% change in Inclusion Variable) + -.229

The data collected on the inclusion, growth and prosperity variables for the city of Flint reflects major downturns in the level of growth over the last 10 years. From the pre-great recession period (2006 – 2007) through the great recession period (2007 – 2010), Flint experienced very high levels of negative growth in the sectors. However, following the great recession the city went through steady but modest increases with a visible increase in the 2014 – 2015 period.

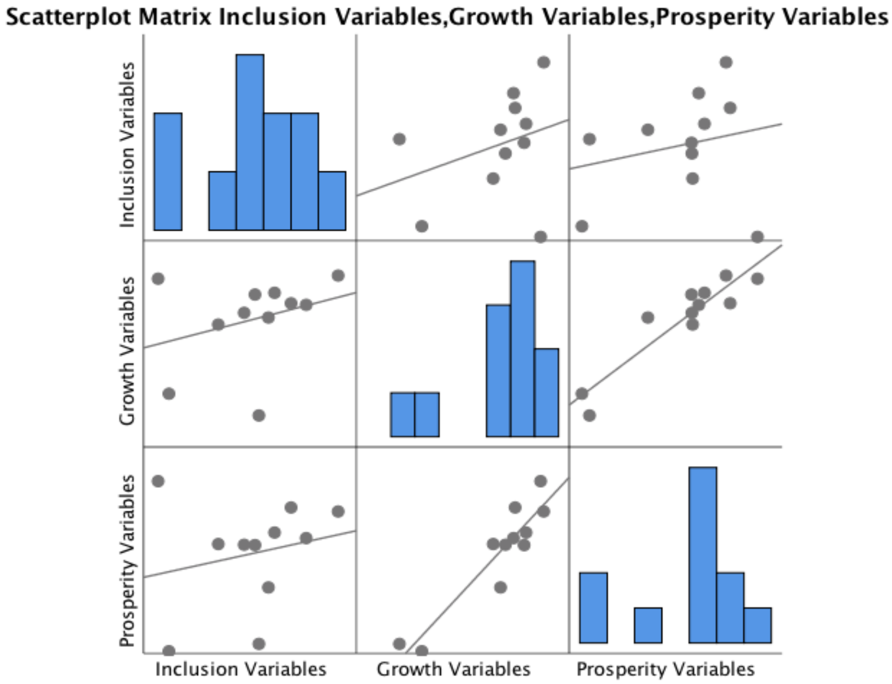
Figure 27: Flint Matrix/Data Sets

Brookings Institute Model - Flint

% Change	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
Inclusion Variables - Flint	0.35	-0.35	-6.92	-7.72	2	-3.32	0.8	-0.63	5.44	-1.43	3.11
Growth Variables - Flint	-1.06	-11.61	-9.27	3.12	0.47	-1.82	1.6	1.41	3.45	-0.55	0.3
Prosperity Variables - Flint	-3.03	-7.29	-7.84	4.98	2.99	0.24	1.11	0.16	2.69	0.19	0.69



Flint Scatterplot



Flint — Coefficients

Model	Unstandarized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
Constant	-0.967	1.491		-0.649	0.533
Inclusion Variables	0.383	0.385	0.315	0.995	0.346

Dependent Variable: Growth Variables

Flint	Coefficients				
	Unstandarized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
Constant	-0.287	1.283		-0.223	0.828
Inclusion Variables	0.226	0.331	0.222	0.682	0.512

Dependent Variable: Prosperity Variables

Flint		Correlations	
		Inclusion Variables	Growth Variables
Inclusion Variables	Pearson Correlation	1	0.315
	Sig. (2-Tailed)		0.346
	N	11	11
Growth Variables	Pearson Correlation	0.315	1
	Sig. (2-Tailed)	0.346	
	N	11	11

Flint		Correlations	
		Prosperity Variables	Inclusion Variables
Inclusion Variables	Pearson Correlation	1	0.222
	Sig. (2-Tailed)		0.512
	N	11	11
Prosperity Variables	Pearson Correlation	0.222	1
	Sig. (2-Tailed)	0.512	
	N	11	11

Variable Prediction Models

Prediction Model

Y (% change in Growth Variable) = .383 X (% change in Inclusion Variable) + -.967

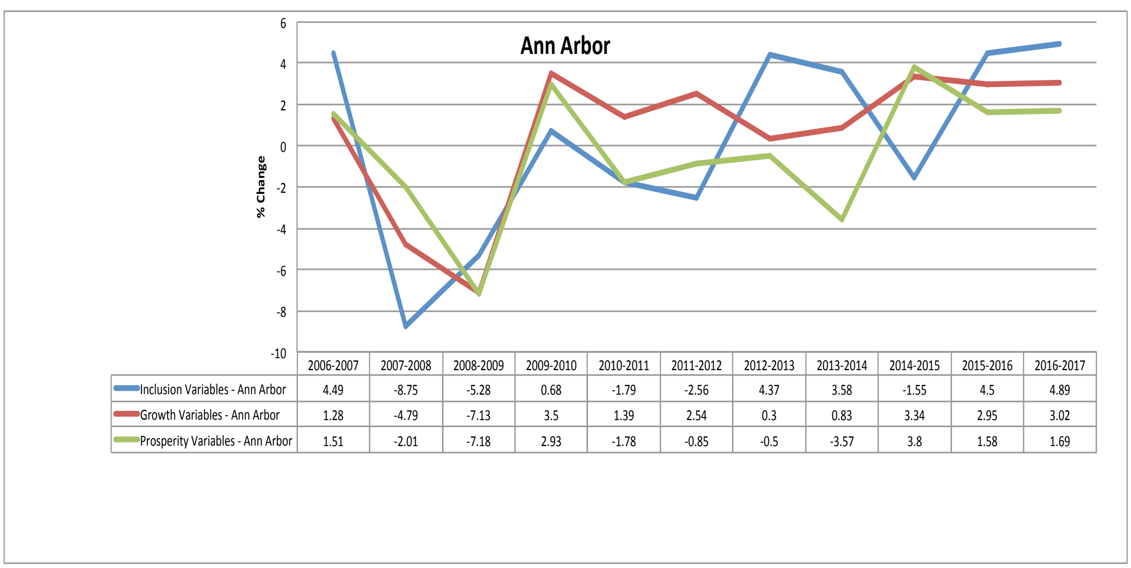
Prediction Model
Y (% change in Prosperity Variable) = .226 X (% change in Inclusion Variable) +-.287

The data collected on the inclusion, growth and prosperity variables for the city of Ann Arbor reflects a more common trend of growth and decline over the last 10 years for all the sectors. The pre-great recession period (2006 – 2007) demonstrates modest growth, which was reversed drastically during the great recession period (2007 – 2010)—representing sizeable declines. Ann Arbor’s growth variable has experienced a steady increase following the recession; however, the other sectors have demonstrated varying levels of growth and decline.

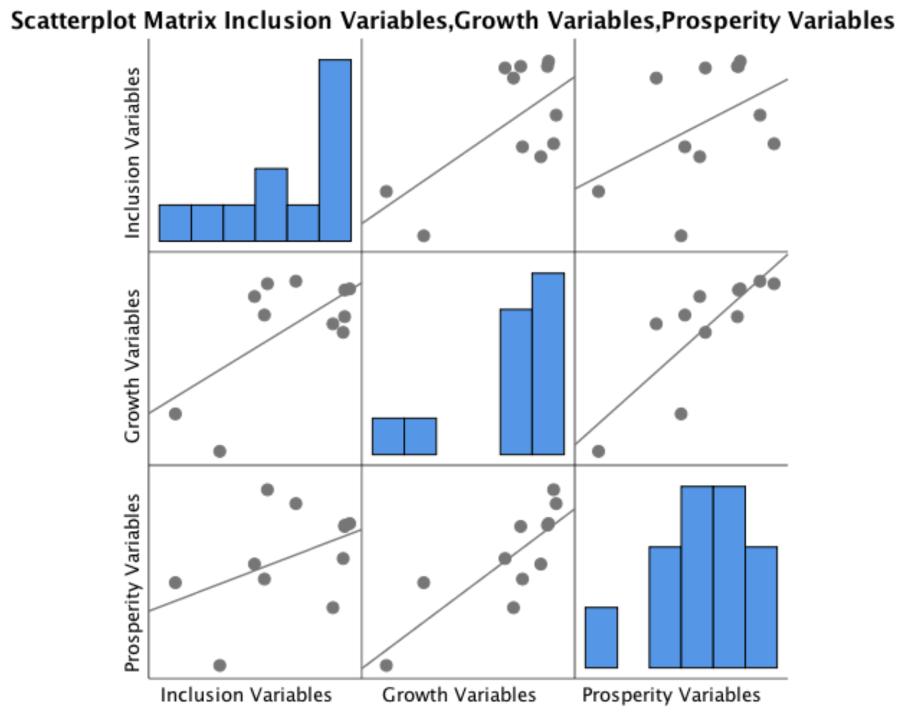
Figure 28: Ann Arbor Matrix/Data Sets

Brookings Institute Model - Ann Arbor

% Change	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
Inclusion Variables - Ann Arbor	4.49	-8.75	-5.28	0.68	-1.79	-2.56	4.37	3.58	-1.55	4.5	4.89
Growth Variables - Ann Arbor	1.28	-4.79	-7.13	3.5	1.39	2.54	0.3	0.83	3.34	2.95	3.02
Prosperity Variables - Ann Arbor	1.51	-2.01	-7.18	2.93	-1.78	-0.85	-0.5	-3.57	3.8	1.58	1.69



Ann Arbor Scatterplot



Ann Arbor	Coefficients				
	Unstandarized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
Constant	0.542	0.842		0.644	0.536
Inclusion Variables	0.49	0.191	0.649	2.56	0.031

Dependent Variable: Growth Variables

Ann Arbor	Coefficients				
	Unstandarized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
Constant	-0.47	0.908		-0.518	0.617
Inclusion Variables	0.306	0.206	0.444	1.486	0.171

Dependent Variable: Prosperity Variables

Ann Arbor		Correlations	
		Inclusion Variables	Growth Variables
Inclusion Variables	Pearson Correlation	1	0.649
	Sig. (2-Tailed)		0.031
	N	11	11
Growth Variables	Pearson Correlation	0.649	1
	Sig. (2-Tailed)	0.031	
	N	11	11

*Correlation is significant at the .05 level (2-Tailed)

Ann Arbor		Correlations	
		Prosperity Variables	Inclusion Variables
Inclusion Variables	Pearson Correlation	1	0.444
	Sig. (2-Tailed)		0.171
	N	11	11
Prosperity Variables	Pearson Correlation	0.444	1
	Sig. (2-Tailed)	0.171	
	N	11	11

Variable Prediction Models

Prediction Model

Y (% change in Growth Variable) =.49 X (% change in Inclusion Variable) + .542

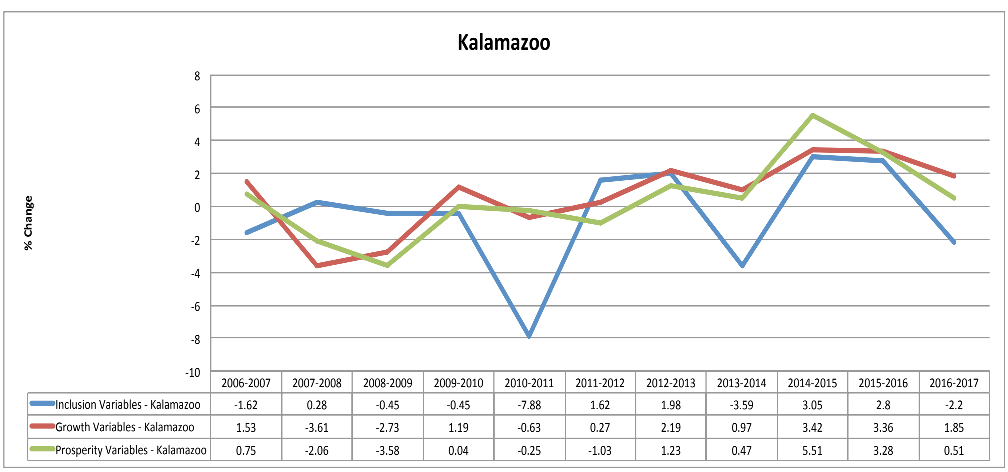
Prediction Model
Y (% change in Prosperity Variable) =.306 X (% change in Inclusion Variable) + -.47

The data collected on the inclusion, growth and prosperity variables for the city of Kalamazoo reflected a very fluid economic experience for the city over the last 10 years. The inclusion variable experienced six periods of decline over the last 10 years. During the pre-great recession period (2006 – 2007) through the great recession, the city of Kalamazoo experienced low levels of downturn in all the variable sectors. However, following the great recession period, all three variables have experienced steady growth with some periods of decline in the inclusion sector.

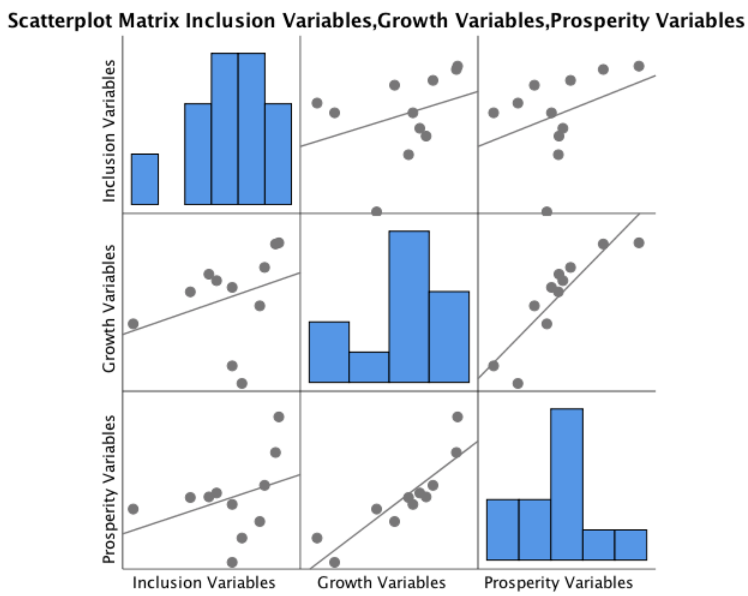
Figure 29: Kalamazoo Matrix/Data Sets

Brookings Institute Model - Kalamazoo

% Change	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
Inclusion Variables - Kalamazoo	-1.62	0.28	-0.45	-0.45	-7.88	1.62	1.98	-3.59	3.05	2.8	-2.2
Growth Variables - Kalamazoo	1.53	-3.61	-2.73	1.19	-0.63	0.27	2.19	0.97	3.42	3.36	1.85
Prosperity Variables - Kalamazoo	0.75	-2.06	-3.58	0.04	-0.25	-1.03	1.23	0.47	5.51	3.28	0.51



Kalamazoo Scatterplot



Kalamazoo — Coefficients

Model	Unstandarized Coefficients B	Unstandarized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
Constant	0.846	0.693		1.222	0.253
Inclusion Variables	0.232	0.222	0.328	1.041	0.325

Dependent Variable: Growth Variables

Kalamazoo — Coefficients

Model	Unstandarized Coefficients B	Unstandarized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
Constant	0.606	0.736		0.823	0.432
Inclusion Variables	0.278	0.237	0.365	1.175	0.27

Dependent Variable: Prosperity Variables

Kalamazoo		Correlations	
		Inclusion Variables	Growth Variables
Inclusion Variables	Pearson Correlation	1	0.328
	Sig. (2-Tailed)		0.325
	N	11	11
Growth Variables	Pearson Correlation	0.328	1
	Sig. (2-Tailed)	0.325	
	N	11	11

*Correlation is significant at the .01 level (2-Tailed)

Kalamazoo		Correlations	
		Prosperity Variables	Inclusion Variables
Inclusion Variables	Pearson Correlation	1	0.365
	Sig. (2-Tailed)		0.270
	N	11	11
Prosperity Variables	Pearson Correlation	0.365	1
	Sig. (2-Tailed)	0.270	
	N	11	11

Variable Prediction Models

Prediction Model
Y (% change in Growth Variable) =.232 X (% change in Inclusion Variable) + .846

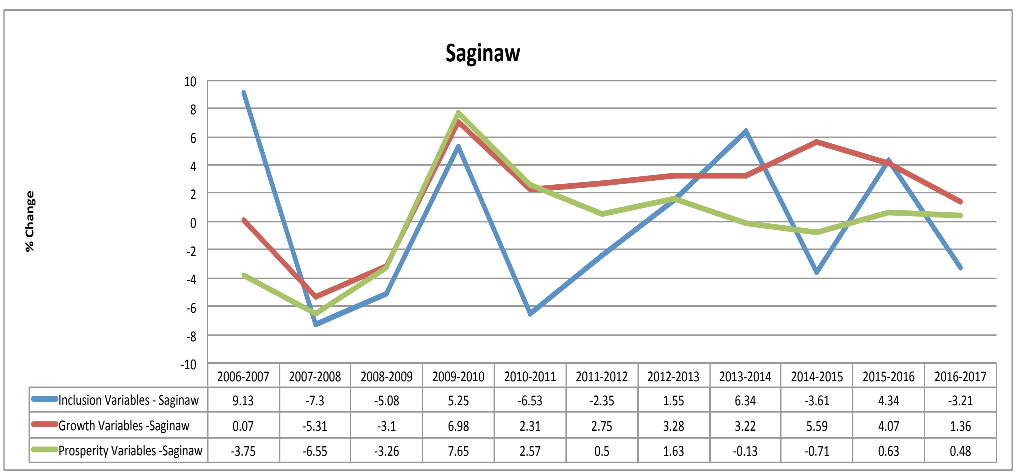
Prediction Model
Y (% change in Prosperity Variable) =.278 X (% change in Inclusion Variable) + .606

The data collected on the inclusion, growth and prosperity variables for the city of Saginaw reflects a common economic experience for the city over the last 10 years. The inclusion variable experienced more periods of decline over the last 10 years than the other sectors. During the pre-great recession period (2006 – 2007) through the great recession, the city of Saginaw experienced low levels of downturn in all the variable sectors. However, following the great recession period, the growth and prosperity variables experienced steady growth.

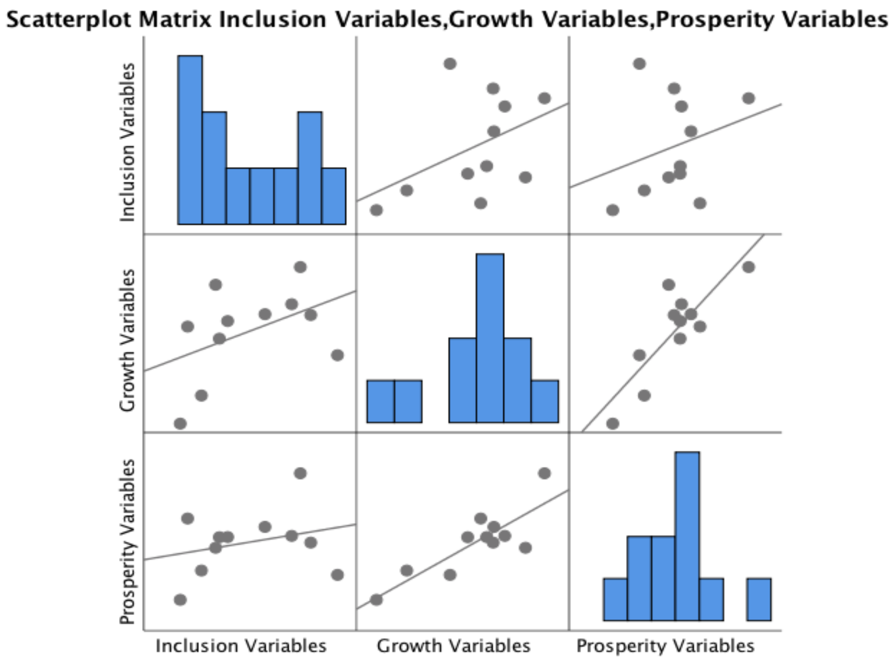
Figure 30: Saginaw Matrix/Data Sets

Brookings Institute Model - Saginaw

% Change	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
Inclusion Variables - Saginaw	9.13	-7.3	-5.08	5.25	-6.53	-2.35	1.55	6.34	-3.61	4.34	-3.21
Growth Variables -Saginaw	0.07	-5.31	-3.1	6.98	2.31	2.75	3.28	3.22	5.59	4.07	1.36
Prosperity Variables -Saginaw	-3.75	-6.55	-3.26	7.65	2.57	0.5	1.63	-0.13	-0.71	0.63	0.48



Saginaw Scatterplot



Saginaw	Coefficients				
	Unstandarized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
Constant	1.967	1.021		1.926	0.086
Inclusion Variables	0.284	0.189	0.449	1.507	0.166

Dependent Variable: Growth Variables

Saginaw	Coefficients				
	Unstandarized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
Constant	-0.062	1.13		-0.054	0.958
Inclusion Variables	0.179	0.209	0.275	0.857	0.414

Dependent Variable: Prosperity Variables

Saginaw		Correlations	
		Inclusion Variables	Growth Variables
Inclusion Variables	Pearson Correlation	1	0.449
	Sig. (2-Tailed)		0.166
	N	11	11
Growth Variables	Pearson Correlation	0.449	1
	Sig. (2-Tailed)	0.166	
	N	11	11

*Correlation is significant at the .01 level (2-Tailed)

Saginaw		Correlations	
		Prosperity Variables	Inclusion Variables
Inclusion Variables	Pearson Correlation	1	0.275
	Sig. (2-Tailed)		0.414
	N	11	11
Prosperity Variables	Pearson Correlation	0.275	1
	Sig. (2-Tailed)	0.414	
	N	11	11

Variable Prediction Models

Prediction Model

Y (% change in Growth Variable) =.284 X (% change in Inclusion Variable) + 1.967

Prediction Model

Y (% change in Prosperity Variable) =.179 X (% change in Inclusion Variable) + -.062

As evident by the data set statistical analysis including, but not limited to, correlations and linear regression models are conducted as an extension of this research effort to further support the conclusions of the study. The results of Phase 1 of the research model reflect correlations, which moves the study to Phase 2 and 3 of the research effort as a means to quantify the impact of increasing the economic inclusion variable. I selected to use the median household income as the inclusion variable in Phase 2 and Phase 3 of the research model (Economic Simulation) focuses on three impact areas, with a specific emphasis on increasing tax base resources for general use by government authorities; Growth Impact, Federal Tax Base Impact and State and Local Tax Base Impact

Figure 31: Growth Impact

Growth Impact

% Change = ((MHI – MMHI) x nMH)/ MHI x TH

GMP Impact = % Change of MHI x Total GMP

Key Terms

*MHI – Median Household Income for MSA
*nMH – Number of Minority Households
*MMHI – Minority Median Household Income
*TH – MSA Total Households
*FTBI – Federal Tax Base Increase
*SLTBI – State and Local Tax Base Increase

Figure 32: Tax Base Impact (Federal, State, and Local)

Federal Tax Base Impact (Increase)

TBI[1] = GMP Impact[2] * 17%

(Source: Federal Reserve Bank Model)

1 Tax Base Impact (Increase Revenue)

2 Gross Metropolitan Product Impact (Local GDP)

State and Local Tax Base Impact (Increase)

SLTBI[1] = GMP Impact[2] * 9.9%

(Source: The Tax Foundation Model)

1 State and Local Tax Base Impact (Increase)

2 Gross Metropolitan Product Impact

CHAPTER 5

CONCLUSION/ RESEARCH CONTRIBUTION

(Economic Simulation)

The results of Phase 3 of the economic simulation is centered on the impact to the tax base of metropolitan localities on the federal, state and local levels. Although, other studies, including the Brookings Institute and Kellogg Foundation models engage inclusion and economic inequality in a very broad scope, my approach has been narrowed to my area of interest--accounting/taxation (federal, state and local taxation).

Each locality is assessed for the impact to their gross metropolitian product, federal, state and local taxation receipts. I also developed a more modest impact analysis of the results by incorporating a range of enhanced economic inclusion (25% - 75% of median household income enhanced economic inclusion); hence, establishing a more realistic range of impacts to GMP and tax reciepts for the region. Below are the results using the following increments of enhanced economic inclusion:

Table 5: Enhancing Economic Inclusion (Increasing Minority Median Household to 25% of Minority Median Household Income)

MSAs	Increase in GMP $MM	Increase in Federal Tax Reciept $MM	Increase in State/Local Reciepts($MM)
Detriot	$775.5	$131.8	$76.7
Grand Rapids	$2,178.7	$370.4	$215.7
Lansing	$411.3	$69.9	$40.7
Flint	$271.7	$46.2	$26.9
Kalamazoo	$227.6	$38.7	$22.5
Saginaw	$303.8	$51.6	$30.1
Albuqerque	$512.1	$87.1	$50.7
Las Cruces	$108.9	$18.5	$10.8
Santa Fe	$47.1	$8.0	$4.6
Farmington	$47.3	$8.1	$4.7

Table 6: Enhancing Economic Inclusion (Increasing Minority Median Household to 50% of Minority Median Household Income)

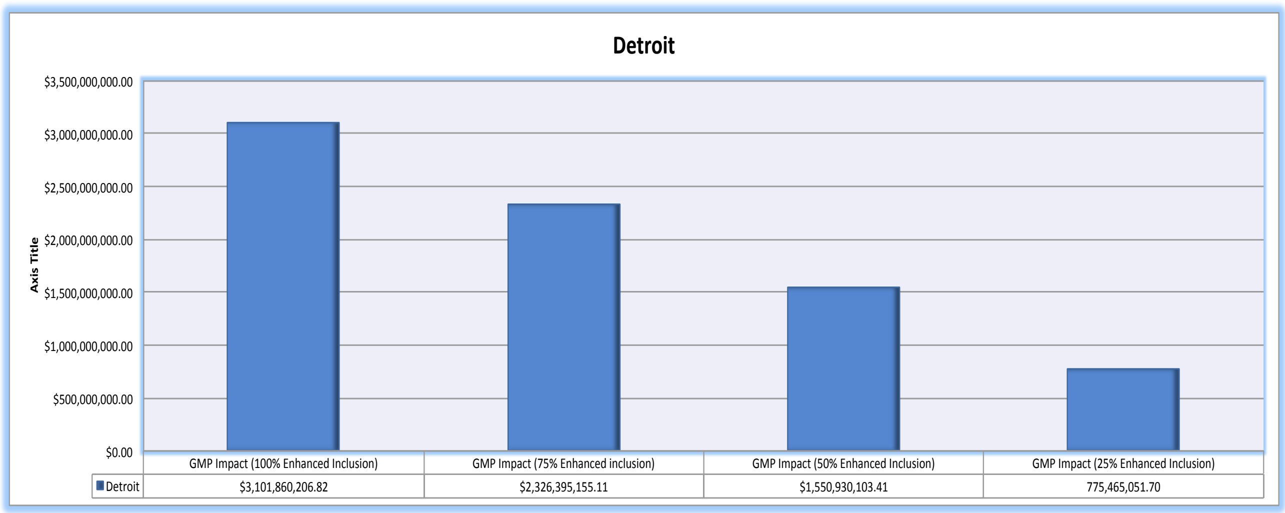
MSAs	Increase in GMP $MM	Increase in Federal Tax Reciept $MM	Increase in State/Local Reciepts($MM)
Detriot	$1,550.9	$263.6	$153.5
Grand Rapids	$4,357.3	$740.7	$431.3
Lansing	$822.7	$139.8	$81.4
Flint	$543.3	$92.4	$53.8
Kalamazoo	$455.2	$77.4	$45.1
Saginaw	$607.7	$103.3	$60.2
Albuqerque	$1,024.1	$174.1	$101.4
Las Cruces	$217.7	$37.0	$21.6
Santa Fe	$94.3	$16.0	$9.3
Farmington	$94.6	$16.1	$9.4

Table 7: Enhancing Economic Inclusion (Increasing Minority Median Household to 75% of Minority Median Household Income)

MSAs	Increase in GMP $MM	Increase in Federal Tax Reciept $MM	Increase in State/Local Reciepts($MM)
Detriot	$2,326.4	$395.5	$230.3
Grand Rapids	$6,535.9	$1,111.1	$647.1
Lansing	$1,234.0	$209.8	$122.2
Flint	$814.9	$138.5	$80.6
Kalamazoo	$682.7	$116.1	$67.6
Saginaw	$911.5	$154.9	$90.2
Albuqerque	$1,536.2	$261.2	$152.1
Las Cruces	$326.6	$55.5	$32.3
Santa Fe	$141.4	$24.0	$13.9
Farmington	$141.9	$24.1	$14.1

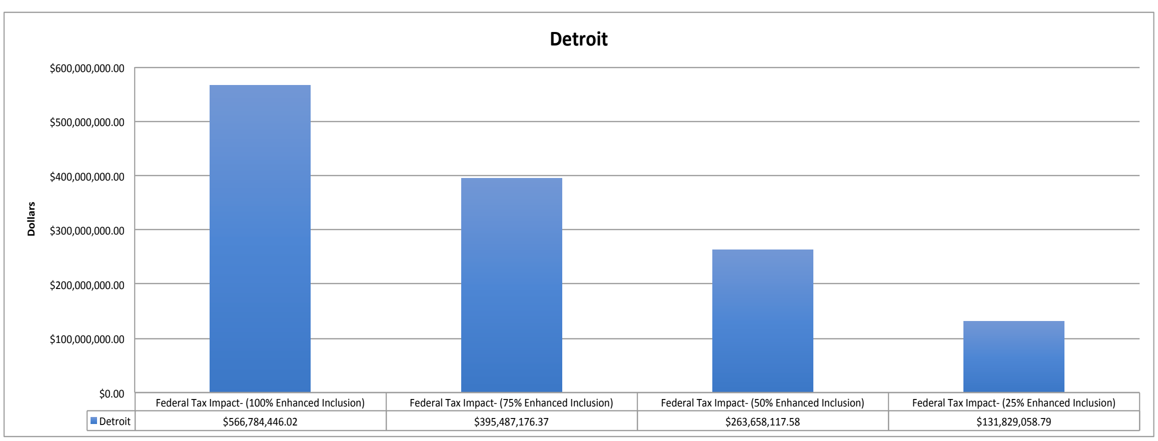
The results for the City of Detroit, which has a very high level of minority citizenrty, reflects a significant potential GMP impact of 1.16% to .29% on a current $267 billion gross metropolitan product.

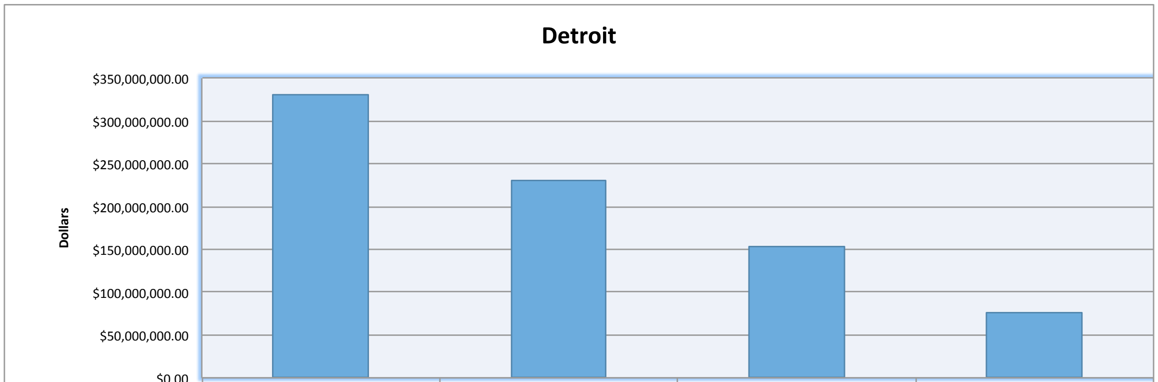
Figure 33: Detroit GMP Impact Data



The potential GMP growth for Detroit will result in tax receipts in the area of $560 million in federal taxes and $307 million in state taxes.

Figure 34: Detroit Tax Impact Data

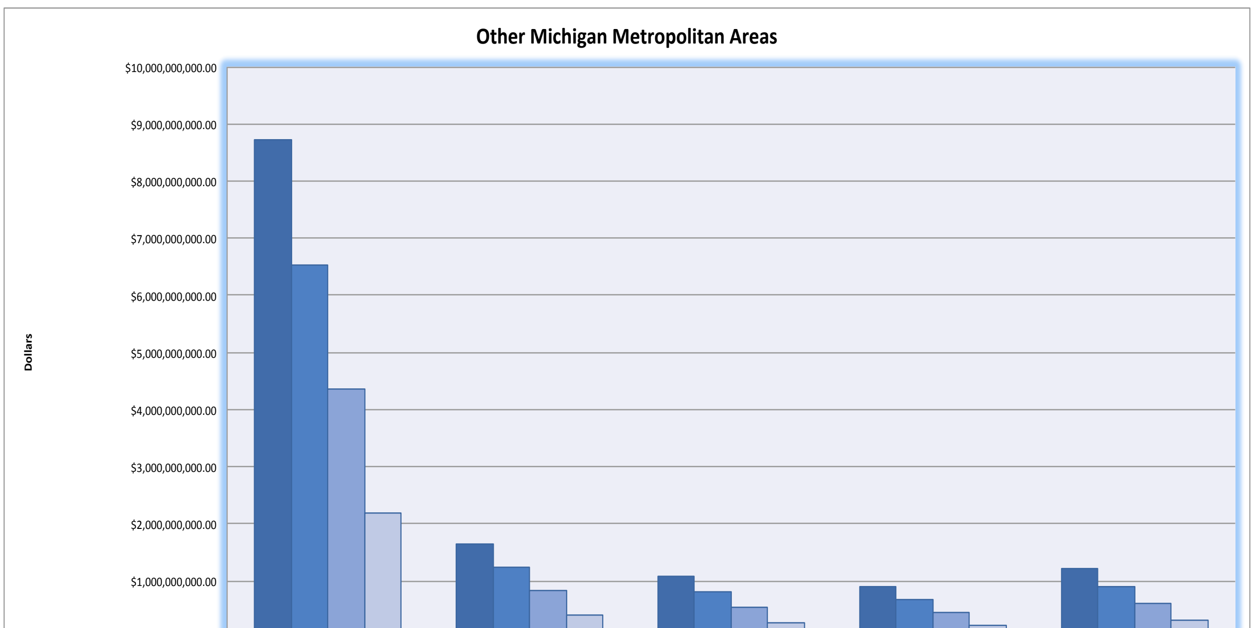




	State and Local Tax Impact- (100% Enhanced Inclusion)	State and Local Tax Impact- (75% Enhanced Inclusion)	State and Local Tax Impact- (50% Enhanced Inclusion)	State and Locall Tax Impact- (25% Enhanced Inclusion)
Detroit	$330,068,589.16	$230,313,120.36	$153,542,080.24	$76,771,040.12

The other major Michigan state cities have a considerably lower level but still potential significant impact on the localities GMP. The impact ranges from the hight end 6.09% increase to GMP in the city of Flint to a modest .3% impact on the low end in the city of Grand Rapids. Michigan has a potential significant impact of $6.6 billion to $3.4 billion to the GMP for the entire state.

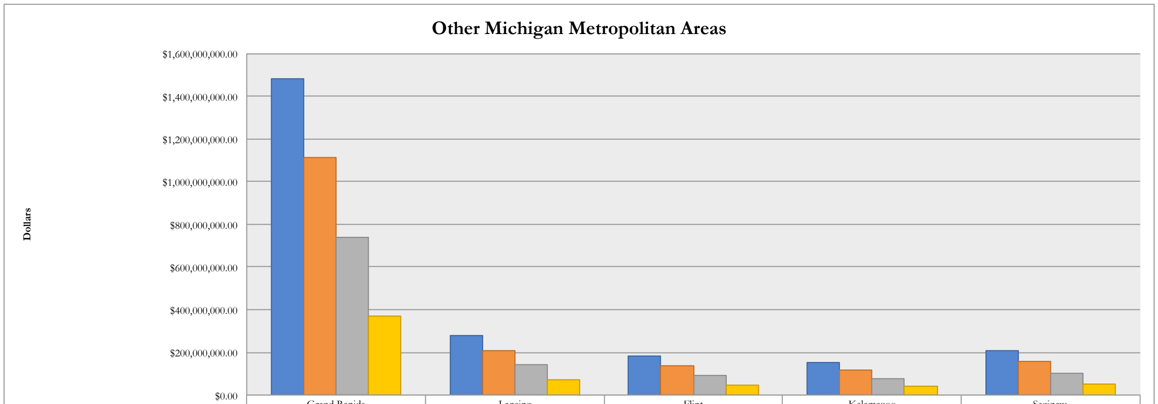
Figure 35: Other Michigan Cities GMP Impact Data



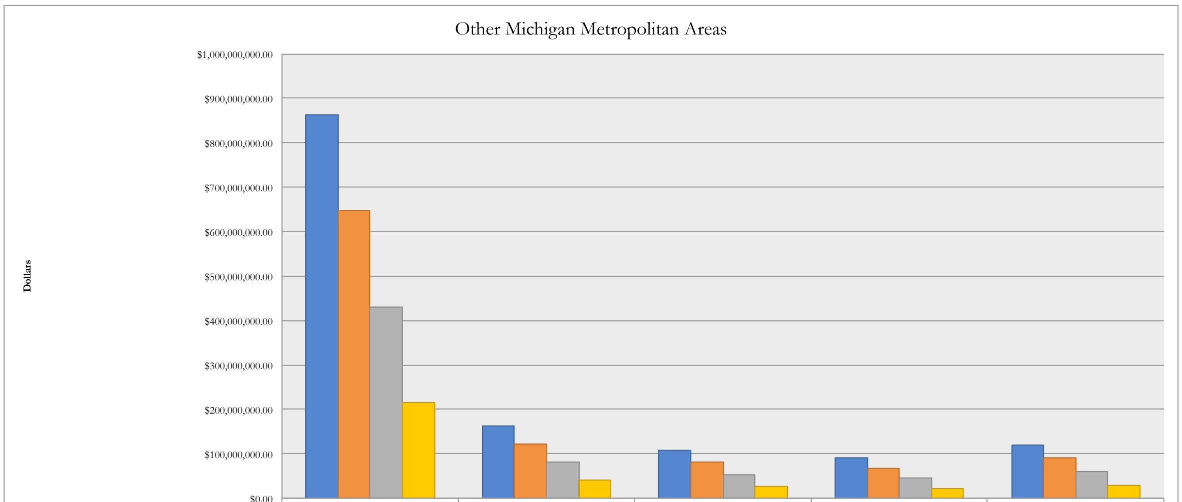
	Grand Rapids	Lansing	Flint	Kalamazoo	Saginaw
GMP Impact (100% Enhanced Inclusion)	$8,714,608,523.81	$1,645,370,562.44	$1,086,663,639.61	$910,397,355.24	$1,215,375,138.19
GMP Impact (75% Enhanced inclusion)	$6,535,956,392.85	$1,234,027,921.83	$814,997,729.71	$682,798,016.43	$911,531,353.64
GMP Impact (50% Enhanced Inclusion)	$4,357,304,261.90	$822,685,281.22	$543,331,819.81	$455,198,677.62	$607,687,569.09
GMP Impact (25% Enhanced Inclusion)	2,178,652,130.95	411,342,640.61	271,665,909.90	227,599,338.81	303,843,784.55

The tax receipts for the other Michigan cities will vary from $1.4 billion for the city of Grand Rapids to an estimated $51 million for the city of Saginaw in federal tax receipts. While on the state and local side the range in tax receipts is $862 to $22 million based on the estimated incremental inclusion enhancements.

Figure 36: Other Michigan Cities Tax Impact Data



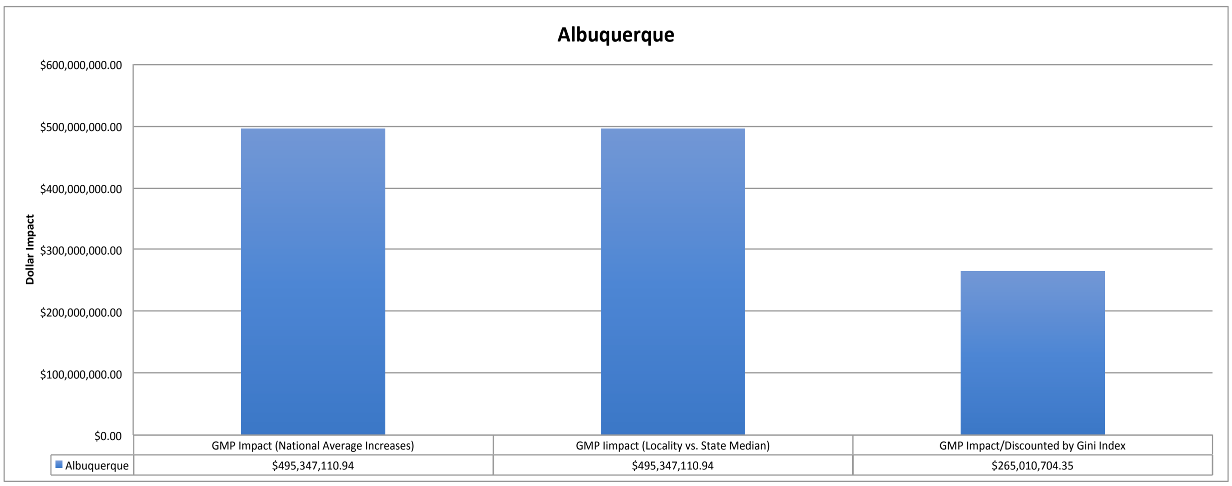
	Grand Rapids	Lansing	Flint	Kalamazoo	Saginaw
Federal Tax Impact- (100% Enhanced Inclusion)	$1,481,483,449.05	$279,712,995.61	$184,732,818.73	$154,767,550.39	$206,613,773.49
Federal Tax Impact- (75% Enhanced Inclusion)	$1,111,112,586.79	$209,784,746.71	$138,549,614.05	$116,075,662.79	$154,960,330.12
Federal Tax Impact- (50% Enhanced Inclusion)	$740,741,724.52	$139,856,497.81	$92,366,409.37	$77,383,775.20	$103,306,886.75
Federal Tax Impact- (25% Enhanced Inclusion)	$370,370,862.26	$69,928,248.90	$46,183,204.68	$38,691,887.60	$51,653,443.37



	Grand Rapids	Lansing	Flint	Kalamazoo	Saginaw
State and Local Tax Impact- (100% Enhanced Inclusion)	$862,746,243.86	$162,891,685.68	$107,579,700.32	$90,129,338.17	$120,322,138.68
State and Local Tax Impact- (75% Enhanced Inclusion)	$647,059,682.89	$122,168,764.26	$80,684,775.24	$67,597,003.63	$90,241,604.01
State and Local Tax Impact- (50% Enhanced Inclusion)	$431,373,121.93	$81,445,842.84	$53,789,850.16	$45,064,669.08	$60,161,069.34
State and Locall Tax Impact- (25% Enhanced Inclusion)	$215,686,560.96	$40,722,921.42	$26,894,925.08	$22,532,334.54	$30,080,534.67

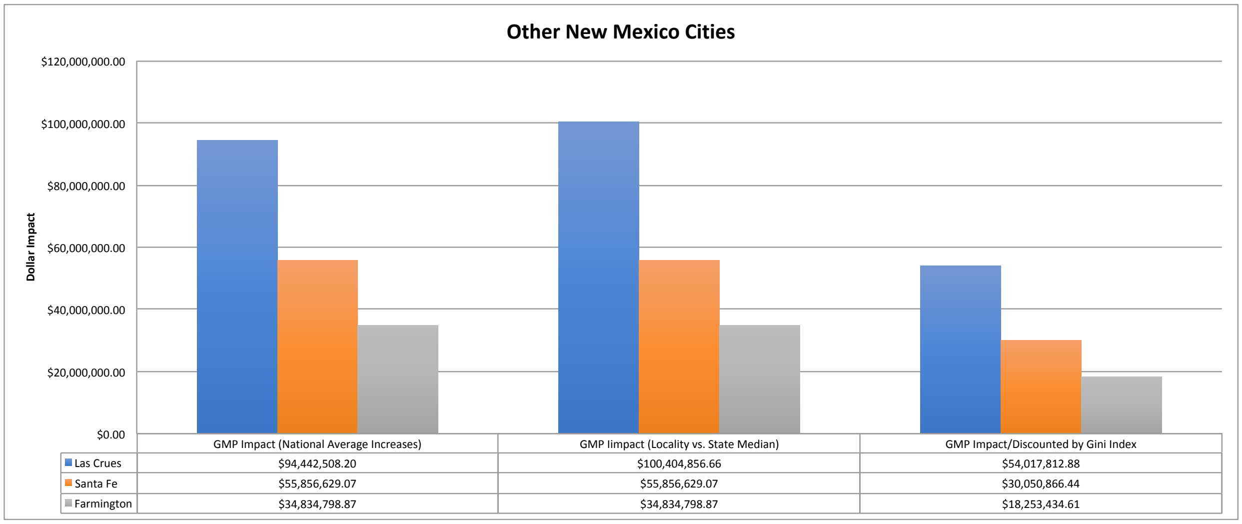
The environment in the state of New Mexico is similar in many respects to the state of Michigan. The state has a current GMP of $100 billion in comparision to over $500 billion for Michigan the potential GMP impact on the state of New Mexico is 1.78% to .93% compared to Michigan's 1.26% to .66%. Albuquerque, the largest city in New Mexico has the potential 1.15% to .62% GMP increase.

Figure 37: Albuquerque GMP Impact Data



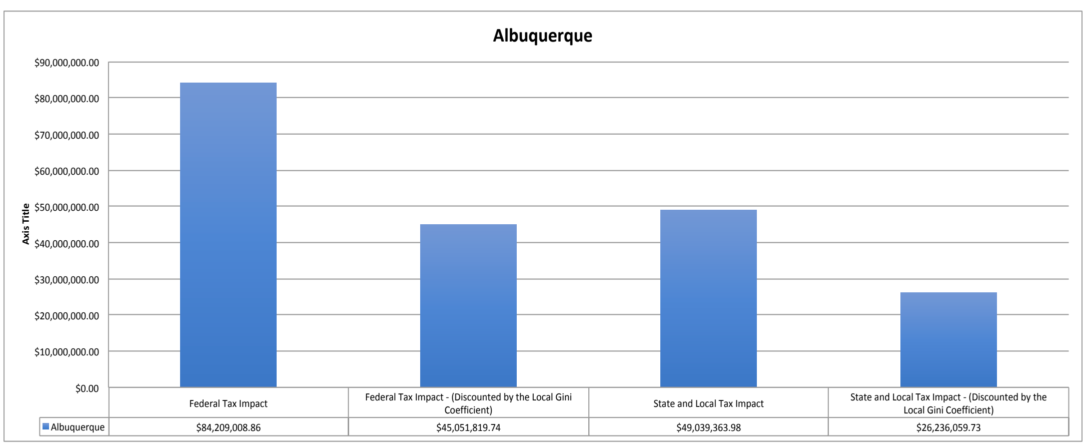
The other New Mexico cities have a GMP impact range of 1.34% to .31% with Las Crues having the highest potential impact and Farmington having the lowest potential impact.

Figure 38: Other New Mexico GMP Impact Data



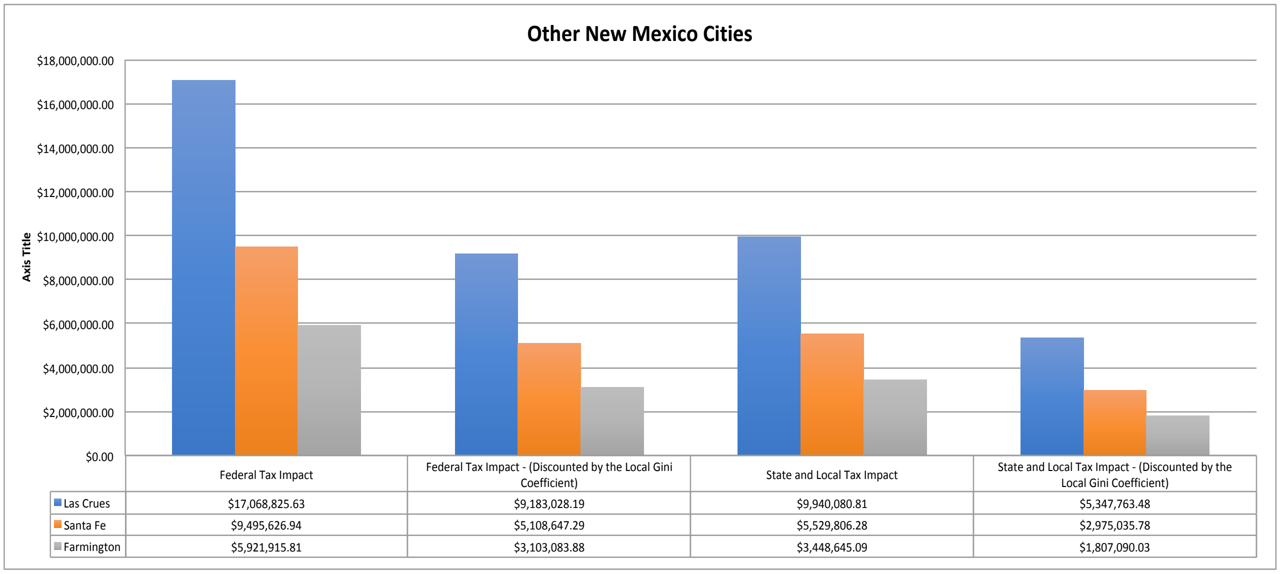
The potential GMP increases to the New Mexico economy will produce estimated tax receipts of in the range $84 million in federal taxes from the city of Albuquerque to additional $1.8 million on the low end from the city of Farmington in State tax receipts.

Figure 39: Albuquerque Tax Impact Data



Las Crues will have the highest potential increase in tax receipts outside of Albuquerque at $17 million in federal tax receipts and $9.9 million state tax receipts on the high end of the range.

Figure 40: Other New Mexico Tax Impact Data



The linking of two noted research conceptual models (correlation and simulation) presents a unique approach to addressing and framing the metropolitan economic growth dilemma. The linking itself may be a significant contribution to the validity of the research model and reflect an enhanced effort to address this growing phenomenon. This research could bring more clarity and understanding regarding the factors that foster the lack of metropolitan economic growth and provide needed guidance to private/public partnerships that wish to address this growing issue of income disparity (i.e. the creation of more effective and targeted public sector investment incentive). In order to adequately confront the mobility and inequity issues of the metropolitan sector, we must engage the challenge of framing the "zero-sum gain" theory. This research is one step in this direction by which we can measure and assess the acceptance of various heuristics to reframe the challenge of inequality from the redistribution of wealth to increasing the size of the economic pie.

As the economy of the United States continues to grow and prosper (pre COVID-19), there is an ever-increasing expansion of inequality in wealth related variables. In an attempt to create a unique dialogue around this issue, I have developed a metropolitan based economic inclusion simulator. The economic inclusion simulator does three significant things; (1) identifies various correlations between growth, prosperity and inclusion variables, thus demonstrating significant linkages among these independent variables, (2) quantifies the economic gains associated with a more inclusive metropolitan business model, (3) provides an actionable analytic framework when coupled with the appropriate heuristics and community engagement model (Business Roundtable Model) can galvanize the support of business leaders and the broader community to address challenge of metropolitan economic growth. A growth model that is hampered at times by the belief that inclusive growth is a redistribution of wealth and/or is predicated on the ciphering off of resources from one group to another. This model is an analytical review of the impact on tax revenue under various hypothetical scenarios, which are supported by correlations, which assert that there is a direct linkage between inclusion, growth and prosperity variables. This correlation is the beginning of a paradigm that supports the thesis that the economy could grow at a faster more sustainable pace if more aggressive and metropolitan areas pursue intentional inclusion initiatives. was targeted and reduced. The overly broad application of this model is challenged in this research effort due to weaknesses in the significance of correlations and value of beta coefficients. Although, the study is not overwhelmingly supportive of the various conceptual models, it does seem to reflect the various factors that impact the economic environments of America. The results of this study imply that a rigorous data analysis is needed for each MSA in lieu of overarching assumption of applicability (specifically in the future application of the conceptual models to other metropolitan areas). Along with a detail data analysis, a marketing, education and strategic implementation plan is needed to frame the issues and address biases related to the concerns over the distribution of wealth and incentive based economic programs such as opportunity zones, tax deferments and the like.

CHAPTER 6

INCOME DISTRIBUTION ANALYSIS

(Select MSAs/Cities in Michigan and New Mexico)

Very often notable scholars state that the central issue around economic inclusion is centered on poverty. The use of decreasing the poverty rate, as a gauge of success or failure in the wider goal to increase economic inclusion of the mass to stimulate growth seems reasonable and simplicity—enhance the "*poverty thesis*". While all the nuances of the thesis are longitudinally tested and assessed, many scholars consider the use of this fairly simplistic measure of success and failure as vital. The importance of the simplistic measure is evident in the user's ease to explain to others and gain important support and "buy-in" of public and private stakeholders to the notion of economic inclusion. It is reasonable to assume that some studies will use the lack of assumed "family mobility" as a challenge to the "poverty thesis"; hence, proclaiming the thesis as being inadequate and too low of a bar and/or measure of success when looking at economic inclusion. For example, if policy makers set a target poverty rate of 8%, once achieved the assumption may be that the desired level of economic inclusion has been reached prematurely without assessing other important wealth creation (small business and home ownership) and family mobility (education) factors. Although counter arguments exist, many policy makers see the "poverty thesis" as the first step in a multi-layered holistic model to create a sustainable movement towards higher education results, increased niche business sector ownership and enhanced wealth creation and homeownership.

Methodology for Income Distribution Analysis

The following methodology was used for following income based/distribution analysis:

- Poverty Rate Analysis for select MSA/Cities
  - The research study uses census data inquiries to obtain the poverty rate data for select MSA/Cities. The analysis tracks the increase and decline of poverty rates over the last 10 years (2010 – 2019) for select MSAs/Cities.

- Income Frequency Distribution for select MSA/Cities
  - The research study uses census data inquiries to obtain the income frequency distribution by bins for the past year 2019 for select MSA/Cities. The analysis only includes data for 2019 for select MSAs/Cities.

- Gig Economy Analysis for select MSA/Cities
  - The research study uses census data inquiries to obtain the income data for individuals reporting self-employment in select MSA/Cities. The self-employment data was adjusted to represent estimated "gig economy" participants. The study reflects a range of 30% to 50% of self-employment individuals as participants in the "gig economy". The analysis includes census data from the last 10 years for select MSAs/Cities.

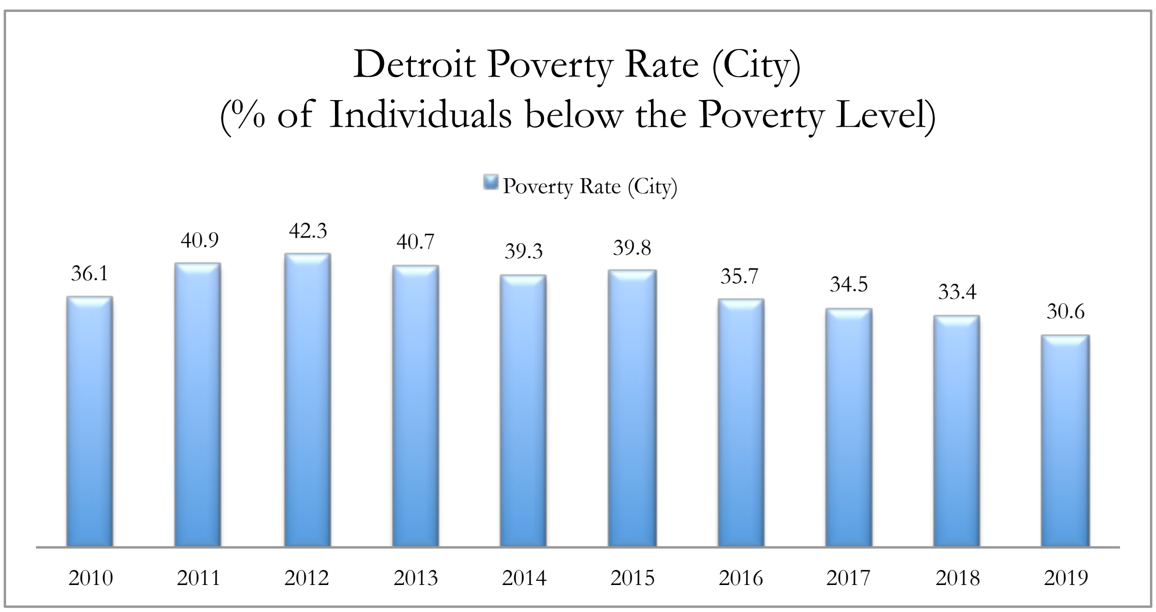
- Mean-to-Median Ratio Analysis for select MSA/Cities
  - The research study uses census data inquiries to obtain mean household income data for select MSA/Cities. Median household information was previously acquired and was used to develop a mean-to-median ratio for select MSA/Cities over the last 10 years. This data was used to develop trend analysis for select MSA/Cities over the last 10 years.

Poverty Analysis

Poverty and the more controversial topic of income distribution in the United States features heavily in congressional, corporate and not-for-profit boardroom discussions regarding the growth of the middle class, program funding and effectiveness, and government taxation policy (Alcock, 1997). Accordingly, any research on this topic must seek to secure and digest information on the relative experience of family income, households, the range of incomes, and their dispersion (Alcock, 1997). This research effort will only touch the surface of the body of content needed to fully analyze this data rich topic area.

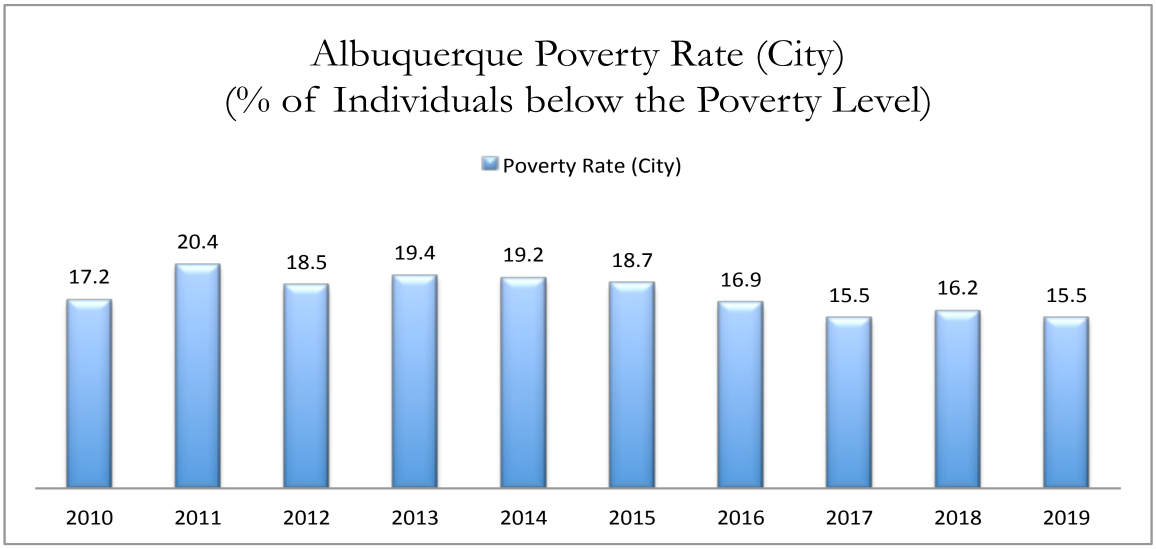
The poverty rates across the various MSA/Cities of interest to this study have demonstrated a measurable decline over the last ten years. Even Detroit, which historical has had one the highest poverty rates in America, demonstrated a 15.24% decline over the last 10 years (see Figure 41).

Figure 41: Detroit Poverty Rate (US Census Data)



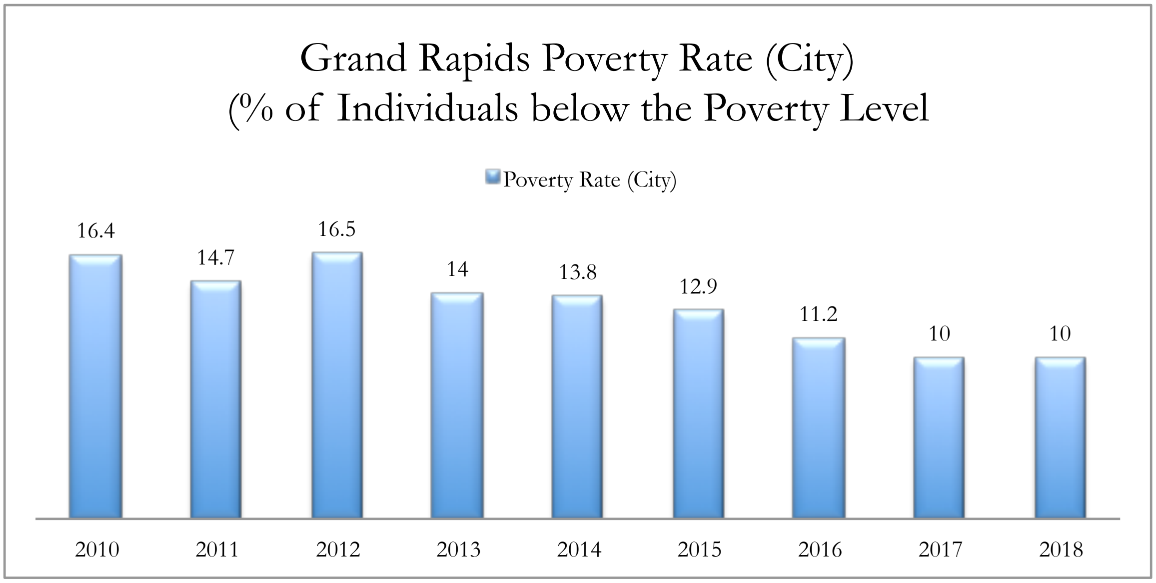
Albuquerque, one of the largest metropolitan statistical areas within the state of New Mexico, also demonstrated a significant reduction of approximately 9.9% in the level of poverty over the last 10 years (see Figure 42). Although Albuquerque had major increasing during 2011 -2014 timeframe (highest level during timeframe – over 20%), a steady decline began over the last 5 years resulting in a low of 15.5% in 2019.

Figure 42: Albuquerque Poverty Rate (US Census Data)



Of the MSA/Cities under review in this research effort, Grand Rapids had the largest decline in poverty with no MSA/City reflecting an increase from 2010 to 2018/19 (see Figure 43). Grand Rapids is recording an approximately 39% decline in the poverty rate which has brought the area to almost single digits in this economic evaluation matrix. As discussed earlier, in lieu of a more detailed analysis, the "poverty thesis" if applied under these circumstances would lead to the assumption that an increase in economic inclusion is underway in the MSA/Cities of interest in this research effort. This paper will attempt take a "deeper-dive" into the issue of income distribution and economic inclusion

Figure 43: Grand Rapids Poverty Rate (US Census Data)



Explaining the income distribution of various metropolitan sectors involves several important choices about the definition of income and the level at which income data are examined. Various studies define income from a narrow construction (e.g., earnings only) and others more broadly (e.g., as the sum of earnings, capital gains, government transfers, and other sources); however, this study will use the latter of the two to add a level of simplicity to the analysis. The goal is to avoid disagreements over the interpretation of income levels and endless discussions centered on how income is defined—hence, simplicity focused on "earnings only" is the direction of the study.

This additional analysis is a guide to various measures, indicators, and graphics commonly used to describe and explain income distributions, including but not limited to, a "mean-to-median" ratio analysis, income distribution over various ranges, and the potential impact of the "gig economy" on reported household income. This analysis provides descriptive analysis of various income distributions to illustrate various concepts and data presentation strategies and technics. This analysis reveals broad trends, but does not provide an exhaustive study of the distribution of income in these sectors. Most importantly, this analysis does not attempt to explore potential drivers and impacts of changes to the span of the distributions under review; however, a review of the expanding contingent work sector ("gig economy") is necessary under these circumstances.

Contingent Work Sector – "The Gig Economy"

Ascertaining an accurate gauge of the changing "gig economy" is difficult, but critical to any discussion on income (Duszynski, 2020). The size and volatility of the "gig economy" forces flexibility and uncertainty into most family and per capita based income analysis. The "gig economy" reveals a lot about the economic and environmental forces affecting the wealth and income of workers (Torpey, 2016). In particular, understanding the different motivation factors impacting the workers decision to volunteer to have more than one job and who is forced to work multiple jobs with no benefits out of necessity will help policy makers better understand the labor markets of the sectors (Kaine, 2019). The "gig economy" which seldom conforms to traditional recording norms (e.g. tax reporting, etc.), is hard to measure, but this analysis deplores a traditional methodology of using census reported self-employment data, along with an assumption that between 50% to 30% of the those recorded as self-employed are members of the "gig economy" (Duszynski, 2020).

On a broad level, a 2017 Bureau of Labor Statistics ("BLS") survey showed that 10.1 percent of American workers have alternative work arrangements along with full-time employment (Crouch 2018). The Federal Reserve's May 2018 report held that 31 percent of adults are engaged in independent work. Other studies show that 36 percent of the American working age population engages in independent work (Crouch, 2018). However, a widely cited study by Lawrence Katz and Alan Krueger, found that, between 2005 and 2015, independent workers rose from 10.7 percent to 15.8 percent (Katz, 2018).

Defining contingent independent workers for the "gig economy" is a research challenge. While the BLS is a well-known authority on workforce matters, it may only reflect a portion of the true "gig economy" (Duszynski, 2020). The BLS survey only counts workers, whose contingent job is their primary source of revenue, potentially overlooking those who supplement their income with jobs in the "gig economy" or those who occasionally engage in short-term tasks or jobs (Duszynski, 2020).

Alternative contingent work arrangements may provide desired flexibility and independence for many workers, which have been made increasingly feasible through technology-based platforms (Lowrey, 2019). The counter-argument is that alternative contingent work arrangements represent a more sobering reality about the employment environment (Lowrey, 2019). For many workers, the alternative contingent work arrangement is not entered into by choice, but is an outcome of lower wages, particularly for those at the bottom of the economic ladder. Many workers turn to the "gig economy" in the face of fewer opportunities for career advancement as the job market continues to see increased bifurcation between low skill and high skill jobs (Kaine, 2019). Modest wage growth over the last 10 years, compounded with the continued rise in the costs of items that contribute to increased social mobility (education, housing, healthcare), even with the relief created by the increases in the "gig economy" may not adequately address the financial insecurity of many workers (Petriglieri, 2018).

The "gig economy's" use of online platforms that allow for flexible movement of labor, and better matching of skills with tasks may have a positive impact on workforce productivity (Lowrey, 2019). However, the realities of the "necessity entrepreneur" will be confronted with the challenge of sustainability and the acquisition of a minimum level of social protections—a steady living wage, health insurance, affordable childcare, and the like—that allow for the sort of social mobility that in many cases eludes poor workers (Lowrey, 2019).

Understanding the pros and cons and challenges of the "gig economy" are important issues for policy makers and workers as they seek to gain both financial security and opportunities for advancement (Kaine, 2019). For workers outside the formal labor force, understanding not only their prospects for social mobility, but also how they will continue to build the skills that the work environment demands is vital (Petriglieri, 2018). The responsibility to continuously upgrade skills falls on the independent contingent worker who unfortunately has less access to training and education to sustain contingent "gig" work over time (Hasija, 2020).

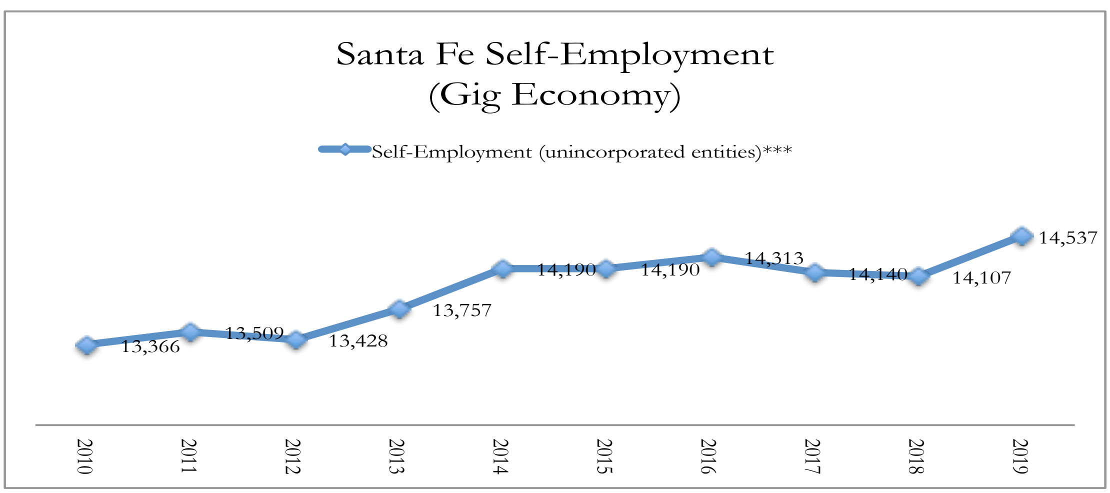
Although these various challenges exist, studies have assessed the range of self-employment for unincorporated entities (small sole-proprietorship entities) between 50% to 30% of all reported self-employment entities (Duszynski, 2020). When applying that matrix, the data continues to show long-term growth of the contingent work sector in the metropolitan statistical areas of interest for this study. For example, Detroit is experiencing double digit growth (over 16% growth) in the contingent work sector while farm self-employment is seeing a headwind that is resulting in a 11% decline over the last

8 years. While over the same timeframe, the data for Santa Fe illustrates an 8% growth of *recorded* self-employment (unincorporated entities). As stated before, these numbers have limitations in the area of recorded and unrecorded data specifically, from individuals with multiple income streams (two or more jobs) that may only report full-time occupations. Some estimate this pool of workers to be a high level among younger generation individuals--GenZ[3] - 53%; Millennals[4]-40%, GenX[5]-31% (Ozimek 2019).

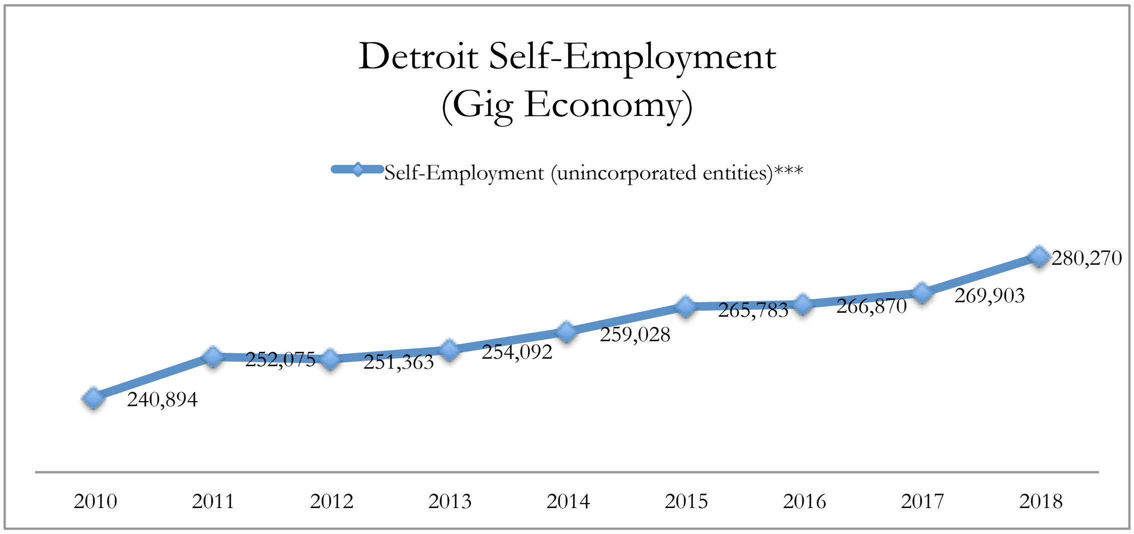
Table 8: Gig Economy (US Census Data)

Various Metropolitan Statistical Areas	Contingency Work (Gig-Economy Growth 2010 – 2018)	Additional Information
Detroit MSA	16%	Estimated between 168K to 224K entities in the Gig-Economy
Santa Fe MSA	8%	Estimated between 8.7K to 14.5K entities in the Gig-Economy

Figure 44: Santa Fe/Detroit Self-Employment Data (US Census Data)



[3] Gen Z – Individuals born between 1997 – 2015 (0-23 age group)
[4] Millennials – Individuals born between 1981 - 1996 (24 – 39 age group)
[5] Gen X – Individuals born between 1965 – 1980 (40 – 55 age group)



While both realities of the "gig economy" exist, increased flexibility and income versus a unforgiving workforce environment, each may pull policy makers in conflicting directions, and in some cases may stymy constructive responses to changes affecting the overall workforce (Hasija, 2020). A continued analysis of this every changing workforce environment phenomenon ("gig economy") is critical to any discussion regarding household income and mobility.

Income Distribution Measurements

Income can be presented at the individual level or represent pooled resources among families, households, or in some cases tax units (Berman, 2016). The Census Bureau defines a family as two or more people with a direct familial relationship (i.e., related by birth, marriage, or adoption), and a household as one or more people who live together and may or may not be related (Berman, 2016). A household may be a single person, a collection of roommates, or one or more families living together. Tax units are an IRS concept and describe the person or persons filing a tax return (i.e., individual filer and dependents or married filers and their dependents) (Berman, 2016). A tax unit can represent an individual, an entire household or family, or several tax units can reside within a household or family (Berman, 2016).

In some cases income distribution will seem different depending on whether it is organized at the individual level or household level (Cingano, 2014). All income-based analysis must consider that individuals (and single tax units) are more numerous and have lower average income levels than households and families, because the latter groups can have multiple earners (Cingano, 2014). It is reasonable to assume that individual income analysis will reveal more low-income persons—such as high school and college students with minimum wage jobs—who may otherwise be aggregated into household or family income measures. For these reasons, a strong argument can be made that an analysis organizing income at the individual level are not directly comparable with those that use data on multi-member units that may be pooling resources (Cingano, 2014). Based on this argument some research studies adjust data in response to these issues; however, in this case no such realignment has been conducted (Cingano, 2014).

This research effort is using a traditional Census Bureau household survey and IRS tax return administrative annual data to assess the income distribution. Even in their simplest forms, descriptive statistics can provide insight to the income of the "typical" household and characterize the full spread of incomes, offering a meaningful starting point to policy discussions about household income (Jones, 1997). This research effort will first focus on the mean and median as a ratio.

Mean to Median Ratio

In general, the mean and median are the main measures used to describe the center of a distribution and are prime candidates for describing the experience of the typical household (Holt, 2017). Mean income is obtained by dividing total aggregate household income by the total number of households (Holt, 2017). Mean income is stated as the simple average or the level of income that each household would have if the total income were distributed equally. It is particularly useful as a measure of central tendency when the distribution is symmetrical, but has less influence as a measure of the typical household's income when outliers skew the distribution (Holt, 2017).

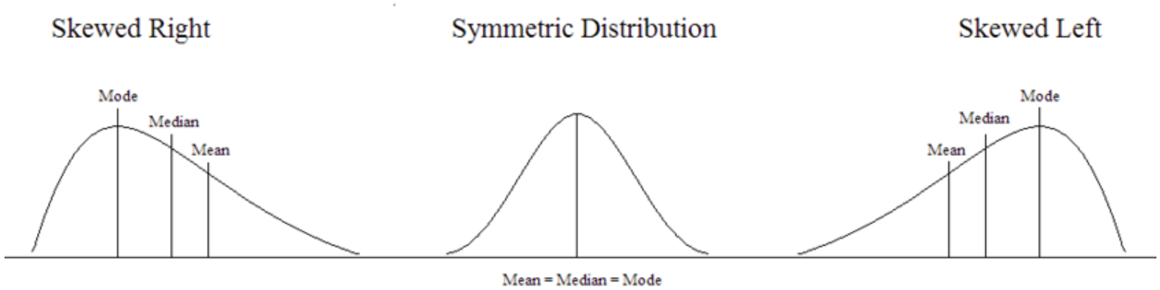
There is an argument that the median is generally a better indicator of typical household income.[6] It is the level of income that divides the population into two equal-sized groups: the lowest 50% of households (who earn less than the median value of income) and the top 50% of households (who earn more than the median value of income) (Holt, 2017). Because outliers less affect the median, many feel the measurement conveys more accurate information on typical household income (Holt, 2017).

The shape of the income distribution reveals how households line up and cluster along the spectrum of incomes (Holt, 2017). The shape of a distribution can be described as symmetric, right-skewed or left-skewed. Symmetric distributions (Center - Figure 45) are balanced, with the center of the data in the center of the graph. Because the "tails" of the distribution balance each other out, the mean and median values are identical. Skewed distributions are asymmetric and characterized by a mass of observations (e.g., households) to one side of the graph with either a long or thick tail to the other side (Holt, 2017). When the mass of households is found clustered toward the right of the distribution, with a tail to the right, the distribution is said to be right-skewed or

[6] To see the relative merits of the median as a measure of the typical household, consider the following example. Ten households line a street, each with an annual income of $52,000. Median and mean annual household income are therefore both $52,000 for this street. On January 1 of the next year, one of the houses wins the lottery, paid through an annuity that raises its annual income to $200,000. In an instant, mean household income for this street has increased from $52,000 to $66,800, while the median remains $52,000. Despite this increase in mean household income, the situation of 90% of households is unchanged, because households on this street do not pool resources (Holt 2017).

positively skewed (Right Skewed - Figure 45) (Holt, 2017). The group of relatively high incomes at the top pulls up the mean, so that it will exceed the median in right-skewed distributions (Holt, 2017). The distribution is left-skewed or negatively skewed when mass is concentrated among high values, with the tail leading to the left (Left Skewed - Figure 45). The mean in left-skewed distributions is pulled down by the relatively low-income households that form its tail, and it will normally be below the median (Holt, 2017).

Figure 45: Symmetric and Skewed Distributions



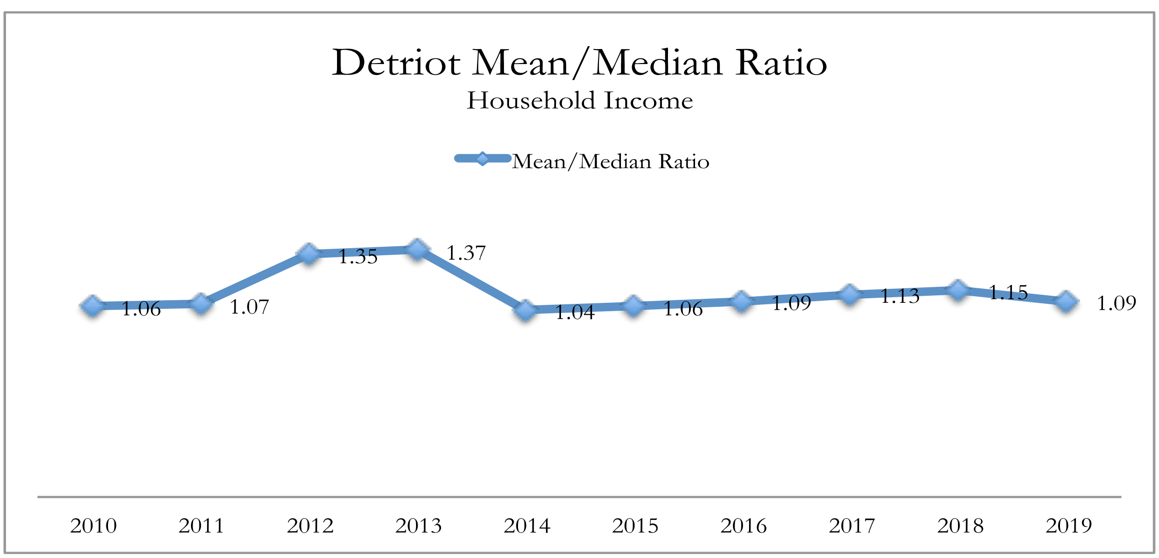
As noted above, the shape of the distribution affects the relative position of mean and median. Drawing on this relationship, the mean-to-median ratio can be used to convey in simplistic form information about the shape of distribution (Holt, 2017). When a distribution is symmetrical, mean and median will be the same (or very close), and the mean-to-median ratio will be one (Holt, 2017). The mean exceeds the median for a right-skewed distribution, characterized by a mass of observation on the left side of the graph and a tail to the right, yielding a mean-to-median ratio that exceeds one. Observed over time, the mean-to-median ratio provides information about the extent to which the mean is approaching or retreating from the median, and can be used to gauge changes to the shape of an income distribution (Holt, 2017).

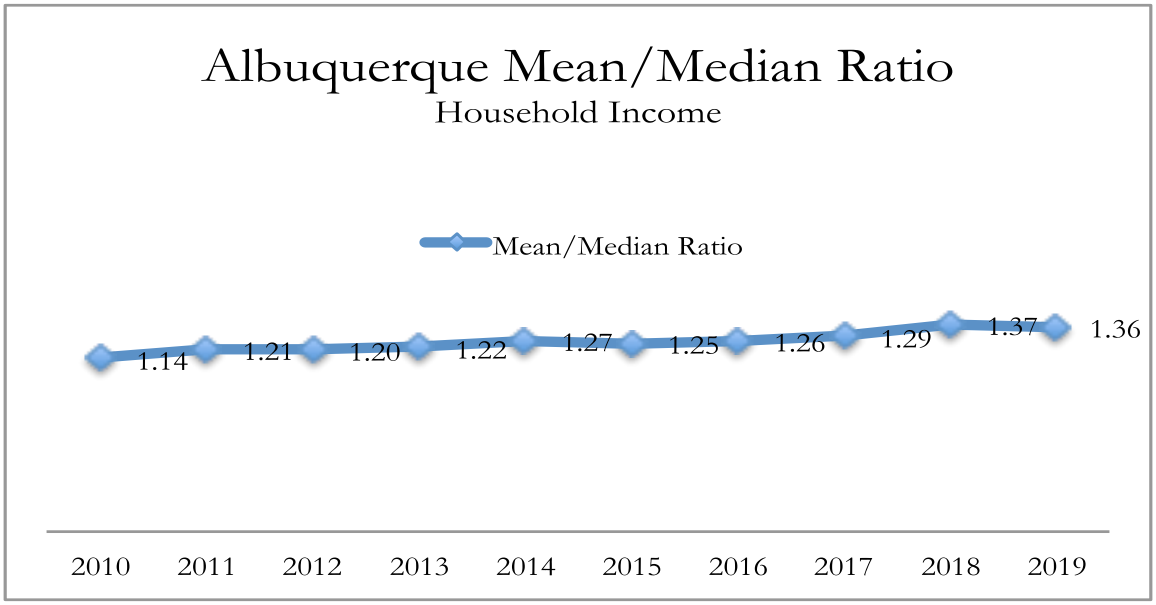
The results have identified that the MSA/Cities in this study are typically right-skewed and most importantly are reflecting significant increase to the right skewedness over the last 10 years (see Table 9 and Appendix 3). The two major MSA/Cities in this study have significant mean-to-median ratio increases over the last 10 years (see Figure 46). In terms of the shape of the distribution, a rising mean-to-median ratio suggests an increasingly right-skewed distribution and may conclude that the MSA/Cities are experiencing abnormal income increases to the high-income households in relationship to the lower income households. Hence, it leads to the assumption that the distribution of income in the area may become more centralized and less economically inclusive (see Table 9 – Ann Arbor 1.30 mean-to-median ratio). This analysis must be weighed against the various other income-based measurements.

Table 9: Mean-to-Median Data (US Census Data)

Metropolitan Statistic Area	Average Mean-to-Median Ratio (10yr Average)	Range over last 10yrs
Detroit MSA	1.14	(1.04 – 1.37)
Grand Rapids	1.07	(1.08 – 1.30)
Lansing	1.21	(1.06 – 1.31)
Ann Arbor	1.30	(1.16 – 1.41)
Albuquerque	1.21	(1.14 – 1.37)

Figure 46: Detroit/Albuquerque Mean/Median Ratio (US Census Data)

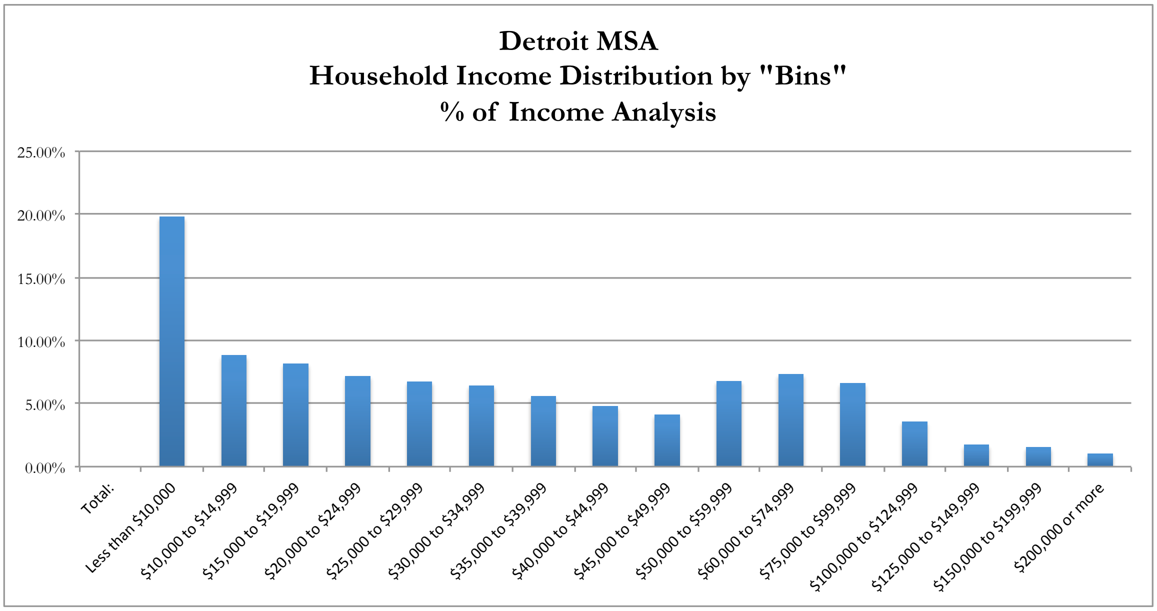


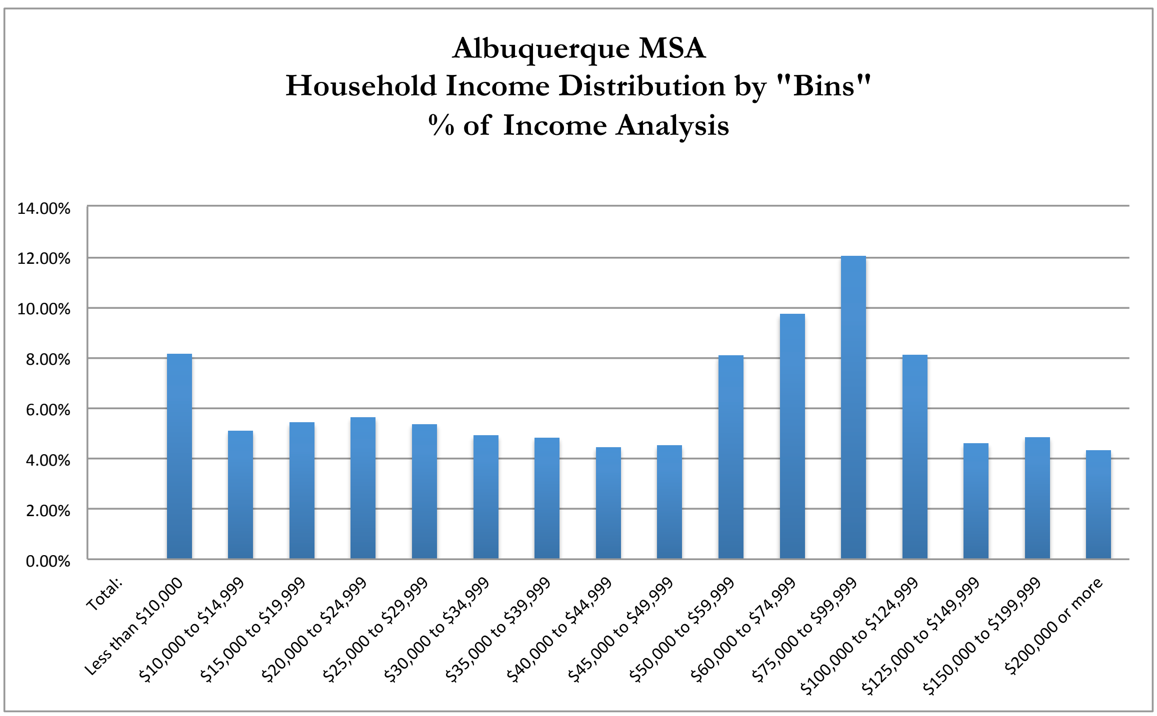


Frequency Distribution Analysis

Graphical representations of an income distribution, such as the frequency distribution in Figure 47 (see Appendix D – complete data) and, can convey information about central tendency (mean and median), shape, and range in a concise and intuitive way (Elwell, 2014). Figure 47 shows the income distribution for Detroit and Albuquerque as of 2019. It plots income levels on the horizontal axis and the percentage of households on the vertical axis, and shows a right-skewed distribution for Detroit with Albuquerque showing somewhat of symmetrical distribution. Figure 47 divides U.S. households into several incomes "bins" based on their money income in 2019. Between $10,000 and $200,000, incomes are grouped in bins with a $5,000 range. At $50,000, the scale changes: with various ranges from $10,000 to $25,000 and the final bin includes all incomes at $200,000 and over.

Figure 47: Detroit/Albuquerque Household Income Distribution by “Bins”





The general conclusion is that the income distribution varies significantly among the MSA/Cities of interest in this study (see Appendix 4). Four of the cities have a high percentage of income in bins of $60,000 plus, while four of the MSA/Cities sampled in this study have high percentages in the lowest income bin (less than $10,000). It is apparent that the dispersion of income among the MSA/Cities in this study is broad and deserves more in-depth analysis.

Table 10: Household Distribution Data Table

MSA/Cities	"Bin" with the Highest Percentage of Income Distribution
Las Crues	Less than $10,000 (12.21%)
Detroit	Less than $10,000 (19.79%)
Ann Arbor	$75,000 - $99,999 (12.03%)
Santa Fe	$75,000 - $99,999 (12.36%)
Albuquerque	$75,000 - $99,999 (12.03%)
Saginaw	Less than $10,000 (17.17%)
Lansing	$60,000 - $74,999 (10.68%)
Kalamazoo	Less than $10,000 (10.28%)
Farmington	$75,000 - $99,999 (13.56%)

The breadth of earnings and the placement and concentration of households along the income spectrum is interesting from an analytical and policy perspective (Elwell, 2014). The distributional range (difference between the highest and lowest value) is arguably one of the simplest measures of dispersion to assess. In terms of household income, some consider this to be the difference between the income of the richest household and income of the poorest household (Elwell, 2014).

All of the indicators illustrated can be used to examine how income varies across income groups, over time and by demographic area. This type of analysis can better inform the reader and deepen the discussion around the topic and in this case the analysis of economic inclusion. The results from the analysis are mixed with promising conclusions from the household distribution data showing high percentages of income in the bins above $60,000 for certain MSAs/Cities. However, most MSAs/Cities have very high mean-to-median ratios, which are trending upward over the last 5 years. As we discussed earlier, poverty is the starting point of a deeper dive into income distribution, dispersion and the impact of the “gig economy” on the entire ecosystem. The poverty results, which reflect across the board declines in the poverty rate for all the MSAs/Cities is very promising. This study is cautiously optimistic about the future and is only an attempt to enrich the dialogue around creating a better economy through enhancing the inclusion of more Americans in the process.

CHAPTER 7
CONCLUSION

As the economy of the United States continues to grow and prosper in some sectors, in what many are calling a "K" shaped post-Covid recovery model (versus "V" or "U" shaped economic recovery models)[7], there is an ever-increasing expansion of inequality in inclusion, growth and prosperity related variables. This study assesses whether there is a direct correlation between inclusion, growth and prosperity variables. This correlation is the beginning of a paradigm that supports the thesis that the economy could grow at a faster more sustainable pace if the issue of inequality was targeted and reduced. To further support this premise, this study builds an economic simulation from this conceptual framework, that not only supports the thesis but quantifies the value of reducing the inequalities by 25%, 50% and 75%. The broad application of these equality-based concepts is challenged by this economic simulation effort. The simulation creates a gross metropolitan product and tax accounting valuation argument for increased equality, but reflects weaknesses in the significants of correlations regarding various variables. Although the study is not overwhelmingly supportive of the various conceptual models, it does seem to reflect the various factors that impact the economic environments of metropolitan cities in America and most importantly demonstrates the potential upside to

[7] "K-shaped recovery occurs when, following a recession, different parts of the economy recover at different rates, times, or magnitudes.." – Brussel, Joe. (2020). *America's V-shaped vs. K-shaped economic recovery: What does it all mean? Personal Finance* https://www.cnet.com/personal-finance/americas-v-shaped-vs-k-shaped-economic-recovery-what-does-it-all-mean/

increased equality. As stated earlier and reinforced now, the results of this study imply that a rigorous data analysis is needed for each MSA in lieu of overarching assumptions of applicability. Along with a detail data analysis, the implementation of a business roundtable engagement model is needed to move this theoretical model to an implementation phase. An in-depth review of the income distribution of the population at the MSA or city level will provide vital insight into the overall economic picture for the area. The income distribution analysis will help frame the issues and address biases related to the concerns over the distribution of wealth in order for metropolitan areas to begin to confront the issue of economic growth in America's metropolitan cities in a more productive way at the implementation level. In general, this research effort is an attempt to enhance the intellectual body of work by testing theoretical models in the area of inclusion and equity through the creation of an economic simulation. The results of the simulation can be used as a premise to merge theory and application through the implementation of a novel quantitative business model to support the development of actionable business related solutions as policy makers address metropolitan growth challenges in the future.

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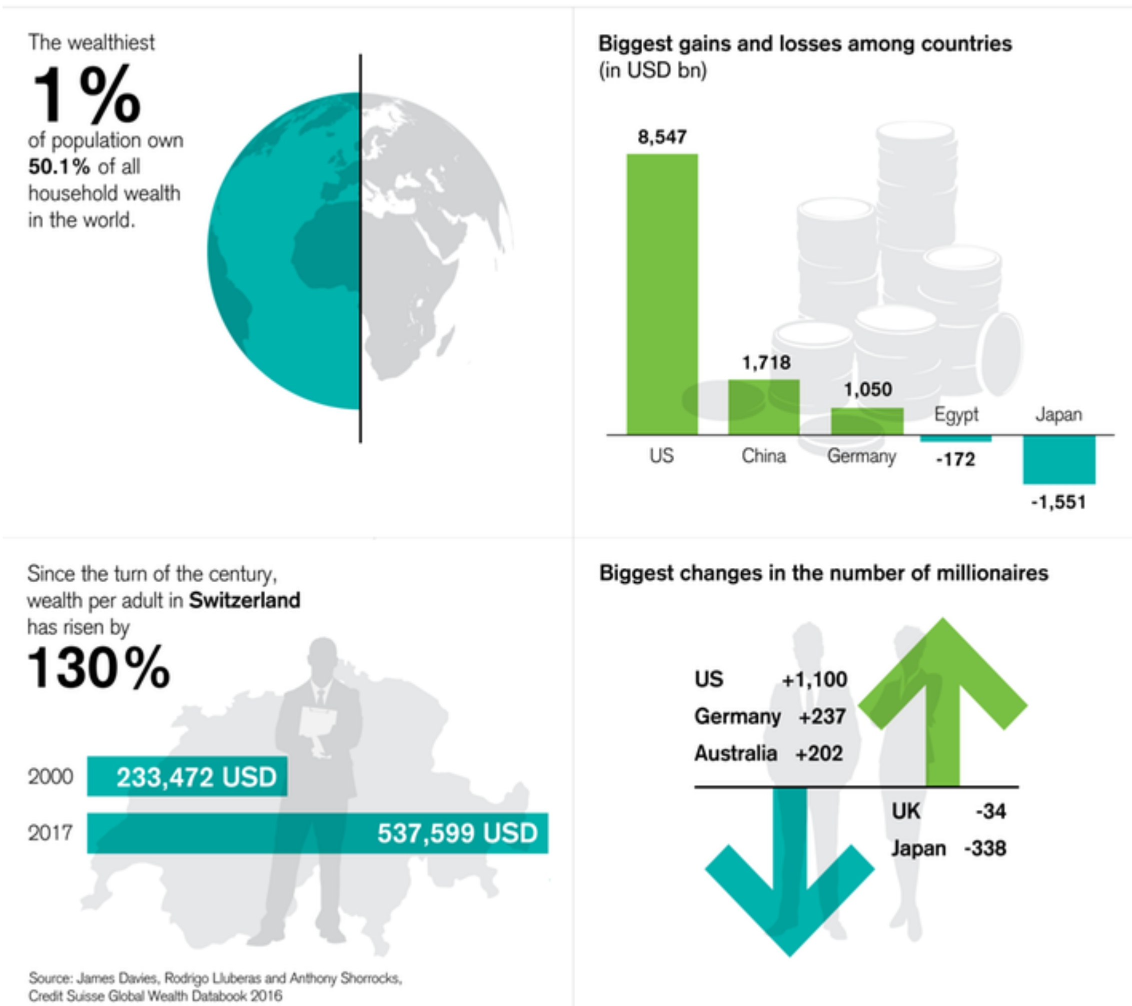
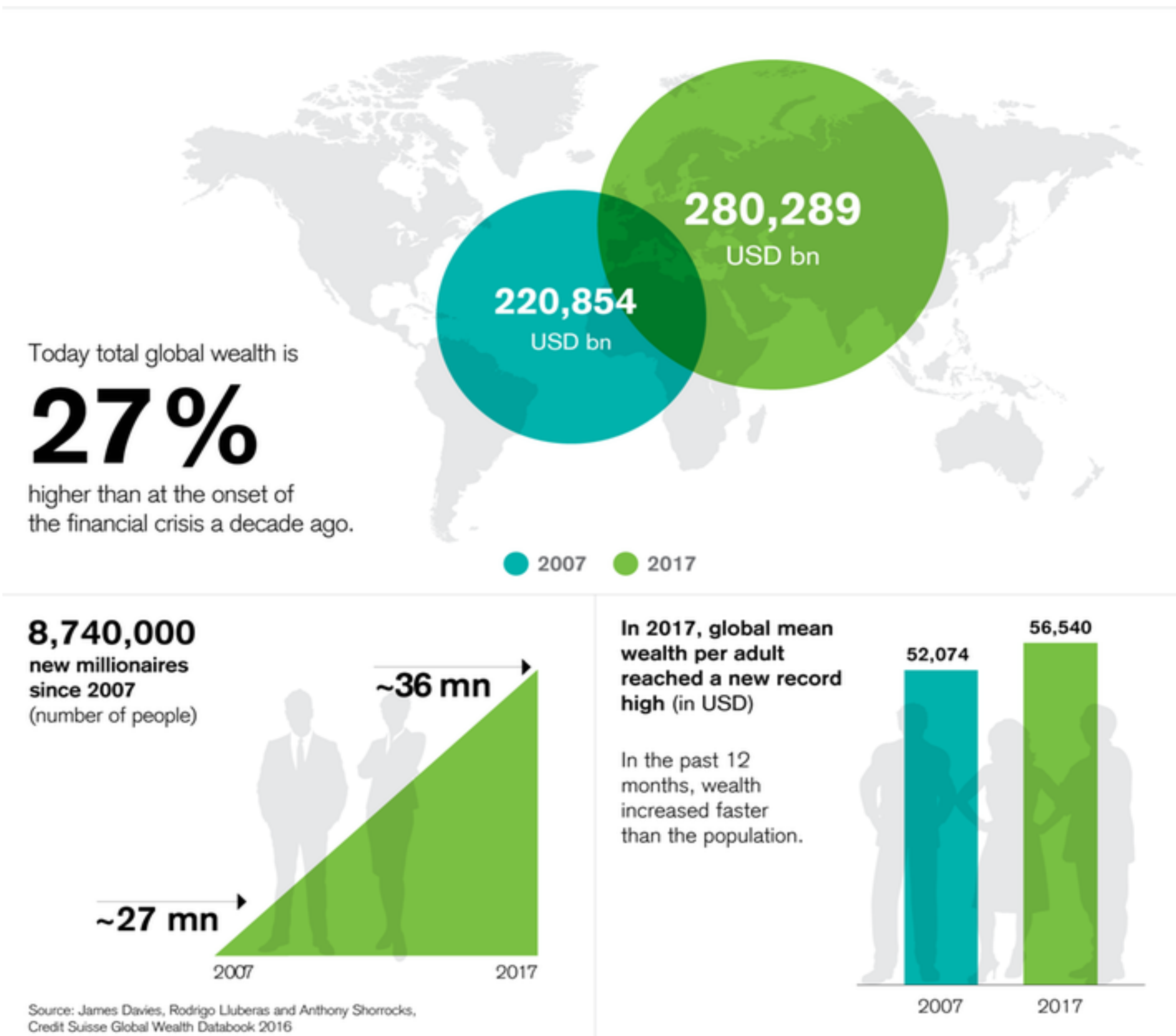
APPENDIX A
(WEALTH AND INCOME DATA)



APPENDIX B
(TOTAL AND MEAN WEALTH DATA)



APPENDIX C
("GIG ECONOMY" DATA TABLE)

Santa Fe, NM (Metropolitan Statistical Area)

Employment by place of work	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	% Increase (2010 - 2018)
Total employment (number of jobs)	**92,489**	**92,417**	**91,816**	**92,782**	**93,277**	**94,419**	**94,504**	**93,635**	**94,229**	**96,346**	
By type											
Wage and salary employment	**65,263**	**64,843**	**64,366**	**64,667**	**64,299**	**65,442**	**65,285**	**64,763**	**65,430**	**66,686**	
Self-Employment employment	**27,226**	**27,574**	**27,450**	**28,115**	**28,978**	**28,977**	**29,219**	**28,872**	**28,799**	**29,660**	
Farm Self-Employment (employment)	**494**	**557**	**595**	**601**	**599**	**598**	**594**	**592**	**585**	**587**	5%
Nonfarm Self-Employment (employment)	**26,732**	**27,017**	**26,855**	**27,514**	**28,379**	**28,379**	**28,625**	**28,280**	**28,214**	**29,073**	
Self-Employment (unicorporated entities)*	**10,693**	**10,807**	**10,742**	**11,006**	**11,352**	**11,352**	**11,450**	**11,312**	**11,286**	**11,629**	8%
Self-Employment (unicorporated entities)**	**8,020**	**8,105**	**8,057**	**8,254**	**8,514**	**8,514**	**8,588**	**8,484**	**8,464**	**8,722**	
Self-Employment (unicorporated entities)***	**13,366**	**13,509**	**13,428**	**13,757**	**14,190**	**14,190**	**14,313**	**14,140**	**14,107**	**14,537**	
* 40% of Self-Employment are Unincorporated Entities											
** 30% of Self-Employment are Unincorporated Entities											
*** 50% of Self-Employment are Unincorporated Entities											

Detroit-Warren-Dearborn, MI
(Metropolitan Statistical Area)

Employment by place of work	2010	2011	2012	2013	2014	2015	2016	2017	2018	% Increase (2010 - 2018)
Total employment (number of jobs)	2,258,061	2,329,607	2,372,902	2,415,196	2,458,060	2,508,369	2,547,173	2,581,377	2,627,875	
By type										
Wage and salary employment	1,772,574	1,821,789	1,866,570	1,903,382	1,936,495	1,973,326	2,010,024	2,038,251	2,064,058	
Self-Employment employment	485,487	507,818	506,332	511,814	521,565	535,043	537,149	543,126	563,817	
Farm Self-Employment (employment)	3,699	3,669	3,606	3,631	3,509	3,477	3,409	3,320	3,277	-11%
Nonfarm Self-Employment (employment)	481,788	504,149	502,726	508,183	518,056	531,566	533,740	539,806	560,540	
Self-Employment (unincorporated entities)*	192,715	201,660	201,090	203,273	207,222	212,626	213,496	215,922	224,216	16%
Self-Employment (unincorporated entities)**	144,536	151,245	150,818	152,455	155,417	159,470	160,122	161,942	168,162	
Self-Employment (unincorporated entities)***	240,894	252,075	251,363	254,092	259,028	265,783	266,870	269,903	280,270	
* 40% of Self-Employment are Unincorporated Entities										
** 30% of Self-Employment are Unincorporated Entities										
*** 50% of Self-Employment are Unincorporated Entities										

APPENDIX D
(FREQUENCY DISTRIBUTION)

Household Income Frequency Distribution

Household Income in the Past 12 Months (In 2018 Inflation-adjusted Dollars)	Las Cruces, NM		Santa Fe, NM		Albuquerque, NM Metro		Ann Arbor, MI Metro Area	
	Value	Error	Value	Error	Value	Error	Value	Error
Total:	100.00%	2.08%	100.00%	1.64%	100.00%	0.58%	100.00%	0.73%
Less than $10,000	12.21%	1.57%	5.80%	0.78%	8.13%	0.34%	6.71%	0.43%
$10,000 to $14,999	6.68%	1.13%	3.63%	0.55%	5.10%	0.28%	3.86%	0.29%
$15,000 to $19,999	5.88%	0.98%	4.71%	0.70%	5.42%	0.30%	3.65%	0.29%
$20,000 to $24,999	8.17%	1.30%	4.41%	0.65%	5.64%	0.29%	3.88%	0.37%
$25,000 to $29,999	5.89%	1.00%	6.13%	0.87%	5.36%	0.30%	3.60%	0.31%
$30,000 to $34,999	5.81%	1.31%	5.25%	0.84%	4.92%	0.25%	3.82%	0.35%
$35,000 to $39,999	4.85%	1.05%	3.80%	0.63%	4.82%	0.25%	3.93%	0.32%
$40,000 to $44,999	5.28%	1.38%	4.60%	0.69%	4.44%	0.23%	3.96%	0.28%
$45,000 to $49,999	3.94%	1.10%	5.55%	0.80%	4.51%	0.26%	3.38%	0.30%
$50,000 to $59,999	6.53%	0.98%	9.02%	1.20%	8.08%	0.31%	7.12%	0.41%
$60,000 to $74,999	9.21%	1.16%	10.56%	0.94%	9.72%	0.40%	9.35%	0.42%
$75,000 to $99,999	9.71%	1.15%	12.36%	1.13%	12.03%	0.43%	11.81%	0.50%
$100,000 to $124,999	7.16%	1.10%	7.93%	0.89%	8.11%	0.32%	9.95%	0.49%
$125,000 to $149,999	2.93%	0.88%	5.12%	0.72%	4.59%	0.22%	6.71%	0.38%
$150,000 to $199,999	3.17%	0.78%	5.31%	0.67%	4.84%	0.27%	8.32%	0.40%
$200,000 or more	2.56%	0.77%	5.81%	0.72%	4.31%	0.23%	9.94%	0.42%

Household Income Frequency Distribution

Household Income in the Past 12 Months (In 2018 Inflation-adjusted Dollars)	Detroit, MI		Kalamazoo, MI		Lansing, MI		Saginaw, MI	
	Value	Error	Value	Error	Value	Error	Value	Error
Total:	100.00%	0.72%	100.00%	2.39%	100.00%	1.69%	100.00%	2.28%
Less than $10,000	19.79%	0.52%	10.28%	1.28%	10.12%	1.05%	17.17%	1.74%
$10,000 to $14,999	8.81%	0.37%	7.51%	1.10%	6.78%	0.80%	10.04%	1.45%
$15,000 to $19,999	8.15%	0.36%	6.89%	1.10%	6.14%	0.69%	8.14%	1.36%
$20,000 to $24,999	7.16%	0.30%	5.76%	0.96%	7.49%	0.79%	7.00%	1.14%
$25,000 to $29,999	6.72%	0.30%	7.01%	1.02%	6.11%	0.66%	7.81%	1.20%
$30,000 to $34,999	6.42%	0.28%	6.79%	0.99%	6.71%	0.76%	6.52%	1.15%
$35,000 to $39,999	5.56%	0.33%	5.33%	0.86%	6.19%	0.60%	4.54%	0.79%
$40,000 to $44,999	4.77%	0.24%	6.47%	1.02%	5.83%	0.76%	5.39%	1.24%
$45,000 to $49,999	4.12%	0.22%	4.25%	0.82%	5.09%	0.65%	5.53%	1.03%
$50,000 to $59,999	6.76%	0.35%	8.23%	1.15%	8.89%	0.83%	8.15%	1.14%
$60,000 to $74,999	7.31%	0.34%	8.86%	1.00%	10.68%	0.81%	6.77%	1.10%
$75,000 to $99,999	6.60%	0.28%	9.21%	1.01%	9.59%	0.84%	6.89%	0.97%
$100,000 to $124,999	3.56%	0.20%	4.92%	0.61%	5.11%	0.64%	3.65%	0.76%
$125,000 to $149,999	1.72%	0.15%	2.71%	0.53%	2.50%	0.52%	1.07%	0.38%
$150,000 to $199,999	1.52%	0.15%	2.57%	0.48%	1.93%	0.43%	0.69%	0.27%
$200,000 or more	1.02%	0.12%	3.20%	0.64%	0.83%	0.24%	0.62%	0.29%

APPENDIX E
(MEAN-TO-MEDIAN RATIO DATA)

Various MSA
(Mean-to-Median Ratio Table)

MSA/City	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Detroit	1.06	1.07	1.35	1.37	1.04	1.06	1.09	1.13	1.15	1.09
Grand Rapids	1.08	1.13	1.15	1.19	1.19	1.24	1.21	1.24	1.30	NA
Lansing	1.06	1.13	1.16	1.20	1.23	1.23	1.23	1.26	1.27	1.31
Ann Arbor	1.16	1.23	1.26	1.27	1.29	1.29	1.35	1.32	1.39	1.41
Kalamazoo	1.18	1.19	1.20	1.22	1.27	1.28	1.30	1.34	1.46	1.40
Saginaw	NA	NA	NA	1.25	1.18	1.29	1.24	1.32	1.38	1.46
Albuquerque	1.14	1.21	1.20	1.22	1.27	1.25	1.26	1.29	1.37	1.36
Las Crues	1.20	1.28	1.22	1.32	1.29	1.30	1.41	1.39	1.61	1.34
Santa Fe	1.22	1.31	1.26	1.26	1.30	1.35	1.33	1.34	1.42	1.44
Farmington	1.07	1.08	1.20	1.23	1.26	1.19	1.18	1.23	1.31	1.36