EXAMINING INCOME POLARIZATION INDICES IN THE CONTEXT OF 'WORLD CITY

THESIS': AN ANALYSIS OF LARGE U.S METROPOLITAN AREAS

By

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ABSTRACT

EXAMINING INCOME POLARIZATION INDICES IN THE CONTEXT OF GLOBAL CITY THESIS:

AN ANALYSIS OF LARGE U.S METROPOLITAN AREAS

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For more than three decades, the 'global city thesis' or the 'world city thesis' has attracted scholarly contributions from urban planners, geographers, sociologists and urban political economists interested in socioeconomic and spatial polarization in mega cities. These scholars examined the socioeconomic dynamics of mega cities and concluded that globalization is an underlying factor of growing income inequalities and socio-spatial polarization found in these urban areas.

On the other hand, the field of welfare economics has traditionally associated income inequalities with factors that have attracted an avalanche of literature since 1950s. In the face of growing income inequalities which others have argued is partly to blame for the great recession that we have just emerged from, this study seeks to find out the underlying factors of these inequalities by examining arguments made in the two distinct fields of studies- global city thesis and welfare economics. We specifically want to answer the following research questions: Is the pattern of income inequality in "global cities" (New York, London, Tokyo) replicated in the 50 largest metropolitan areas? If so, what framework of analysis best explains this phenomenon, global city thesis or welfare economics?

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CHAPTER 1

INTRODUCTION

1.1 The Current State

Writing in the immediate aftermath of the great recession, various reasons make the topic of this dissertation worthy of interest: One, the subject of income inequality was at the center of the last presidential elections and certainly will continue to be in the American public discourse in the foreseeable future considering the slow recovery of the economy. In its wake, the great recession has fundamentally shaken the American way of life, wiping a trillion dollar worth of wealth, triggered mass layoffs and reduced the tax base leaving local and state governments' budgets in disarray. The culprit of this near-financial *apokalupsis* is blamed on the greed in *Wall Street* and the general corporate culture where pay scales for top executives in the last two decades have resembled those at *Hollywood,* while the average incomes have largely remained stagnant. Thus tied to this is the rising inequality in earnings amongst American workers. Scholars are now arguing that America's dramatic three decade-plus rise in income inequality was a fundamental economic force behind the 2009 implosion of the economy and financial markets [Raghuram 2010;Zietz and Zhao 2009;Gabaix and Landier 2007]. To illustrate this, the post world wars period was a relatively stable period, however after 1980 inequality began to steeply climb and the share of total income that went to the wealthiest 10 percent of households rose from 34.6 percent in 1980 to 48.2 percent in 2008 [Kennickell 2003; Piketty 2003].

Two, in the last two decades majority of the global population has transitioned from rural to urban communities. This transition is largely facilitated by globalization forces that have integrated hitherto rural communities with the world market. Inadvertently, this transition has orchestrated tremendous and sonic changes in the structure and spatial outlay of cities across the world and re-engineered lifestyles of urban communities.

Though many policy makers, free trade economists and academics, see tremendous opportunities in these changes, there have been a few concerns on the impact of globalization in urban areas especially with regard to growing income inequalities.

In the past two decades scholars in urban political economy and urban studies in general, have delved into the debate on income distribution and argued that economic globalization has agglomerated massive economic resources and thus political clout in a few mega cities bringing about negative consequences such as class and income inequality/polarization [Friedmann 1986; Sassen 1991; Mollenkopf and Castells 1991; Stein 2003; Kujath 2009]. They have termed this phenomenon as "global or world city hypothesis".

Against this backdrop, the following chapters explore the interplay of two separate areas of scholarship represented by the above phenomena by integrating studies on income inequality in welfare economics, and globalization studies in the field of urban studies.

1.2 Problem Statement & Research Question [S]

The study of income inequality, that is, the disparities in the wealth of the highest and lowest segments of the population of cities, is a distinctive feature of the systemic studies of world cities since 1980s [Anjomani and Sekio 2004; 1998]. Globalization has spurred more interest in this subject and yet the relationship between globalization and polarization theses is largely amorphous with very little empirical research [Anjomani and Sekio 2004; 1998]. Literature abounds on the effects of global restructuring on spatial and cultural aspects of urban communities and although many scholars are in concord that income polarization is connected to globalization, few empirical studies have been conducted to support income polarization within the 'World/global city thesis" [Anjomani and Sekio 1998]. Traditionally, economic research has identified several factors that contribute to income inequality these factors are: prevailing economic conditions, education, age, gender, structure of the economy and region *inter alia*.

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In this light, the notion that income inequality is accelerated by globalization and primarily manifest in global cities as claimed by world city literature and specifically, "global city thesis" needs to be further examined. This dissertation seeks to find out if globalization forces are uniquely associated with income inequality/polarization beyond the conventional association explained by factors identified by existing works in welfare economics. This study would be important in analyzing if factors that impact income inequalities in large U.S metropolitan areas that exhibit the characteristics of global cities are enhanced or associated with forces of globalization; and if those factors are separate from those already identified by traditional economics literature. In the light that this notion is deeply entrenched in the field of urban studies yet limited empirical evidence suggests the relationship between income inequality and globalization in large cities, the findings of this dissertation will serve to illuminate our understanding of this relationship by answering the following questions:

i)   Is there polarization of income in large US metropolitan areas that exhibit similar characteristics with global cities?

ii)   Is this polarization of income associated with globalization forces as argued by global city thesis or is it simply related to traditional determinants of income inequality as observed by traditional economic literature research?

1.3 Theoretical & Policy Significance of Study

Literature and Policy Formation:

i)   The study will contribute to literature in global/world cities studies by empirically supporting or rejecting the notion that income polarization in large metropolitan areas is a function of globalization [Knox 1995; Sassen 1991; King 1990; Ross and Trachte 1990; Friedmann and Wolff 1982].

ii)   In case the results are affirmative, the thesis would have significant policy implications on how polarization effects of global restructuring can be mitigated.

iii)   If the results prove that income inequality in large metropolitan areas is not uniquely

associated with globalization but as a result of the same factors that have been previously

identified by welfare economics literature, the generazability of the theory will be

restricted to New York, London & Tokyo. On an extreme, unlikely but possible scenario,

a recalibration of the theoretical framework of the "world city thesis" maybe necessary if

further studies finds no significant associations.

1.4 Application to Praxis- Implications to Urban Planning Practice

The import of this dissertation to the practice and theory of urban planning is significant in a tripartite dimension:-

▪ One, It has been argued that income distribution and globalization have a direct connection to local economic growth and hence planning [Friedmann 1986; Sassen 1991; Taylor 2004; Kujath 2009; Growe 2010]. How and why is the distribution of income related to economic growth? Economists have primarily examined the first part of the question and some have found that the relationship is negative. Alesina and Rodrik [1994] and Persson andTabellini [1994], report that greater income inequality lowers subsequent growth after one controls for initial gross domestic product GDP per capita and initial human capital [Sylwester 2000]. The implications to city and regional economic development planning are tremendous since the overarching goal of local economic development polices is the creation of well paying jobs as an avenue to a better quality of life for all citizens. Within this assumption is that all citizens should have a livable wage not skewed to the point of massive disparities in their quality of life. Against this backdrop communities and cities turn to local economic development [LED] strategies in response to the challenges of unemployment and those posed globalization of economic activities that may threaten their quality of life. This study can provide insight to cities in understanding and responding to such challenges.

- Two, economic literature has also established that there is a link between economic restructuring as exemplified in the composition of the labor force and income inequality [Growe [2010]; Barrios and Strobl [2009]; Durlauf and Quah [1998]; Quah [1996b, 1997], Liu and Stengos [1999] and Canova [2004], Long, Rasmussen, and Harworth [1977]; Ahluwalia [1976]; Chenery & Syrquin, 1975; Ahluwalia & Cheney, [1974]; Kuznets [1955]; Lewis [1954]. The implication to city economic development planning and strategies is navigating the challenge to know what industries to attract or recruit, regardless of economic specialization without necessarily exacerbating income inequalities. As Growe [2010] and Stein [2003] point out: "the economic specialization of cities no longer sees the main differentiation occurring between industrial and service activities". It has been argued elsewhere that cities can play a role in exacerbating these inequalities by the kind of growth policies they pursue [Baum-Snow and Pavan 2010]. This dissertation will provide insights to cities in developing policies to mitigate such inequalities

- Three, changes in the spatial structure of a city as a result of capital mobility in many urban areas is continually [and traditionally this is the case] shaped by population shifts [Logan and Molotoch 1987; Garfalo and Forgaty 1979; Segal 1976; Kelly 1977]. However, in the last few decades globalization of economic processes is thought of having a negative effect on income distribution but also on spatial development [Friedmann 1986; Logan and Molotoch 1987; Sassen 1991; Taylor 2004; Kujath 2009; Growe 2010]. The extent to which this shift is attributed to economic globalization is not known, this dissertation will provide an insight to the extent that globalization is a factor in this process.

1.5 Overview of Dissertation

This dissertation is a quantitative analysis that examines the relationship between key variables of the globalization phenomena as discussed in an avalanche of previous works in global city thesis and

compares their impacts on income distribution in 50 largest U.S metropolitan areas with key variables that welfare economics has long established to be related to income disparities.

The geographical units of analysis are the 50 largest U.S. metropolitan areas as per the 2010 U.S. Census data. Special attention is paid to the quantification of income inequality which is used as the dependent variable. Two types of inequality are obtained from the data: inequality in income distribution among households of each metropolitan area and inequality in income shares among all these metropolitan areas. The dissertation departs from majority of existing income distribution studies in adopting two measures on inequalities as compared to one in most of previous works.

Since Kuznet's [1955]seminal work on income distribution, substantial work has been done in the past six decades to seek answers for many of the essential questions about income distribution starting with why and how income is distributed unequally among the members of one society. Works on this question has involved not only purely economic perspectives but also multi-disciplinary approaches including sociology and political science. Chapter two delves into this issue, reviewing literature on the income distribution exploring the various dimensions of the issue. It is an in-depth exploration of literature on studies on income distribution that includes examining theoretical backgrounds of these works and their contribution to research. The chapter provides a panoramic observation of arguments and counter-arguments for various determinants of income inequality and terminates with a discussion on the key variables from traditional economics that are believed to contribute to income inequality.

As already mentioned, though income inequality is understood to be associated with a number of factors, in the last few decades economic globalization has been singled out as one of the key contributors as a result of increased flows of capital, goods and people across borders [Friedman and Wolff 1982; Sassen 1991; Knox 1995; Castells 1999; O'Loughlin and Friedrichs 1996; Zhong et. al 2007; Sekio and Anjomani 1998; 2007]. The resultant effects of economic globalization in form of institutional changes such as the decline of unions, industry deregulation and the increased power of financial markets over corporate behavior have come under intense debate. Chapter 3 seeks to explore these issues within the

"global city thesis" putting them into context by conducting a comprehensive literature review with the hope of setting a platform for providing insights applicable to praxis in urban policy formation process at the end of the dissertation. Chapter 3 therefore delves into literature on globalization and political economy, a discussion on opposing views of globalization from different schools of thinking followed by an exploration of literature on global city thesis in the field of urban political economy examining the implications of globalization to cities and relation between globalization and income distribution.

Chapter four lays out the context of our research in the light of previous works both in the study of global cities and in welfare economics. It also establishes the research problem and presents a systematic methodology to be followed in the 3 phases of our research. The chapter also discusses the dependant and independent variables and explains in detail the relationships to be examined.

Finally chapter 5 presents a discussion of the results of our analysis and the findings of the research agenda outlined in chapter four. It also provides conclusions drawn from the results and outlines policy implications and recommends future research.

CHAPTER 2

INCOME DISTRIBUTION

2.1 Inequalities of Income Distribution

Studies on income inequalities fall under a branch of economics known as welfare economics. According to Farbman [1975] and Lemiuex [2007], income inequality in modern societies is considered along with income production as two dimensions of the economic welfare. Welfare economics applies microeconomic techniques to examine the economic "wellbeing relative to competitive general equilibrium within an economy abiding with the principle of economic efficiency and the resulting income distribution associated with it" [Ross, 1969; Farbman 1975]. Thus, income inequality can be said to be the outcome of how a nation or a region's total economy is distributed among its population [Sullivan and Sheffrin 2003].

Distribution of resources among the members of a society has perennially occupied public discourse for centuries. From Adam Smith to David Ricardo income distribution among the members of society is a subject that has elicited strong reactions. In urban studies and city planning field, debate has raged on the role of public policy and planning activities in ensuring equal distribution of resources. Many classical scholars in studying distribution of resources in society have concerned themselves with the main factors of production, land, labor and capital [Kennickel 2003]. On the other hand, contemporary scholars that have examined this issue, but have been largely concerned themselves with income distribution across individuals and households. Central to their studies is the relationship between income inequality and economic growth [Cornia 2004].

Since the work of Kuznets [1955], tremendous efforts have been made in various academic disciplines in quest for answers of what are the basic causes of income inequality. Thus the issue of inequality has received much attention in the last four decades in the social science literature mainly because of the recognition that inequality is not simply a product of growth but also a determinant of growth [Cornia 2004; Rajan, 2010]. In the last decade the issue of income inequality in emerging economies of Asia and developing world has received considerable attention. There has been a general increase in the number of empirical studies on income inequality mainly as a result of suitable data based on labor force surveys, household surveys, population censuses and cross-country data [Kimhi 2004; Rajan, 2010].

However, even with great and numerous number of the previous works on income inequality, there are many unanswered questions as a result of a general lack of consensus amongst researchers. One of those areas of contention is how much of this inequality is associated with various determinants of inequality. In the last two decades, the field of urban political economy has also highlighted negative consequences expressed in income inequalities. This chapter seeks to look at research developments pertaining to the subject of income inequality.

2.1.3 A Brief Introduction to Studies in Income Inequality

From the existing literature, studies on distribution of income have a tripartite dimension namely: within-country inequality, cross-country inequality and global inequality. Within country inequality refers to the income distribution among different population groups within a country. An example would be a discussion of the impact of NAFTA on the incomes of skilled workers in Canada will be a discussion about within-country inequality. The second dimension of income inequality is cross-country inequality which refers to the disparities in per capita income between countries. For instance, a discussion on whether International Monetary Fund's policies (IMF) facilitates rapid growth of developing countries' economies therefore closing the gap in per capita income with developed nations would be a discussion on cross-country inequality. The last dimension of inequality is focused on the combination of within-

country and cross-country inequality, whereby the research methodology ignores the political boundaries of nations and measures the distribution of income amongst all individuals in the world. This is referred to as global inequality.

Since 1950s, a litany of studies on income inequalities inspired by the work of Kuznets has proliferated the field of welfare economics, such works include: Danziger and Smolensky 1977; Haworth et al.1978; Hsing et. al. 1994; Jones 1997; Deininger and Squire 1998, among others. Many of these works vary in their approach but all have dwelt on similar themes as Kuznets work: relations between a society's level of development and income inequality and determinants of income inequality. In his seminal work, Kuznet argued that perspectives in social and political economy are important in the study of income inequalities and should be considered alongside those of market economics. Kuznets works inadvertently spurred multidisciplinary approaches to the study of income inequalities. His original work was concerned with income inequalities at a personal level within the country.

Later works by him and others showed a great variation in analytical techniques adopting both longitudinal and analytical studies, focused and comparative ones as well. The geographical units of analysis in these studies have also varied from metropolitan to state to national levels. Generally, cross-country and global studies of income inequality have been fewer due to lack of reliable data in many countries [Rauch 1993]. One recent and comprehensive cross-country inequality studies is Firebaugh's work [2003]. Firebaugh argues that the world experienced a big increase in real average per capita income over the last two centuries and people in all regions of the world are on an average economically better off today than they were in the 19th and 20th centuries. However, in the same period of time, there was a drastic change in the distribution of income. Wealthy countries disproportionately benefited from real income growth, and overall global inequality worsened until the middle of the 20th century. More on cross-country and global inequalities will be discussed later in this chapter.

The shortcoming of the cross-country and global approaches such as Firebaugh's study is the questionable relativity in political, economic and cultural factors that exist among sampled countries, and

as mentioned above the lack of long term reliable data, a problem that has however been addressed by relative availability of this data in the recent past. Thus more studies in inequalities have adopted the within-country approach. In the United States, majority of such works have focused on inequality at state and metropolitan levels due to the availability of data at these levels [Nelson 1989].

2.1.4 Theoretical Provenance

The general consensus is that Kuznet's work in 1955 was the catalyst for myriad of studies on income distribution. In this work, he examined characters and causes that resulted in changes in personal income distribution. He pointed out that income distribution in developed countries were becoming more equal starting with the 1920s because of the balance between the factors of inequality and counteracting factors.

According to Kuznets there were at the least two groups of forces which increased the degree of inequality of income distribution in the developed countries: First, the concentration of savings in the upper-income brackets and second industrialization and urbanization. He argued nonetheless that this would not be a permanent trend because they would but counteracted by various factors such as legislative agenda that is sensitive to inequalities and thus interfering with political decision making to reduce excessive inequalities. The other argument that Kuznets made was that the high fertility rates among the masses far outstrip the elites therefore having a flattening effect on income inequality. The very nature of a changing economy allows for socioeconomic mobility regardless of individual's humble economic backgrounds and therefore the masses would be better off as time goes by. In addition, rapid technological changes continually shift economic opportunities and increased competition which does not guarantee that the wealthy will keep their privileged positions. Lastly, he argued that the role of service income such as professional and entrepreneurial earnings is crucial in diluting the relative income of upper income segments of the population. The high income amongst upper income groups is usually attributed to the individual productivity and excellence of persons in these groups. There is less likelihood that generations of the descendants of these groups would maintain such high productivity and income

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unless successive talents appear in the lineage of the groups. Further, Kuznets observed that immigration was a counteracting force of inequality because many immigrants have low incomes therefore swelling the numbers of low income people.

It is on the above notions that Kuznets made assumptions that income inequality in developed countries would narrow over time. In general, he hypothesized that the distribution of income will be skewed widening inequality in the early stages of economic growth as the society transitions into industrial stage, with some stabilization for sometime then narrowing as the economy matures due to the strengthening of counteracting forces. Kuznets hypothesis, as his arguments later became to be known as, is graphically represented by an inverted U-curve referred to as Kuznets curve. On developing nations, Kuznets was adamant that there was no identical trend of change in income distribution as represented by the inverted U-curve. This he attributed to the reason that the counteracting forces for reduction and stabilization of inequality were not sufficiently strong mainly because of high population growth.

Though Kuznets [1955] showed evidence of his hypothesis, recent studies and data seem unsupportive of the hypothesis. Some studies have suggested that the relationship between economic growth and income inequality is not consistent [Li et al, 1998]; while some argue that data indicates persistent trend of income inequality since early 1980s [Londono and Szeskely 1997; Cornia 2004]. Hsing and Smith [1994] for instance, showed strong evidence of noninverted U-curve after examining Kuznets hypothesis for Whites and Blacks/Others within the United States.

Later studies on income inequalities dwelt on testing Kuznets hypothesis, citing the fact that Kuznets original work was highly qualitative with limited empiricism and characterized by loose definitions to support his arguments. Kuznets himself acknowledged this limitation and attributed it to lack of adequate data. His work also spurred many studies that have sought to test the applicability of Kuznets curve on other settings. The next section discusses later works on income inequality, some of them predicated on Kuznets original work. The next paragraphs examine the developments in the three types of income inequalities mentioned discussed in the beginning of this chapter.

<u>2.2 Cross- Country & Global Studies in Income Distribution</u>

2.2.3 Overview: Theoretical underpinnings

One of the earliest Marxist explanations on the cause of cross country inequalities is the nature of economic relationships amongst nation states. The theory is hinged on the idea that resources flow from a "periphery" of poor and underdeveloped nations to a "core" of wealthy nations, benefiting the latter at the expense of the former [Frank 1969; Wallerstein 1974; Lee et. al, 2008], thus increasing both within country and cross country inequalities. It is a fundamental argument of dependency theory that poor nations are impoverished and rich ones grow wealthier based on the way developing nations are integrated into the "world system." The argument is founded on the Marxist analysis of inequalities within the world system, but differs with the view of free market economists who argue that free trade benefits poor countries along a development path to full economic integration. In this light the debate on how best to alleviate poverty in poor countries is often peppered by discussions on breaking the dependency cycle.

Weede and Tiefenbacin [1981a] extensively reviewed the "external" causes of income inequalities amongst countries. By external they meant those factors that influenced inequalities outside the control of the nation state. In their work they differentiate three broad approaches: One, the school of thought originating from Galtung [1971] that centers on trade patterns among countries, and the impact of these patterns on the welfare of their citizens. Two, is the foreign penetration school, epitomized by Frank [1967] and Bornschier and Chase-Dunn [1985] that place an emphasis on the role of dependence on foreign investment. Three, is the Wallerstein approach [1974] and Rubinson [1976] which called attention to the role of state power in determining the relationship of a country to the world market. The following paragraphs reviews literature on cross country inequalities from the above three 'world system' approaches as outlined by Weede and Tiefenbacin [1981a].

2.2.4 International Trade Patterns

According to Galtung [1971], the nature of a developing countries' pattern of trade can affect its distribution of income. One way in which this can occur is when the trade pattern is vertically configured

whereby the dependent country/ specializes in the export of raw materials and the import of processed goods. Such a pattern of trade can result to skewed development in a peripheral [poor] country as [rich] countries monopolize high tech activities, this sector in the peripheral country can atrophy, leading to hypertrophy of the tertiary sector due to an influx of displaced workers into marginal jobs [Evans and Timberlake 1980; Sullivan 1983]. This skewed development of the labor force produces more inequalities [Galtung 1971; Evans and Timberlake 1980; Sullivan 1983; Lee et. al, 2008]. According to Ballmer-Cao and Scheidegger 1979; Delacroix and Ragin 1981; Lee et. al, 2008] the foreign trade structure variable employed to capture this vertical trade pattern has large positive values for societies that export high tech goods and import raw materials, and large negative values for societies that import high tech goods and export raw materials. Therefore according to Galtung, foreign trade structure has a significant influence on income inequality.

2.2.5 Investment Dependence

An important view of the dependency and world-system approach stresses the role of the dependency of developing countries on foreign direct investment, FDI. Bornschier and Chase-Dunn [1985] found out that income inequality is positively associated with the presence by multinational corporations, measured as the stock of foreign direct investment.

In synthesizing Evans and Timberlake [1980] postulation, dependence on foreign capital is likely to raise income inequality by disfiguring the occupational structure of developing economies, "bloating the tertiary sector and producing a highly paid elite and large groups of marginalized workers" [Lee et. al, 2008]. Sullivan [1983] sums up Evans and Timberlake's [1980] argument by stating that "it is the resultant marginalization of workers left out of the international sector, but displaced by its capital-intensive technology, and the enrichment of those closely associated with it that affects inequality levels."

2.2.6 Dependence and the State

As Lee et. al, [2008], Bornschier and Ballmer-Cao [1979], Rubinson [1976] and Wallerstein [1974] observe, the role of the state in cushioning the inequality effects of direct foreign capital

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investment is crucial. Their approach dovetails with the dependency perspective in their assumption that integration into the capitalist world economy generally increases within-country inequality. However, they emphasize the role of the state in shielding a country from the influences of the world system [Lee et. al, 2008]. The State can shape the deleterious effects of the world system through an aggressive targeting of industrial and financial policies [Wade 1990]; the state is able to influence significantly the impact of foreign capital on domestic economy through strict regulations of entrance and exit of capital [Lee et. al. 2008; Chang 2002].

They further postulate that "strong states" generally have little inequalities because of their capacity to buffer their citizens from the negative effects of integrating in the capitalist world economy. According to Rubinson [1976] "state strength" is "the degree to which a state dominates the activities within its population." His suggestion is that "high level of state strength" is exhibited when a state has a high degree of autonomy within the world system. One way to asses this is by looking at government revenue as a percentage of GDP as a measure of the state's capacity to manage and regulate economic activities and external public debt as a negative measure of the state's autonomy [Rubinson 1976; Lee et. al. 2008].

2.2.7 Current Studies

As pointed earlier, for a long time, the distribution of income at a global scale has featured as a constant research concern amongst scholars [Sala-I-Martin, 2006]. Scholars are in general agreement that one, the overall economic growth rate of richer nations have been higher compared to poor countries in the last few decades and second, the dispersion of income per capita across countries has tended to increase over time [Barro and Sala-i-Martin 1992]. Barro and Sala -i-Martins observations are not congruent with the observations of later works by Quah [1996]; Jones [1997]; Kremer, Onatski, and Stock [2001], that analyzed the evolution of the entire world distribution of incomes per capita across countries These works observed that the world seemed to move toward a bimodal [or "twin peaked"] distribution of

income [Sala-I-Martin 2006]. However, the permanence of this situation was questioned by Kremer, Onatski, and Stock [2001].

In a separate study, Milanovich [2005], observed that global inequality increased between 1988 and 1993 and shrunk slightly by 1998. However Milanovich's approach was different from that of [Quah 1996; Jones 1997; Kremer, Onatski, and Stock 2001], who analyzed aspects of the World Development Indicators [WDI], and used countries as their unit of analysis [Sala-I-Martin [2006]. Some scholars have argued that the latter approach is the correct approach when, "for example, one tries to test theories of economic growth because aggregate growth theories tend to predict that growth depends on "national factors" such as policies, institutions, and other elements determined at the economy wide level. To the extent that those determinants are independent across nations, each country can be correctly treated as an independent data point of an economic "experiment." Using countries as units of analysis" [Sala-I-Martin 2006] . These arguments on definition and methodological approaches on income distribution studies mirror Kuznets earlier submission of limitations and challenges in the study of income distribution.

2.2.8 Latest developments

Literature on cross country inequalities in the last five years generally shows a consensus on the increased income inequalities within the United States and also other nations of the world, both developed and developing [Smeeding 2005]. The permanence of this shift is confirmed by several studies [e.g Kennickell, 2003; Acemoglu 2002]. As averred above, this is not unique to the United States, other nations have experienced the same, however what makes the United States case unique is the fact that these inequalities have been sustained for some time. The United States has the highest levels of inequality amongst the wealthy nations that make up the Organization for Economic Cooperation and Development [OECD]. According to Smeeding [2005], the subject of cross country inequalities will continue to generate greater interest as economies and labor markets become more global and nations wrestle with the social and economic pressures of an aging population, increased market work by women,

and marital dissolution, thus shaping public interest to focus on how different social policies can achieve synergy to buffer the effects of income inequality and joblessness.

Increased interest on the subject has also led to better efforts in collecting comparable cross-national measures of economic inequality and better measures for measuring within any one country [such as the United States]. With data becoming easy to access it is now possible to present a more comprehensive picture of cross-national differences at many points in the income distribution [Lee et. al, 2008]; "instead of merely providing snapshot comparisons of the ''average'' or ''typical'' family in different countries" [Smeeding 2005]. Scholars are not only able to assess with greater accuracy patterns of inequality, but also to probe further into possible causes [Smeeding 2005; Sala-I-Martin, 2006; Lemiuex 2008].

2.3 Within Country Studies in Income Inequalities- Focus on Economic Restructuring & Stock Market Boom in the United States

As mentioned on chapter one, some scholars have argued that America's dramatic three decade-plus rise in income inequality was a fundamental economic force behind the 2009 implosion in the economy and financial markets [Raghuram 2010;Zietz and Zhao 2009;Gabaix and Landier 2007]. The following paragraphs examine two major factors according to literature on income distribution that may have partly contributed to income inequality in the United States, these factors are: 1] Economic restructuring as characterized by demand for skilled workers, 2] and the boom in U.S. stock market.

Throughout the 1980s, a number of researchers began observing a clear progress in increasing income inequality, Bluestone and Harrison [1988] observed that the share of "low-wage" jobs had gone up sharply in the first half of the 1980s. Their observation caused some debate, partially because it was difficult to tell at the time if the changes in inequalities were as a result of the major 1981-1982 recession [Lemieux, 2008]. In the second half of the 1980s, several researchers' conclusion was that those recent changes in income inequality were slight at best. For Instance, Blackburn and Bloom [1987] using data up

to 1985 concluded that "The time profile of earnings inequality, measured across individual workers, has been quite flat since the late 1960s" [Lemiuex 2008].

However, the studies generated further interest on the subject of income and earnings inequality, the controversy of the mid- to late-1980s was quickly resolved as new data plainly indicated a sharp and ongoing increase in inequality [Lemieux 2008]. In the early 1990s the field was characterized by a set of vastly influential works by Bound and Johnson [1992], Katz and Murphy [1992], Levy and Murnane [1992] and Juhn et al. [1993] establishing a broad consensus that [1] inequality had been growing sharply in the 1980s and [2] the primary factor behind the growth was the increase in the relative demand for skill [Lemieux 2008]. There was also consensus that the demand for skill had steadily grown in the 1970s, but was surpassed by the sharp increase in educational attainment—the relative supply for skills—associated with the entry of the well educated baby boom generation in the labor market [Freeman, 1976; Lemieux 2008].

Juhn et al. [1993] postulated that the within-group dimension of inequality had been growing throughout the 1970s and 1980s, consistent with growth in relative demand for skills. Though these works did not emphatically postulate that the genesis of this inequality is the growth in the demand for skills, there was a general consensus that economic growth in the early 1990s necessitated skill-biased technical change [SBTC], driven by the computer revolution [Krueger, 1993; Berman et al. 1994; Lemieux 1998]. The leading alternative explanation at the time- international trade or globalization, was largely rejected as the main source of the increase in the relative demand for skill [Krueger, 1993; Berman et al. 1994; Lemieux 1998]. The other dimension of the 1990s agreement was that the growth in the relative demand for skill was all-encompassing, or ubiquitous, in the sense that all dimensions of inequality were growing [Lemiuex 2008]. For instance, in a simple human capital model, Juhn et al. [1993] were able to demonstrate that wage inequality can increase because returns to education and experience increase, or because residual or within-group inequality increases [Lemiuex 2008]. Juhn et al. [1993] demonstrated that all of these dimensions of inequality had been growing in the 1980s.

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The consensus reached in the early 1990s about the significance of technological change in the increase of income inequality was focal in many of the successive research works on income distribution. For example, after Levy and Murnane [1992] was published in the Journal of Economic Literature [JEL], the JEL published another survey [Acemoglu 2002] on inequality. Acemoglu [2002] affirmed that technological change, or at least "a more sophisticated form of endogenous technological change", was the foremost justification for inequality growth in the United States throughout the 1970s, 1980s and 1990s [Clark, 2002; Piketty, 2003; Piketty & Saez, 2006; Smith, 2001; Wolff, 2000; Lemieux 2008].

Apart from economic restructuring as characterized by skill premium the other major factor believed to have contributed to the spike in income inequality is the appreciation of the U.S. stock market [Clark, 2002; Piketty,2003; Piketty & Saez, 2006; Ragin 2010; Smith, 2001; Wolff, 2000]. Some scholars have however argued that though this be the case, little research appears to have focused on the impact of the U.S. stock market appreciation on income inequality by examining the earnings of households that have shares in the stock market with the ones not participating in the stock exchange [Zietz and Zhao 2009; Blank, 1989; Blank & Blinder, 1986; Hirsch, 1980]. According to Zietz and Zhao [2009], the increase of the S&P 500 by more than five times has raised the wealth of stockholders significantly compared to non-stockholders' wealth. Smith [2001] argues that since wealth is a potential means of raising income, the rising inequality in wealth can also have the unintended consequence of creating more income inequality.

Fama and French [2001] and Zietz and Zhao [2009], observe that the appreciation of the stock market can impact the distribution of income either directly or indirectly. It can do so directly through its effect on the wealth related incomes of stockholders or indirectly through its effect on investment, GDP growth, and the labor incomes of both stockholders and non-stockholders. The incomes of stockholders can be impacted directly by a stock market appreciation if stockholders choose to realize accrued capital gains or if dividend payouts are increased [Fama and French 2001; Zietz and Zhao 2009]. According to Fama and French [2001], the stock market appreciation experienced by the U.S. during the 1980s and

1990s was characterized with lower dividend payouts rather than higher dividend payouts however; there was a substantial increase on capital gains.

Clark [2002] avers that stock market boom usually contributes to a spike in income inequality therefore resulting to a real decline of income in poor segment of the population. According to Piketty and Emmanuel [2001] and Piketty [2003] the material increase in the income share of the top tenth percentile of households is partially as a result of increase in capital income. The conclusion of Das and Mohapatra [2003] is "that the income share of the top quintile of the income distribution grows at the expense of the "middle class" when emerging stock markets are liberalized, while the share of the lowest income quintile remains effectively unchanged".

Zietz and Zhao [2009], contend that in order to reduce rising inequalities, taxation of capital gain should be reexamined. Literature abounds on the stock market's effect on wealth inequality, however there are few studies on the stock market's effect on income inequality. According to Zietz and Zhao [2009] from the point of view of public policy and taxation, the income distribution and not the wealth distribution should be at the center of attention. They further contend that the focus on income is evidenced in the fact that many governments of wealthy countries are more concerned on redistributing income rather than wealth.

Zietz and Zhao [2009] conclude that many studies that examine the relationship between stock market growth and income inequality do not always condition or factor in the effects of GDP growth since the factoring of GDP growth in this context is important because there is ample evidence that GDP growth has a negative impact on income inequality [Beach, 1977; Blank, 1989; Blank & Blinder, 1986; Hirsch, 1980; Thorton, Agnello, & Link, 1978].

2.3.3 Determinants of Income Inequalities

According to existing literature in welfare economics, there are a number of factors that can contribute to within-country inequalities. The following paragraphs highlight these factors.

2.3.3.1 Economic Conditions & Structure

One way in which economic conditions are generally measured in the empirical studies is by observing the employment or unemployment rates. It is hypothesized that the smaller the percentage of the unemployed in the labor force, the smaller the inequality in income distribution. It's theoretical foundation is that a high employment causes a decline in the numbers of families and households at the lower end of income distribution by increasing multiple earner families and households [Farbman 1975]. An income equalizing effect of employment or disequalizing effect of unemployment is supported by existing works at a congressional level [Durden and Schwars·Miller 1982] and a county level [Braun 1991].

The relevance of changes in economic structure with respect to income distribution has been observed in various works [Barrios and Strobl [2009], Durlauf and Johnson [1995]; Quah [1996b, 1997], Liu and Stengos [1999] and Canova [2004], Chenery & Syrquin, 1975; Lewis [1954]; Ahluwalia & Cheney, [1974]; Ahluwalia [1976].These works have largely examined the change in the inter-sectoral composition of output between agriculture, manufacturing and the service sector, and is linked to the Kuznets [1955] thesis that a change in the structure of production has implications for the distribution of income. In this light, the second measure that is traditionally used to asses economic and structural conditions and their impacts on income distribution is the proportion of the labor force in manufacturing sector. This measure has traditionally formed the basis of gauging the impacts of economic structures on the distribution of income. The hypothesis is that as the numbers of the labor force engaged in manufacturing sectors increases, there is a reduction in the amount of income inequality. Various theoretical explanations in scholarly literature are used to explain this effect. According to Long,

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Rasmussen, and Harworth [1977], manufacturing was presupposed to provide a moderately limited range of earnings for people with fairly low levels of education. Folley [1977] argues that the measure of the labor force in manufacturing was regarded as an indicator of the maturity of the local economy. There are more varied explanations for this measure. According to Garofalo and Fogarty [1979], the other reason is because manufacturing sector has a more homogeneous distribution of skilled workers compared to other sectors in the primary and tertiary sectors as well as the fact that unionism is more deeply entrenched in the sector as compared to other industries.

The impacts of manufacturing sectors on the distribution of income were also explored in its relation with non-White population by a previous study by [Murray 1969]. According to him, employment in the manufacturing sector was thought to present the most easily available high numbers of high wage job opportunities for non-White population. Based on this view, a metropolitan area with high numbers of manufacturing jobs and non- white population would see a decreased level of inequalities that would ordinarily be found in areas with non-White population.

Many income distribution studies have consistently shown a strong support of income equalizing effect of manufacturing sectors at various the levels including at state level [Nelson 1984] an SMSA level [Murray 1969, Long et al. 1977]; and at congressional level [Braun 1991]. As the economic structure itself has drastically changed in a transformation from the industrial to the post-industrial era. The impacts of manufacturing employment on the income distribution are often discussed in association with the problems of inner-city poverty. There is an avalanche of literature that has explored the issue with majority arguing that an increase in inner-city underclass population is partly a tributary of economic restructuring that has caused flight of manufacturing sectors from large cities therefore causing a decrease in job opportunities for relatively low-skilled inner-city workers [Wilson 1987; Kasarda 1989; Castells 1989; Bound 1992].

2.3.3.2 Urban Population Size

Traditional economics has long viewed urban growth measured by population has a certain effect on the distribution of income. While the bulk of earlier studies considered the growth in urban population size to have a positive effect income distribution, the theoretical provenance and empirical outcomes of this view were later disputed. Harry Richardson's work [1973] echoes the opinion of the majority of those who articulate the urban hierarchy equality hypothesis. The hypothesis postulates that the lower the levels of inequality in an urban area, the higher the city's rank in urban hierarchy. The reasoning behind the thesis is illustrated by the availability of opportunities that a large city can provide as compared to a smaller city.

For instance, Mathur [1970] argues that since larger cities had more employment opportunities, they could draw better educated and skilled workforce from smaller cities and marginal areas; therefore, a bigger percentage of the populace in these cities were paid higher wages than smaller cities [Mathur 1970]. But the positive effect, in Mathur's view, could be expected only when the size of geographical unit was big enough, that is the size of SMSA. Congruent with this argument, the population size was also connected with the effect of employment multiplier, as the size of the community amplified the employment multiplier of urbanizing industries meaning that growth industries also increased [Isard and CZamanski 1965].

However, later studies clearly disputed this notion of the urban hierarchy-inequality hypothesis assuming negative effects of the size and growth of cities on income distribution. For instance, Haworth et al. [Haworth, Long, and Rasmussen 1978]; put forth an alternative hypothesis called monopoly hypothesis drawing from basic economic theory, according to this hypothesis, the major benefits of increase in city size and urban growth would be monopolized by those who own non-duplicative assets such as land or positions: although ordinary workers whose job positions are effortlessly replaced by other workers may also gain from the increases in the size and growth of the city. However, their economic benefits would be lesser and more intangible than those monopolists and because of such

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disparities in benefits between the monopolists and the ordinary workers, the inequality would increase as the city size increases and urban growth gathers speed. Their regression analysis of income inequality at an SMSA level in 1970 supported the monopoly hypothesis by observing a direct connection of the population size with the size of income inequality. In addition, later work by Garofalo and Fogarty provided further support for this finding [Garofalo and Fogarty 1979]. The work assumed that urban size measured by SMSA population would have a similar effect of inequality-creation from the level of development.

According to Segal [1976] and Kelly [1977], the harmful effect of urban population size on the income distribution can be explained by a blend of two expected effects of urban areas: productivity-agglomeration effect and amenity-compensation effect. This argument was based on observations from other works by Segal, Kelly, and others that agglomeration economies would raise labor productivity [Garfalo and Forgaty 1979]. According to this hypothesis, a bigger city adds to the productivity of skilled labor faster than to the productivity or unskilled labor and that there is no change in the amenity structure of the cities. The greater employment of skilled labor would require a compensatory wage payment in skilled labor but not to unskilled labor. This means that beneficiaries of the larger cities is the group at high income levels and thus income inequality would increase as the city moves up the urban hierarchy. Using a regression analysis at SMSA level, the empirical test by Garofalo and Fogarty strongly supported this hypothesis that a larger urban population size produces higher levels of inequality. The work by Garofalo and Fogarty (1970) pays special attention to the sensitivity of empirical results to the choice of inequality measures.

The majority of empirical studies including those that are in support of the urban hierarchy-equality hypothesis adopt the inequality measure of Gini coefficient which measures overall inequality of families or households. Garofalo and Fogarty argue that income inequality measured by families in the 25th percentile is more suitable for testing effects of urban population size because this percentile includes the bulk of the working poor population. Based on these works, empirical studies supporting the

negative effects of urban population size are far less in their number when weighed against those supporting the favorable effect. However, the view represented by the urban hierarchy-equality hypothesis is hard pressed to explain the reason behind an overall increase in income in the face of continued growth of metropolitan areas in the last several decades [Braun 1991].

More recently, Baum-Snow & Pavan [2010] investigated the causes of the emergence of the city size inequality premium from 1979 to 2007 with a focus on labor force skills, and its relationship with the growth in overall wage inequality. They observed that most of the impact of city size on the increase in inequality nationwide is as a result of growing inequalities in wages within skill groups in larger cities than in smaller cities. They found out that 25 to 35 percent of the overall increase in inequality in the United States from 1979 to 2007 is explained by city size independent of observed skill potentially correlated with city size.

2.3.3.3 Education

Years of formal schooling are often considered to have significant impact on personal income [Ning 2010; Gregorio, J.D., Lee, J.W., 2002; Zhang, 2007; Lemieux, 2006]. The positive impacts of education on income distribution enjoys broad support by many scholarly works e.g. Ning [2010]; Gregorio and Lee [2002]; Zhang [2008]; Lemieux [2006] etc. This consensus is drawn from both economic theory and human capital theory. It is understood that an individual worker's earning is determined by the amount of one's human capital because employers are willing to pay more when the human capital possessed by the worker leads to an increase in the productivity [Becker 1967; Heckman 2005]. Heckman [2005] further argues that 'human capital is the primary determinant of the personal wealth of an individual. Therefore the expansion of education investment considered to be one of the important avenues to lessen poverty and income inequality, particularly in developing economies [Ashenfelter and Rouse [2000]; Becker 1967]. According to Newhouse [1971] education and training as factors of the human capital are ranked as the third important determinants of labor market demands next to industry mix of the market and discrimination by employers.

Another view is that, collective impacts of education and work experience on income distribution are hypothesized in three dimensions. One, the average income level can be raised by increasing the average level education and work experience. Two, the increase in the average level of education would decrease the number of poor households/families. Three, there will be an increase in the number of households joining highest income classes [Lemieux, 2006]. Thus the outcome of increased levels of education and work experience is the decline of income inequalities [Ford1977; Lemieux 2006]. Against this background, human capital is regarded as a total of general education, work training, and work experience. Many studies have used general education as a yardstick for measuring human capital since data on the other two factors [training and work experience] is quite scarce. These studies validated the positive impacts of education on the income distribution, implying that the increase in the median years of schooling resulted in a decrease in the levels of inequality [Ruthenberg and Stano 1977; Deininger and Squire 1996] when the mean years of schooling increased the same effect was observed [Durden and Schwarz-Miller 1982]. A similar effect was also observed by a study using high school graduation rates as a measure of the level of general education [Braun 1991]. Though many studies have lend credence theoretically and empirically to this income equalizing effect of education, according to Danziger [1977], few things are worthy to mention about the measures of education used. To start with, some measures of education might not have a linear effect on income inequality. For example, when college graduation rates are adopted as a measure and its value is low, an increase in this variable would tend to increase the levels of inequality [Danziger, 1977]. However, when the percentage is high, an increase in the value of this variable would tend to decrease the inequality.

The changes in directions of this education effect depend on whether the character measured by the variable represents characteristics of minority or majority of people in a unit of analysis. In this example of the educational variable, if the majority of people in an area are college graduates, additional college graduates contribute to harmonized or homogeneous levels of education and thus lead to a dip in the levels of inequality [Danziger, 1977; Durden and Schwarz-Miller 1982]. In contrast, if the majority of

people are non-college graduates, additional college graduates contribute to more heterogeneous educational levels and thus lead to an uptick in the levels of inequality [Danziger, 1977; Durden and Schwarz-Miller 1982].

According to Danziger [1977], the same holds for a variable of racial composition. Put another way, a lower value of inequality measure of a single unit of analysis does not automatically result to an economic betterment of the society. He points out that this reversed direction should be kept in mind when a measure is selected and the result is analyzed. The second view about the education measurement is that educational effects on the inequality might be better studied by a measure of distribution of education rather than by a measure of levels such as mean or median [Thurow 1970]. This argument finds theoretical attraction from the fact that both mean and median measures hide a possible dispersion of education attainment among population [Thurow 1970]. Many studies however prefer not to use a distribution measure of education ostensibly because obtaining these measures requires considerable more operationalization as compared to simple measure of mean or median.

However, one of the well known empirical works that adopted distribution measures to observe the impacts of education on inequality is Conlisk's [1967]. The results of the study were as expected: the more unequal the educational distribution, the more unequal the income distribution. The outcome dovetails with the discussions above on homogeneity and heterogeneity of the attribution: a higher dispersion of educational distribution means more heterogeneity and thus indicates the more inequality. Whereas Conslisk's work was an examination of inequality at state level, Nord [1980], conducted a smilar study using a different measure – standard deviation at a city level. The results were similar to that of Colinsk [1967].

In conclusion, there have been debates on what levels of education would be best to inject resources for the greatest impact on lowering inequalities. Zhang [2008] has argued that an initial income distribution can be perpetuated through public education spending at different school levels. Societies with a more unequal initial income distribution tend to spend proportionately less at secondary level and

more at tertiary level, and in turn tend to experience a more unequal income distribution in the future [Deininger and Squire 1996; Kerckhof et al., 1997; Thrupp 2001; Zhang 2008].

2.3.3.4 Region

The distribution of income differs across geography. A number of theoretical explanations have been advanced to explain why this may be the reason. The discussion here reviews three major theoretical explanations on regional differences in income inequality. Based on Neoclassical trade theory [the Heckscher–Ohlin (HO) model], regional inequalities in income may vary because of disparities in factor endowments and factor prices [Roses et. al., 2010; Harry Flam and Flanders, 1991; Slaughter, 2001]. The factor-price-equalization [FPE] theorem, within Neoclassical trade theory, has a favorable view of the consequences of market integration: the increase in trade and factor movements leads to factor-price equalization across regions, and hence, per-capita GDP convergence. However, according to Rassekh (1998) and Slaughter (1997) though market integration may have an equalizing effect on income, market integration may also lead to increasing regional specialization because regions vary in factor endowments. In this condition, the standard HO model allows FPE but not income equality [Rassekh and Thompson, 1998; Slaughter, 1997]. Conversely, if regional differences in factor endowments tend to decrease and factor prices converge, one should observe a reduction in regional income disparities [Baldwin 2003; Puga 2002; Kim 2004].

According to growth theory, the causes of regional inequality occur when in the context of a closed economy variations in capital per worker leads to slow income convergence across locations [Barro and Sala-i-Martin, 2003]. The assumptions is that cross-regional movements of capital contributes to increased income convergence rates when that capital moves from capital-abundant to capital-scarce regions following differences in its relative remuneration [Barro et al., 1995]. However, a new offshoot of growth theory, known as endogenous growth theory, makes conflicting predictions about the effect of

cross-regional integration. According to the endogenous growth theory [Romer, 1986] predicts that increasing movements of capital will instead lead to regional divergence.

On the other hand, new theories on trade and geography such as the New Economic Geography [NEG], are even less optimistic about the regional inequality impacts of integration processes [Rosés, et.al. 2010; Baldwin 2003; Puga 2002; Kim 2004]. NEG models are based around the notion that the existence of product differentiation, increasing returns to scale and transport costs may generate fiscal externalities in firms and workers' location choices. In the presence of factor mobility or intermediate inputs, these three factors give rise to agglomeration and, hence, uneven regional specialization. This is as the result of workers preference to concentrate in a given location; the outcome is a shift in local demand which increases the incentive for firms to concentrate production in that location. In addition, workers may get a wage premium in these places due to the presence of Marshallian externalities and the subsequent higher labor productivity levels. In short, according to NEG market integration can result to regional divergence [Rosés, et.al. 2010; Baldwin 2003; Puga 2002; Kim 2004].

Older literature on regional impacts on income distribution focused on the differences between business climate in Southern United States and other parts of the nation. It was hypothesized that income would be distributed more unequally in the Southern region of the United States than the other regions. The common explanations constituted issues like: The presence of traditionally weak labor unions in the South create suitable conditions that facilitate employers to pay lower wages [Braun 1991]; "conservatisms and traditionalism prevent the South from adopting experience of the North" [Cobb 1984].

Other older works pointed out that inequality in income distribution between the South and other regions could be caused by other factors such as racial composition and quality of the labor force rather than geographical location. For example, a variable of racial composition may already measure regional differences inequality because the percentage of non-White or Black population is traditionally higher in

South [Scully 1969]. However, Farbman [1975] argues that there was still a small difference in income inequalities even after factoring in these variables.

The consensus amongst various empirical works both old and recent is that regional geography has a significant impact on the distribution of income.

2.3.3.5 Gender

The effects of gender on the distribution of income are well documented however the theoretical foundations have varied. In addition, unlike other demographic variables thought to affect income distribution such as race and age, there is hardly any consensus on the theoretical basis of gender's effect on income distribution. Empirical results also vary without any consensus reached. One theoretical arguments used to explain why this is the case is what economists have referred to as economics statistical discrimination theory [Yang 2007; Aigner & Cain, 1977; Thurow, 1975]. The theory postulates that this discrimination is based on employers' judgments on negative characteristics of women that are correct, factual, and objective: that women in general actually have some negative characteristics that are ascribed to them [Aigner & Cain, 1977; Thurow, 1975]. Empirical observations lend little credence to this assertion [Yang 2007; Moss & Tilly, 2000; England, 1992; Marsden, Kalleberg, & Cook, 1996; Tomaskovic-Devey & Skaggs, 1999]. As evidence contradicting statistical discrimination theories accumulated, scholars developed an alternative weaker version of statistical discrimination theory which postulates the notion that employers discriminate against women and minorities using an incorrect stereotype: that they are less productive than are white males [Yang 2007; England, 1992; Tomaskovic-Devey, 1993].

Generally speaking, the various conflicting views on the effects of gender on income distribution can be categorized into three groups. [I] negative effects of female work force participation; [2] positive effects of female work force participation; and [3] negative effects of female headed households. Many works postulate that the impact of gender on income distribution will be negative as result of wage gap

due to discrimination in the labor markets. However empirical examination report conflicting results. An example is a study at a congressional district level by Durden and Schwarz-Miller [1976] whose hypothesis was supportive of the view that as the proportion of female workers in labor force increased, the inequality increased [Durden and Schwarz-Miller 1982]. Another study that reported similar results was Braun [1991] at a county level, he however did not plainly connect the outcome with the discrimination in labor markets. A different study by Ford [1977] hypothesized and examined the impacts of gender discrimination in finer details by using a measure of the ratio of median income of females to that of males. The results of the study were contradictory to the ones mentioned above but consistent with Ford's [1977] hypothesis that: an increase in this measure which is an indication of a decrease in the gender gap of wage led to a more unequal distribution of income. No explanation was given to this unexpected result.

Conversely, gender measured by female labor force variable is also considered to be a favorable factor that equalizes income distribution. This view is anchored on the effects of female participation in the work force in poor families, rather than observing the effects of gender discrimination in the labor force. For instance, Danziger [1976]; hypothesized that greater participation of women in the work force would contribute to more equal distribution of income rather than increasing inequality. The theoretical foundation of the assertion is based on the following views: One, there is an increase of family incomes with greater participation of women in the labor force. It is here assumed that an increase in the participation rate means an increase in participation of women from poorer families [Thurow 1973]. As the rate increases, on the whole family incomes will therefore be more equally distributed with the reduction of the gap between higher and lower income families. An empirical test at an SMSA level by Danziger supported this hypothesis: increase female labor force participation raised income levels and reduced overall inequality [Danziger 1976].

The effects of female labor force participation for poorer families was also observed by Nord [1980]; who used a more specific measure of this variable that is - married female labor force

participation rate [Nord 1980]. The work assumed that as this rate became higher, poorer families would be better off than higher income families because of an existing inverted relation between the married female labor force participation rate and their husbands' incomes [Cain 1966]. The empirical observations at SMSA level by Nord supported this hypothesis.

Finally, many scholarly works have explored the impacts of an increasing number of female headed households in the United States and the impact of this change in household structure on income distribution. The hypothesis is that an increase in the proportion of such household would lead to an increase in the measure on inequality [Haworth, Long, and Rasmussen 1978]. Several studies have supported this view at various levels for instance, Nord [1981] at SMSA level and [Braun 1991] at county level.

2.3.3.6 Age

Another demographic characteristic that has received considerable attention on its impacts on income distribution is age. Many studies however as pointed out by [Nelissen 1994]; have concentrated on the impacts of age on earnings on a yearly basis and long term studies are hampered by lack of sufficient longitudinal data necessary to examine age related inequalities. Many of the existing studies examining the impacts of age on income distribution are broadly grouped into two. First, are works that dwell on the effects of retired populations on income distribution [Weizszcker, 1996]. These works are in addition divided into two opposite views based on the direction of their effects on the income distribution. Studies in the second category are interested in age effects on work experience of labor force. Most of the empirical studies in existing literature in the first category suggested that a rise in the proportion of the elderly in society would contribute to greater income inequality. The theoretical foundation is that since the earnings of a person change over one's life cycle, an increase in the numbers of any age group in a population which earns less than the average wage would negatively impact the distribution of income. In this light, both the young and the old would negatively contribute to the growth of income inequality.

According to Conlisk [1967], the hypothesis holds after adopting an age variable of household headed by individuals under 35 and above 65. It is however worthy to note that studies that focus on the population under 35 are quite seldom majority of the studies focus on the population above 65. A number of studies such as Nelson [1989] and Braun [1991], have empirically rendered support to the notion that an increase in the elderly population, that is those over 65 will increase income inequality. However, Garofalo and Fogarty [1979] have urged caution on the proposition that the elderly population affect income inequality by stating that there was lack of clarity on the impacts of income inequality as a result of the existence of a high correlation between the variable and the level of transfer payments to an SMSA [Garofalo and Fogarty 1979].

However, the relationship of the elderly population and transfer of income was more clearly pointed out by Durden and Schwarz-Miller [1982]. They hypothesized that at a congressional district level, the higher proportion of the elderly means more transfer of income which would result in an increase in the median level of income amongst the unemployed therefore softening the impacts of unemployment on income inequality. While their empirical observations lent credence to the hypothesis, they pointed out that this outcome was inconsistent with other works.

While these works in the first category were interested in the elderly population, the works in the second category turned their attention to the labor force. The first argument is that various jobs require different levels of skills that relate to one's age. The theoretical basis is that, to analyze the role of capabilities for individual labor incomes, jobs are viewed as demanding certain degrees of various capabilities; individuals are endowed with specified degrees of these capabilities and in the labor market these supply and demand conditions are confronted. A price per unit of capability results, and thus individual income is derived from capability endowment and price per unit [Hartog 1976]. The argument here is that across one's life cycle, these labor and skill capabilities vary and hence the levels of individual income tend to vary [Weizszcker 1996].

Another theoretical dimension is that an individual worker is expected to accumulate more work experience as one becomes older. With more work experience so are the individual earnings and therefore a reduction in income inequalities. This view adopts a median age of population as an age variable instead of the percentage of specific age groups. For instance, an SMSA level income distribution study by Ford [1977] uses the median age as a proxy variable for the average number of years of work experience of workers. The outcome of the study affirmed that an increase in this measure i.e. median age/years of work experience [I] increased both the average income and the percentage of families at the top income categories and [2] decreased the percentage of poor families, but its effect on the level of inequality was not significant. Also, Aigner [1967] made similar observations by adopting the median age to examine the impacts of age on income inequality. His work observed that there was a significant connection between this variable and the overall inequality- as the median age increased, the inequality decreased.

In conclusion, the impacts of age on income distribution though well researched; there are conflicting arguments that make it difficult to reach a consensus. According to WeizsZcker [1996], it is difficult to tell whether an aging population increases inequality and that empirical results are usually hard to interpret. This is because "an aging society produces simultaneous shifts in both population shares and relative incomes, interacting in numerous intricate ways. The available data today are too limited within and across generations for a refined multivariate analysis that could provide the required disentangling information" WeizsZcker [1996].

2.3.3.7 Race

Earlier studies on the role of race in contributing to income inequality in the United States mainly focused on Whites and Blacks disparities. The idea that existing income inequalities are partly as a result of labor market discrimination is based on the view that there are racial cleavages in the American society [Foley 1977; Massey et.al 1990]. However, the American racial landscape has since experienced considerable changes, with Hispanics replacing African Americans as the largest minority group [U.S. Census Bureau, 2000]. Projections are Hispanics and Asian populations will double in the next 50 years,

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in contrast to a minor increase of the Black population and a decline in the White population [U.S. Census Bureau, 2002]. In this light, the continued changes in the racial and ethnic constitution of American society "have rendered studies that see race as a strictly white–black issue anachronistic" [Yang 2007]. In addition, the American society has made great efforts in the past five decades both in legislative and legal processes to get rid of racial discrimination from labor markets as well as in all spheres of society. Although considerable improvements have been achieved, discrimination in labor market seems persistent. Official report reveals public sectors which are expected to play a leading role are not an exception [U.S Equal Employment Opportunity Commission 2009][1]. Kirschenman and Neckemlan [1991] found out that low-skilled Black workers are more likely to be discriminated by employers than other low-skilled workers.

One of the arguments made on the connection between labor market discrimination and income inequality is that, minorities are discriminated in the labor market, and therefore have a harder time getting employment or promotion as compared to the White Population. More specifically, racial discrimination against non-Whites in the labor market is considered to be accountable for the lower income level of these population groups, especially the Black population. Even in the light of the increasing evidence of many types of labor market discrimination, there have been conflicting theoretical explanations of the reasons behind these inequalities. Theoretical explanations have surfaced to account for the observed workplace inequalities based on ascriptive [racial] status. Drawing from early studies in economics of employer discrimination, the statistical-discrimination theory avers that as a result of insufficient information, employers use group-level attributes to assess job candidates' suitability for certain positions [Aigner & Cain, 1977]. The other theory is social closure theory which argues that Whites have an easier time getting good jobs to protect their own privileged status [Reskin, 1988], to ease communication, and to promote social certainty [Kanter, 1977]. Thus, minorities are directed into less-

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[1] Report is available on line at:
http://www.federaltimes.com/article/20100808/PERSONNEL01/8080306/1001

desirable jobs and workplaces, resulting in serious disadvantages in income, training, authority, and promotion [Tomaskovic-Devey, 1993]. Even so, empirical substantiation to the two theories is sparse [Tomaskovic-Devey & Skaggs, 1999; Tomaskovic-Devey & Skaggs, 2002].

Some of the earlier works that empirically affirm the effects of race on individual earnings are based on studies on wage determination, human capital and labor market segmentation [Farbman 1975]. On the basis of this view, it is assumed that the higher populations of minorities/blacks in a population unit, the higher the levels of income inequalities. Several studies lend credence to this hypothesis at various geographic units of analysis for instance, [Aigner and Conlisk 1967] at SMSA level; Farbman [1975] and Dazinger [1976] at congressional district level; Durden and Schwarz Miller [1982] and Nord [1980] at city level. In addition, an earlier empirical work on income distribution [AI-Salmarrie and Miller 1967]; observed that race was the main determinant of income inequality in most states across the nation.

However, Conlisk [1967], cautions that it is worthy of note to bear in mind that the proportion of blacks does not necessarily have a linear effect on the levels of inequality. Only when such a population group is in a minority position in a geographical unit of analysis and they are at a low income level does their existence increase aggregated inequality measure; however, when the percentage of this population group moves toward fifty percent, the levels of inequality would decrease. He adds that the decreasing inequality measure in this case does not necessarily mean an improvement of income level of the population group relative to White-population. Instead, the community becomes more homogeneous in terms of racial composition and so is the income level. Such measurement effects are negligible at a state level because the White population is in a majority position at the level. On the other hand, [Braum 1991] avers that a study at a city level needs careful interpretation of such measures because non-White or Black population is increasingly becoming a majority in large cities.

2.4 Summary

This is a panoramic survey of studies in income distribution, primarily from an economics standpoint. From the existing literature, studies on distribution of income inequalities have a tripartite dimension namely: within-country inequality, cross-country inequality and global inequality. The chapter observes that there is an avalanche of literature on income inequality. However, even with great and numerous number of previous works on income inequality, there are some unanswered questions as a result of a general lack of consensus amongst researchers. One of those areas of contention is how much of this inequality is associated with various determinants of inequality.

The general consensus is that Kuznet's work in 1955 was the catalyst for myriad of studies on income distribution. In general, he hypothesized that the distribution of income will be skewed widening inequality in the early stages of economic growth as society transitions into industrial stage, with some stabilization for sometime then narrowing as the economy matures due to the strengthening of counteracting forces.

Though Kuznets showed evidence of his hypothesis, recent studies and data seem unsupportive of the hypothesis. Some studies have suggested that the relationship between economic growth and income inequality is not consistent while some argue that data indicates persistent trend of income inequality since early 1980s. In the last decade, many researchers have begun paying more attention to the relationship between income inequality and the stock market. The increase of the S&P 500 by more than five times has raised the wealth of stockholders significantly compared to non-stockholders' wealth. With the financial crisis of 2009 and continued high unemployment rates, it is expected that in the coming years, greater attention will be paid in this area of research.

CHAPTER 3

GLOBAL CITY THESIS

3.1 Globalization in "World Cities" & Income Inequality

In the previous chapter, we briefly touched on the subject of globalization; however we did not delve into discussions on the theoretical foundations and empirical examination on how globalization produces income inequalities. As mentioned in chapter one, we intend to combine two distinct areas of scholarship: systemic studies of world cities and studies in income distribution, to explore the global city thesis and it's assertion that globalized economic activities are the associated with massive disparities in income in United States Metro areas. This chapter seeks to introduce the reader to systemic studies in world cities, which is a distinctive area of scholarship in urban studies and discuss the field's contribution to studies in income inequalities strictly within the urban context. As mentioned in chapter one, the purpose of this is to find out if there are other peculiar factors associated with these inequalities outside the ones established in welfare economics. We start by defining the concept of globalization, and the differing views of this concept thus setting the stage for reviewing its role in income distribution. Second, we explore the notion of "world cities" then conclude by discussing urban income inequalities in the context of world city thesis.

3.2 An Overview of Globalization: Differing Views

Globalization is quite an amorphous term but with tremendous impacts not only on national economies but also on economies of cities and metropolitan areas that are centers of national productivity. In much of the academic literature, globalization has been conceptualized as the removal of physical and political barriers for free movement of capital, peoples, information, and cultures among nations [Sabapathy 2009; Friedman 2005; Gugler 2004; Taylor and Walker 2001; Knox 1994]. For what globalization is or it's not, Milanovich [2003] summarizes three major views of globalization both in public discourse and academic literature. He refers to these views as, mainstream view, liberal and conservative view.

3.2.3 Mainstream View

According to Milanovich [2003]; the mainstream view of globalization, is held by the vast majority of economists, many political scientists, and political commentators. Based on this view, globalization is a benign force leading society ultimately to the era of converging world incomes [as poor countries such as China open up to the world and see their incomes rise], converging institutions as democracy becomes a universal norm, and cultural richness as people of different background interact more frequently. The proponents of this view regard globalization as a solution for many of the problems plaguing society, such as poverty, illiteracy or income inequality that beset the developing world. "The simple thing that a country has to do is to open up its borders, reduce tariff rates, attract foreign capital, and in a few generations if not less, the poor will become rich, the illiterate will learn how to read and write, and inequality will vanish as the poor countries catch up with the rich" [Milanovich 2003].

In academic literature, this view has been expressed implicitly by various serious papers and publications as, for example, in the Dollar and Kraay [2000] they postulate that ''the poor and the rich gain one-for-one from openness,'' from the process of globalization while Sala-i-Martins [2002] implicitly argues that one of the advantages of globalization is the convergence of incomes. Milanovich

2003 avers that what scholars such as Dollar and Kraay do not explicitly state are the finer details of globalization that when gains ''one-for-one'' are expressed in percentage terms, a poor person whose income is one-hundredth of that of a rich person will also gain one-hundredth of the rich person's gain. In other words the skewed gains lead to divergence of income though the poor "gain" a piece of the pie.

3.2.4 The Liberal View

Opposed to the view of globalization is a purely benign force as captured in the above discussions, Milanovich [2003] further identifies two more views. One is what he terms as the left or liberal view which regards globalization as a malignant force that leads to child labor in the developing world and takes away middle-class jobs in the developed world. He argues that from the Left's view, to take a position against globalization is a difficult task because the Left adheres to the idea of internationalism.

Though that is the case, he argues that what the Left resents is the notion that "globalization is led by a triumphant, and often, unbridled capitalism". To the Left, unbridled capitalism is the main cause of globalization problems the Left complains about such as: destruction of environment, obliteration of indigenous cultures and exploitation of the weak.

3.2.5 The Conservative View

The other view that Milanovich points out is the Right or conservative view, which he terms as "often xenophobic" that agrees with the Left that globalization is a malignant force. This view is more widespread in Europe, with an established history of xenophobia, than in the United States so he argues. "In Europe, globalization engenders not only fear of losing jobs to the poor masses in the South, but of losing cultural homogeneity that many European countries have acquired through a long process of obliteration of local cultures and three centuries of capitalist development". He argues that the homogeneity of Europeans is threatened, by people of different color, culture, and way of life and a fear of Muslim immigrants which is blamed on the entrenchment of a more globalized society.

Scholars have argued that because globalization is such a huge and multifaceted process, its effects are quite subjective and therefore present different experiences to different people depending on where they live, their socioeconomic status, their ideological persuasion, all these factors elicit divergent views. Early globalization as it played out from the mid-19th century to 1914 was also a contradictory force, with both its benign and malignant features. The same is the case today, a two faced process with both malignant and benign features [Milanovich 2003; Basu 2006].

3.2.6 An Overview of "World/Global City" Concept

A global city or world city is a city that functions as an important node point in the global economic system. The term is derived from geography and urban studies and founded on the notion that globalization is a process mainly formed, made possible and performed in strategic geographic locales according to a hierarchy of importance to the operation of the global system of finance and trade [Friedman 1986; Castells 1989; Sassen 1991; Knox 1994; Beaverstock 2002; Taylor 2005; Kujath 2009]. The most sophisticated of these entities is the "global city", whereby the connections binding the city have a direct and real effect on global affairs through socio-economic means [Sassen 1991; Knox and Taylor1995; Beaverstock 1999]. The terminology "global/world city", as opposed to megacity, was first used by the celebrated Scottish city planner Patrick Geddes in 1915 [Beaverstock 1999]. The contemporary use of the terminology was however made popular by sociologist Saskia Sassen in reference to her 1991 work, "The Global City: New York, London, Tokyo" to describe cities which control a disproportionate amount of global business.

Based on an broad analysis on development of perspectives and on empirical studies Friedmann [1986] identifies five characteristics of the "global cities": One, as the primary organizing nodes of global economic systems; Two, a location of global capital accumulation, however smaller than the world as a whole; three, mainly urbanized space of economic and social interaction; Four, hierarchically organized, in recognition of the economic clout they possess; and five, in essence being under the control of the

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transnational capitalist class. According to Sassen [1991; 1997] with more globalization of the economy the higher the agglomeration of central functions in a relatively few global cities. Therefore, as a result, global urban systems have been distinctly characterized by flows of capital, information, and labor; as Castells [1989] argues, the traditional view of urban systems as the space of relative locations should be changed into space of flows. Global cities have therefore been seen to function as centers of transnational corporate headquarters, international finance and management, transnational institutions, telecommunication and information processing, and the locus of advanced producer services [Sassen 1991; Knox 1994; Taylor 2005; Kujath 2009]. According to Abu-Lughod [1999] and Taylor [2005], global cities are also coordinators of state power, sites of innovative post-Fordist forms of industrialization and production, and markets for the products and innovations produced. In short, they are "command and control centers" in the organization of the world-economy that use advanced telecommunication facilities, important centers for finance and specialized producer service firms and coordinators of state power [Abu Lughod, 1999; Taylor 2005].

Literature on global city studies attributes the creation of these "command and control centers" to several factors. According to Beverstock [2002], skilled international migration is an important process of both contemporary globalization and the global city, and that the establishment of transnational elite of expatriate labor in international finance plays a vital part in the accumulation of capital within international financial centers [IFCs]. Expatriate labor has become a major determinant of the IFC, creating financial capital through complex social relations, knowledge networks, practices and discourses. Firmann [1998] and Cho [1997] postulates that global cities are also a product of expansion and deepening of the global market for goods and commodities, services, and finance, which was spurred by the development of communication and transportation technology and later by trade liberalization. According to Dicken [1998], these factors have given momentum to the integration of various parts of the world into a global financial system as well as the global economy. Dicken [1998] and Beaverstock

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[2002] aver that this process is so powerful that it is impossible that a major city would escape its effects, and has in the process given birth to global cities.

In summary, as stated in the beginning of this chapter, the terms "world cities" or "global cities" are not new. However, the meaning of the term is different from how it was first used. Beverstock [2002] avers that it is different in that when Hall [1966] used this term in the mid 1960s in discussing the development of very large metropolitan regions and their plans for the future, the term "global cities" at that time did not indicate globalization. Sassen [1997, p 15] argues: "The earlier literature on world cities is closer to the notion of capitals of empires: one city at the top of the power hierarchy. In the current literature on global cities the determining factor is a crossborder, global network of cities that function as strategic sites for global economic operations". In spite of the growing research interest in the phenomenon of global cities, the empirical studies thus far have been almost exclusively focused on cities of the developed world, such as London, New York, and Tokyo [Rimmer, 1986; Sassen, 1991, 1994], and Ranstad Holland [Shacar, 1994]. Therefore, little is known about this process in other cities of the developing world [Beverstock 2002].

3.2.6.1 Beaverstock's Methodology in Defining Global Cities

Beaverstock [1999] observes that there has been a general tendency in world city literature to rank cities based on their "disproportionate geoeconomic power in the world-system". Examples of this rankings he argues, are seen for instance in seminal work of Peter Hall [1966], to the examination of London, New York, Tokyo and Paris in the mid 1990s [Sassen 2000]. Many scholarly works broadly agree on which cities should be located at the top of the hierarchy, Sassen [1991], Taylor [1995], Knox [1994], Friedmann [1986] agree for instance that that New York, London and Tokyo are at the top, however a range of opinion exists on which cities qualify for this international status. As discussed in the beginning of this chapter, world cities exhibit a variety of characteristics some of which are discussed

above. Beaverstock [1999] groups these characteristics into four approaches based on the functions they perform as explained in the following paragraphs:

3.2.6.1.1 Cosmopolitan Characteristics and the Multinational Corporate Economy

Beaverstock's first approach bases its classification on works of early scholars of world city research who pointed out the strategic supremacy of certain world cities in the world system by analyzing and ranking the locational preferences and roles of transnational corporation [TNC] headquarters in the "developed" world [Hall, 1966; Hymer, 1972; Heenan, 1977]. Hall's [1966] analysis of London, Paris, Randstad, Rhine-Ruhr, Moscow, New York and Tokyo, which was fashioned after Patrick Geddes [1915] work has been extensively cited as the starting point for studying the global urban hierarchy [Beaverstock 1999]. Based on Hall's arguments [1966], these cities were at the top the urban hierarchy because of their [global] functional capabilities, based on power and influence in: politics; trade; communications; finance; education; culture and technology. Though Hall's [1966] work brought attention to the concept of world city onto the limelight of contemporary urban studies, it did so under the umbrella of urbanization, rather than reflecting world city growth as an outcome of the uneven geographies of capital formation in the world system [Beaverstock 1999; Brenner, 1998; Sassen 1991]. Hymer [1972], following Gedes postulated that the top management corporate functions undertaken within TNC headquarters "must be located close to the capital market, the media, and the government…because of the need for face-to-face contact at higher levels of decision making". Applying this scheme to the world economy, one would expect to find the highest offices of the multinational corporations concentrated in the world's major cities.

3.2.6.1.2 World Cities and the New International Division of Labor

Beaverstocks' second approach builds on Halls [1966] and Hymer [1972] ideas on the decision-making corporate activities and power of TNCs, in the context of the new [spatial] international division of labor discovered in the late 1970s [Frobel et al, 1980]. This block of work includes, Cohen [1981], Friedmann and Wolff [1982], Friedmann [1986], Feagin and Smith [1987], Godfrey and Zhou [1999] and

to a lesser extent Knox [1995, 1996]. These works have provided a "theoretical" approach to world city studies. They have also been a major catalyst for the extension of research into the 1990s [Knox and Taylor, 1995]. From these scholarly works, two major pieces empirically researched the development of world city rankings with the global urban hierarchy, Cohen [1981] and Friedmann [1986]. Cohen [1981] ranked locations of 198 largest non- US corporations into a global hierarchy, with Tokyo and London at its apex and New York ranked alongside them as the three "predominant world centers of corporations and finance". Below them, he identified Osaka, the Rhine- Ruhr, Chicago, Paris, Frankfurt and Zurich as the so called "second-level" world cities.

Also, Friedmann [1986] arguably developed the most eminent global urban hierarchy writing, which differentiated between primary and secondary cities in core and semi-peripheral countries. Friedmann [1986] based his hierarchy upon the idea of major cities as "control centres" of capital in the new international division of labor. The world city hierarchy was based upon an analysis of several key criteria: major financial centre; headquarters for MNCs [including regional headquarters]; international institutions; rapid growth of business services sector; important manufacturing centre; major transportation node; and population size. Friedmann [1986] admits, "not all criteria were used in every case, but several criteria had to be satisfied before a city could be identified as a world city of a particular rank". Many have argued against this casual empiricism [for example, see Taylor, 1997], and Friedmann [1995] has readily acknowledged that constructing a stable urban global hierarchy is difficult.

3.2.6.1.3 The Internationalization, Concentration & Intensity of Producer Services

Beaverstock's third approach is centered on the propensity of cities within the urban hierarchy to engage with the internationalization, concentration and intensity of producer services in the world economy. The idea is hinged on the research of Saskia Sassen in such works as *The Global City* [Sassen, 1991] and *Cities in a World Economy* [Sassen, 1994a]. For Sassen [1991, 1994], New York, London and Tokyo stand as the triad of global cities in the global economy because, "…these cities now function as highly concentrated command points in the organization of the world economy as key locations for

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finance and for specialist service firmsas sites of production of innovations and as markets for the products and innovations produced" [Sassen, 1991]. According to Sassen [1991], the concept of the global city has emerged because of two inter-related factors: the globalization of economic activity, and the organizational structure of the producer service and finance industry itself – "rather than a detailed analysis of the economic base of the cities themselves" [Sassen, 1991]. With respect to the globalization of economic activity, *translated as being the shift to services and finance on a global scale*, Sassen [1991] believes that these processes have brought "about a renewed importance of major cities as sites for certain types of production, servicing, marketing, and innovation".

In particular, the internationalization of both the producer service sector and financial system has made cities vital centres for the "management and coordination" of economic power in the global economy; particularly, New York, London and Tokyo. Paralleled with the globalization of economic activity, Sassen [1991] suggests that the rapid growth, specialization and agglomeration of producer service firms and the organization of the financial industry itself has to some extent been responsible for the formation of global cities. The locational preferences of producer service activities such as, accountancy, advertising and banking, are then helpful in conceptualizing the agglomeration and centralization of management functions in global cities. As Sassen [1991] comments, producer service firms "obtain agglomeration economies when they locate close to others that are sellers of key inputs or are necessary for joint production of certain service offerings".

In this case, the high concentration of producer service corporate functions in London, New York and Tokyo can be explained by the array of potential customers that are found within these cities: the corporate headquarters of both manufacturing and other service firms, government departments, non-government organizations and foreign firms.

3.2.6.1.4 World Cities as International Financial Centers

Beaverstock's fourth approach identifies major cities and their relative positions through rankings of international financial centers, founded on the works of Howard Reed [1981]. Using a multivariate analysis of nine banking and financial variables and 41 related cultural, economic, geographical and political variables in 76 cities [80 in 1980] in 40 countries, between 1900 and 1980, Reed [1981] identified a taxonomy of financial centers with five hierarchical levels in 1980. In descending order, it read as: Supranational Financial Center [London]; Supranational Financial Centers of the First Order [New York and Tokyo]; Supranational Financial Centers of the Second Order [e.g. Amsterdam]; International Financial Centers [29 cities]; and Host International Financial Centers [39 cities].

3.3 Criticism on City Rankings

Sekio and Anjomani [1998;2004] have criticized these rankings by arguing that the rankings are scantly supported by hard data and that other cities which house service industries, and exhibit similar qualities as global cities do not either register as having significant world city qualities. Douglas [2000] offers a stinging criticism on the notion of ranking cities in a world system. He argues that a number of substantial problems are encountered when trying to capture the space-economy of global capitalism through the location of corporate headquarters, producer services and subsidiaries. He adds that, in terms of the limited set of indicators identified, the data requirements prove to be intimidating, and even the best analysis is likely to be partial and weighed down with hidden biases. "The result is that despite the best of research methods and efforts, identifying world cities and their urban networks remain highly stylized and speculative" [Douglas 2000]. Another criticism is that in addition to problems in collecting data on advanced services, identifying corporate affiliates throughout the world is also becoming more and more complicated as TNCs shift away from direct ownership of productive assets and towards more distant forms of control over distribution through, for example, licensing or subcontracting to nominally independent enterprises that do not register as corporate affiliates [Douglas 2000]. He further avers that

"In the end, the long list of more than 120 possible world cities classified into tiers based on strength of available evidence remains a set of informed conjectures supported by rather partial data".

3.4 Global City Thesis & Income Distribution

Since the beginning of systemic studies of world/global cities in the 1980's, a distinctive feature of this field of scholarship has been the focus on the disparities in the wealth of the highest and lowest segments of the population of cities. Others have designated it as income inequality while others have termed it as class polarization [Abrahamson, 2004]. From urban studies literature and in the context of 'global city thesis' income polarization is characterized by the rise of private-sector elites in entrepreneurial, managerial and professional classes together with the growing number of people at the bottom of the labor market, particularly reflective of polarization is the concurrent expansion of a highly educated elites and informal sector workers [Kaya 2007]. Another significant indicator is the rise of service employment and the decline of public employment [Friedmann 1986; Sassen 1991; Knox and Taylor 1994; Sklair 2001]. Many scholarly works have expressed the idea that we are living in a global system with a small class of privileged individuals but excluding the rest. For instance, Sassen [1991; 1994] avers that a class of professionals and entrepreneurs that run the world economy are an important segment of the population of global cities in face of a growing number of informal and service workers that are disposably employed by the elite class. Other works that make claims about an emerging global capitalist class include: Sklair [2001, p. 4]; Robinson and Harris [2000].

Friedmann and Wolff [1982] are generally credited with sparking the growing interest in world cities [Coughlin 1994]. They hypothesized that the overall distribution of wealth, or income in the global cities might be moving toward the shape of an hour glass. Their work emphasized the linkage between the city and the world economic system. More specifically, they suggested that the mode of world system integration would affect in determinate ways the economic, social, spatial and political structures of world cities and the urbanizing processes [Friedmann and Wolff, 1982:313]. Friedmann later elaborated his

early work on the world city thesis, linking urbanization processes to global economic forces [Friedmann 1986], focusing on the spatial organization of the new international division of labor. According to this thesis, world cities are major sites for the concentration and accumulation of international capital, come to possess global control functions and thus attract large numbers of both domestic and/or international migrants. Friedmann identified thirty world cities which he arranged in a hierarchical manner based on a variety of criteria, including: headquarters for transnational corporations including regional headquarters; international institutions; rapid growth of business service sector; important manufacturing center; major transportation node; and population size. The world city thesis has negative implications regarding the effects of globalization on urban life; it argues that the process of forming world cities is accompanied by major contradictions of industrial capitalism and that world city growth would generate social costs exceeding its fiscal capacity.

The underlying assumption is that poor workers who migrate to the world cities generate enormous demands for social services such as education and housing. According to Friedmann, class polarization has three identifying characteristics: huge income gaps between transnational elites and low-skilled workers, large-scale immigration from rural areas or from abroad, and structural trends in the evolution of jobs [Friedmann, 1986; 76; Hall 1988; Castells 1988; Kasarda 1988]. Consequently, such class polarization causes spatial polarization in a metropolitan area. Advocates of global city thesis have pointed out at changing nature of employment characterized by the replacement of manufacturing jobs by service industries has on the income distribution in the western world [Soja 2000; Beck, 2000]. According to Castells [1988], New York City lost 600, 000 manufacturing jobs between 1953-1988 while it gained 700,000 service jobs. The observed implications of this phenomenon is the development of steep income inequalities what Mollenkopf and Castells [1991] termed as a "dual city" that mirror what Friedman had earlier observed. For more on the changing nature of employment and its impacts on income distribution and spatial polarization in world cities, see O'loughlin and Friedrichs [1996] and Tyner [2000].

As already mentioned above, another key defining characteristic of the world cities is that they are

destinations of large numbers of diverse migrants, not just the poor but also highly educated and well to do individuals [Cetina and Bruegger, 2000; Sassen, 2000; Abu-Lughod, 1999]. The migration of transnational elites into the cities leads to gentrification of some urban areas which in turn attracts retail enterprises , such as eat-in and to-go restaurants, cleaners, food and liquor stores, designer clothes boutiques and so on. The commercial expansion makes these areas attractive to other elites. This orchestrates greater commercial interests and thus competition for urban space to meet the needs of the migrant elites. The consequence is the skyrocketing of land value; and the neighborhood's longtime residents find it difficult to pay the escalating taxes and rent, therefore relocating to other neighborhoods while some become homeless leading to greater income polarization [Abrahamson, 2004; IFC, 1997; Sassen, 1991].

While the world city thesis provided a new approach to the nature and implications of globalization, studies that followed focused more on the phenomena of income polarization in globalized urban societies. In particular, an increasing gap between the rich and the poor was often associated with changing urban societies with globalized natures [Mollenkopf and Castells, 1991; Sassen, 1991; Fainstein, Gordon, and Haloe, 1992]. Sassen's "polarization thesis," based on a discussion of the experience of the three global cities of New York City, London, and Tokyo [Sassen, 1991], gained in popularity.

According to the global city thesis, decentralization of the global economy leads to an agglomeration of the control function in a small number of large cities, such as New York City. These cities not only possess coordinating functions but can also provide highly specialized corporate services and create financial innovations. Based on these functions, they are also able to generate large markets for services and innovations. Consequently, large scale economic restructuring becomes inevitable in these cities, as shifts in the job supply occur, with concomitant changes in income distribution. It should be noted that newly created or expanded job supply can be found both in high wage jobs and low wage jobs. However, the newly created wealth of such cities is related mainly to the technologically advanced

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growth sectors such as information technologies. The demand for low-wage jobs increases in order to support the growth sectors. Because the growth of job supply in those two opposite classes tends to exceed that of the middle class jobs, the whole process of restructuring in global cities therefore leads to income polarization.

Although the work of Sassen focused on the three large cities of New York, London, and Tokyo, it also implied that a parallel change associated with globalization existed in diverse cities in the lower tiers such as São Paulo [Sassen, 1991:4]. The generalizability of the phenomenon to a relatively wide range of cities is quite controversial. Sassen's original study has been criticized as providing a large amount of social and economic data on these three cities "without tying the numbers to any clear-cut argument" [Hohenberg, 1992:2187]. The correlation between the degree of globalization and the degree of polarization were not presented by the raw data available in the limited number of samples.

Arguments regarding whether Sassen's polarization thesis cannot be generalized to lower tier cities has proceeded, for the most part, without empirical support. An exception is work by Hamnett [1994]. Using Randstad, Holland as the lone example, Hamnett disagrees with those who would generalize Sassen's polarization thesis. Part of the argument by Hamnett is that New York and London are unique and isolated because of the high percentage of unskilled immigrants in general.

Sassen's supporters argue that the experience of New York has relevance to the rest of urban America [Kantor, 1992] and that a duality can be found in capitalist restructuring at all levels of the global urban hierarchy [Levine 1992]. According to Knox (1995), if the notion advanced by Sassen, Kantor, and Levine that the experience of global cities can indeed be generalized to lower tier cities, then highly developed U.S. urban areas possessing characteristics of global cities will also experience income polarization.

In the early 90s, focus on the study of world cities shifted heavily to the examination of income polarization that characterized global cities. Particular attention was paid to an increasing gap between the rich and the poor a phenomena described as "polarization thesis" that was often associated with structural

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changes in urban societies with globalized characteristics [Mollenkopf and Castells, 1991; Sassen, 1991; Fainstein, Gordon, and Haloe, 1992]. This shift was based on studies of Saskia Sassen [1991] in three 'global' cities of New York City, London, and Tokyo. In the following years Sassen's "polarization thesis" gained in popularity as many scholars sought to explore the subject beyond the three cities that Sassen had studied.

However, the main question remained was whether a parallel change associated with globalization existed in diverse cities in the lower tiers such as São Paulo [Knox, 1995]; since only three large cities of New York, London, and Tokyo had been studied [Sassen, 1991:4]. Generalization was however likely to stock controversy as some scholars argued that Sassen's original study provided a large amount of social and economic data on these three cities "without tying the numbers to any clear-cut argument" [Hohenberg, 1992:2187]. Others argued that "The correlation between the degree of globalization and the degree of polarization were not presented by the raw data available in the limited number of samples" [Anjomani and Sekio 1998].

Consequently, in 1998 Anjomani and Sekio designed the first coherent and empirical study of the effects of globalization in large US metropolitan areas. They used data from 1990 census to examine the effects of globalization on income inequalities in 61 large U.S metropolitan areas whose economies were not as sophisticated as those of London, New York and Tokyo. They sought to find what effects globalization and polarization has on the life of large U.S metropolitan areas that may not fit the definition of a 'world city' as conceptualized by Friedmann and Goetz and promulgated by Sassen and others. Anjomani and Sekio argued that whereas many-case studies have authenticated Friedmann's world thesis and qualitatively documented the polarization thesis [Sassen 1991; King 1990; Ross and Trachte 1990], the theses on globalization from Friedmann and Sassen, "while illuminating and provocative, lacked empirical support". However, using 1990 census data Anjomani and Sekio's work [1998; 2004] confirmed Sassen's polarization thesis.

3.5 Summary

This chapter reviewed systemic studies in world cities, which is a distinctive area of scholarship in urban studies. The highlight was the field's contribution to studies in income inequalities strictly within the urban context. The chapter observes that in the early 1990s focus on the study of world cities shifted to the examination of income inequality that characterized global cities. Particular attention is paid to an increasing gap of income between those in the higher segments of society and those in the lower segments, a phenomena described as "polarization thesis" that is often associated with structural changes in urban societies with globalized characteristics such as London, Tokyo and New York. The main question however is whether a parallel change associated with globalization existed in diverse cities in the lower tiers such as since only three large cities of New York, London, and Tokyo had been studied.

The studies have come under two major criticisms, one is that despite the best of research methods and efforts, identifying world cities and their urban networks remain speculative. Two, while the studies are illuminating, there is limited empirical evidence.

CHAPTER 4

METHODOLOGY

4.1 Overview

This chapter outlines the methodology of testing the two hypothesis put forth in chapter one. The chapter is divided into five sections. The first section looks at the context of research in the light of previous works both in the study of global cities and the existing works in income inequality. The primary aim of this section is to establish the research problem and therefore presenting specific research questions and hypothesis. The section also discusses the contribution of this research to the body of knowledge. The third section discusses the independent variables and methodology. The fourth section discusses the data used in this research. The last section is a summary of major points. The research employs data from the American Community Survey (2010 ACS data), US Census 2000 and the Bureau of Labor Statistics. Gini indices for the year 2000 are computed from the 2000 census data.

4.2 Research Problem

The disparity in income distribution is an old issue and there is an avalanche of empirical literature on the problem especially in traditional economics. However, it is only in the last 3 decades that the issue of income inequality began generating interest in the field of urban political economy with the advent of systemic studies in large cities. Central to these systemic studies of large cities is the examination of the impact of economic globalization on income inequality.

The observations though empirically few but theoretically numerous have suggested that income inequalities in the large metropolitan areas are a tributary of economic globalization, characterized by growth of producer services and shrinking of manufacturing industries (Friedmann, 1982; Meyer, 1986; King, 1990; Sassen, 1991; Anjomani & Sekio 2004; Zhong & Sassen 2007). A phenomenon termed as "polarization thesis". As already reviewed in Chapter three, there are few empirical works that have ascertained polarization thesis and most of theoretical arguments are amorphous (Anjomani & Sekio 2004). This is the first research problem the dissertation seeks to address:

(1) To add to the limited empirical studies on polarization thesis by examining whether income inequality is associated with economic globalization.

The few empirical works on polarization thesis including (King, 1990; Sassen, 1991; Anjomani & Sekio 2004; Zhong & Sassen 2007), have used only examined the problem using data at a particular time/year. No studies have used panel data to see the relationship between income inequality and globalization in metropolitan areas over time. The findings of such a study would provide more reliable conclusion of thesis as compared to relying on one time data. This is the second research problem we hope to address:

(2) Examine polarization thesis over a ten year period.

More importantly, sorely lacking in the global city scholarly works is a study that has sought to eliminate whether the growing income inequalities in the large (global) cities is as a result of economic globalization or as a result of other determinants of inequality identified by various literature in traditional economics. This is a critical research problem that has not been addressed by existing works. It is by eliminating other factors that may be contributing to the problem that we can ascertain a cause-effect relationship. This is the third research problem that this dissertation seeks to address:

(3) To find out to what extent the income inequality in large cities/metro areas is a factor of other (traditional) determinants of inequality rather than globalization.

The existing works measuring polarization thesis adopt only a single measure of inequality despite of the availability of various inequality measures. Not many efforts have been made to employ multiple measures of inequality to examine different implications of inequality derived from different measures. The majority of the existing works employed a single measure of the Gini coefficient which measured aggregated inequality for overall population. Such an approach does not provide information about inequality which might exist among and between subgroups of the population. This is the fourth problem this dissertation seeks to address:

(4) Using multiple measures of inequality to measure polarization thesis with the view of obtaining more reliable conclusions.

In summary, we seek to address all of the four research problems discussed above by accomplishing the following. (1) Add to the limited empirical studies on polarization thesis by examining whether income inequality is correlated with economic globalization. (2) Use panel data to examine polarization thesis over a ten year period. (3) Find out to what extent the income inequality in large cities/metro areas is a factor of other (traditional) determinants of inequality rather than globalization. (4) Use multiple measures of inequality to measure polarization thesis with the view of obtaining more reliable conclusions.

4.3 Research Questions

Based on the research context discussed above, our research questions are derivative of the 4 research problems that we have already discussed above. This dissertation will seek to answer the following research questions:

      i)   Is there polarization of income in large US metropolitan areas that exhibit similar characteristics with global cities?

      ii)   Is this polarization of income associated with globalization forces as argued by global city thesis or is it simply related to traditional determinants of income

inequality as observed by traditional economic literature research? Do both factors play a role?

To test the following hypothesis:

(i)   Polarization of income is not restricted to only global cities but also in large US metropolitan areas that exhibit similar characteristics with global cities.

(ii)   The polarization of incomes in large US metropolitan areas is largely explained by a globalized economic structure more than traditional income inequality determinants.

4.3.3 Units of Analysis

Similar to the work by Anjomani and Sekio (2004), this study adopts two units of analysis, a geographical unit (metropolitan areas) and a unit of income recipients (households) within the selected geographical region. As averred in chapter 1, the 50 largest metropolitan areas in the United States based on 2010 Census data are the geographical units of analysis. Most of the existing works on inequality adopt the state as the unit of analysis because of the relative ease of obtaining data (Nelson 1984). However, the state as a unit of analysis falls short as a suitable unit to analyze the ramifications of globalization on income inequality because the differences in socioeconomic and political processes that exist in various parts of the state makes it too large to accurately pick out on the true causes of inequality among the units. This is true especially in states with large population size such as California, Texas and Florida because the aggregated inequality measure for the state tends to dilute unique social, cultural and political characteristics that maybe contributing to inequality (Ram 1991). According to Ram (1991) and (Nelson 1984), this explains why inequality measures amongst states tend to below. The fifty metro areas in our sample are randomly distributed in the four census regions of the U.S see figure 1 below.
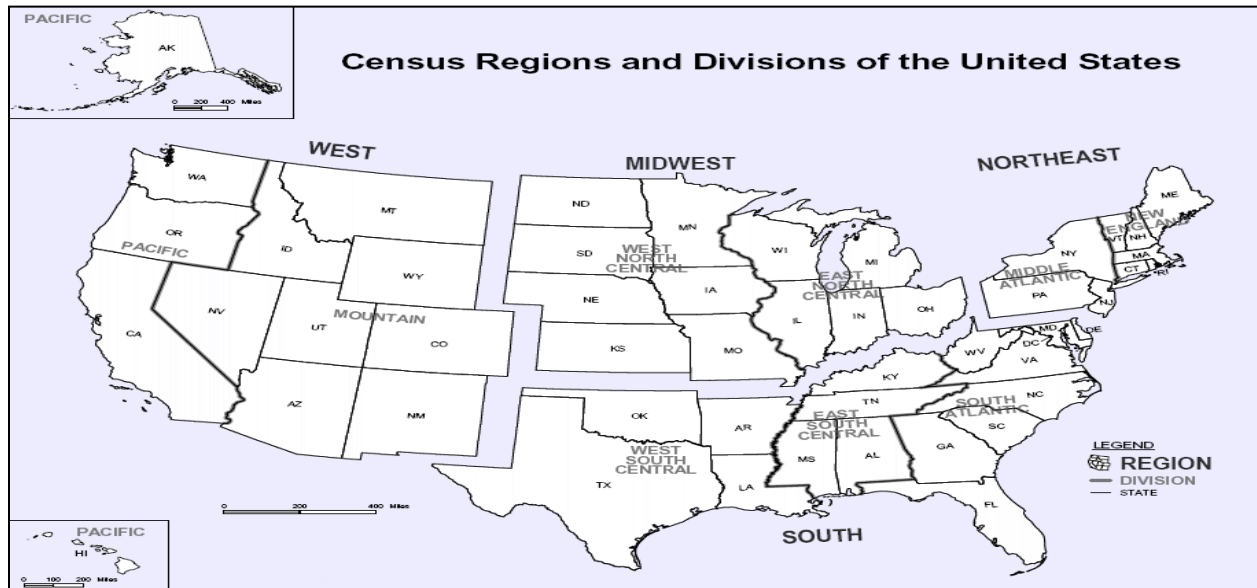
Figure 1: Census Regions of United States

Other works in inequality have adopted cities as a unit of analysis. Cities like the states are prone to producing extreme effects on inequality measures however for different reasons. Whereas literature on global city studies point out to the requirement that a certain population size, usually over a million people, is a prerequisite in supporting the economic infrastructure of a global city, the weakness of using cities as a unit of analysis for the purpose of this study is that a big population size in a single city tends to exaggerate the disparities in income inequality because of the presence of class structure that has a higher than average percentage of the poor and an elite class that is small and a relatively smaller percentage of the middle class due to suburban flight. Various works in urban studies have documented this scenario e.g. Massey and Eggers (1990); Knox (1994) and attributes this to high influx of unskilled immigrants to large cities, gentrification and suburbanization among other reasons. As such income inequality study in the city can only concentrate on a unique problem otherwise the results will mask other factors responsible for inequality (Nelson 1984; Anjomani& Sekio 2004).

Therefore the choice of metropolitan areas as the unit of analysis is predicated on the fact that metropolitan areas meet the population threshold necessary to study the impacts of globalization- a

million people. In addition from validity standpoint, they are not as large as the state which dilutes unique attributes that may have an impact on inequality measures and secondly unlike cities they have generally a balanced representation of class structure that does not produce extreme effects of class disparities on inequality measures (Anjomani and Sekio 2004). Table 1 below shows the 50 largest metropolitan statistical areas (MSAs) by population based on the 2010 American Community Survey data.

Table 1: Samples MSAs by Population Size[2]

Rank	Metropolitan Statistical Area	Population 2000	Population 2010
1	New York-Northern New Jersey-Long Island, NY-NJ-PA	18323439	19069796
2	Los Angeles-Long Beach-Santa Ana, CA	12365628	12874797
3	Chicago-Naperville-Joliet, IL-IN-WI	9098630	9580567
4	Dallas-Fort Worth-Arlington, TX	5161537	6447615
5	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	5687158	5968252
6	Houston-Sugar Land-Baytown, TX	4715417	5867489
7	Miami-Fort Lauderdale-Pompano Beach, FL	5007992	5547051
8	Washington-Arlington-Alexandria, DC-VA-MD-WV	4796074	5476241
9	Atlanta-Sandy Springs-Marietta, GA	4248021	5475213
10	Boston-Cambridge-Quincy, MA-NH	4392349	4588680
11	Detroit-Warren-Livonia, MI	4452558	4403437
12	Phoenix-Mesa-Scottsdale, AZ	3251888	4364094
13	San Francisco-Oakland-Fremont, CA	4123745	4317853
14	Riverside-San Bernardino-Ontario, CA	3254817	4143113
15	Seattle-Tacoma-Bellevue, WA	3043897	3407848
16	Minneapolis-St. Paul-Bloomington, MN-WI	2968812	3269814
17	San Diego-Carlsbad-San Marcos, CA	2813834	3053793
18	St. Louis, MO-IL	2698664	2828990
19	Tampa-St. Petersburg-Clearwater, FL	2396014	2747272
20	Baltimore-Towson, MD	2553022	2690886
20	Baltimore-Towson, MD	2179343	2690886
21	Denver-Aurora-Broomfield, CO /1	2431086	2552195
22	Pittsburgh, PA	1927883	2354957
23	Portland-Vancouver-Beaverton, OR-WA	2009651	2241841
24	Cincinnati-Middletown, OH-KY-IN	1796852	2171896
25	Sacramento--Arden-Arcade--Roseville, CA	2148017	2127355
26	Cleveland-Elyria-Mentor, OH	1644558	2091286
27	Orlando-Kissimmee, FL	1711716	2082421

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[2] http://www.census.gov/popest/metro/CBSA-est2009-comp-chg.html

Table 1- continued

28	San Antonio, TX	1836425	2072128
29	Kansas City, MO-KS	1375738	2067585
30	Las Vegas-Paradise, NV	1735818	1902834
31	San Jose-Sunnyvale-Santa Clara, CA	1612843	1839700
32	Columbus, OH	1330552	1801848
33	Charlotte-Gastonia-Concord, NC-SC	1525103	1745524
34	Indianapolis-Carmel, IN	1249746	1743658
35	Austin-Round Rock, TX	1576925	1705075
36	Virginia Beach-Norfolk-Newport News, VA-NC	1582997	1674498
38	Nashville-Davidson--Murfreesboro--Franklin, TN	1311789	1582264
39	Milwaukee-Waukesha-West Allis, WI	1500743	1559667
40	Jacksonville, FL	1122750	1328144
41	Memphis, TN-MS-AR	1205196	1304926
42	Louisville/Jefferson County, KY-IN	1162414	1258577
43	Richmond, VA	1096944	1238187
44	Oklahoma City, OK	1095422	1227278
45	Hartford-West Hartford-East Hartford, CT	1148622	1195998
46	New Orleans-Metairie-Kenner, LA	1316512	1189981
47	Birmingham-Hoover, AL	1051300	1131070
48	Salt Lake City, UT	968883	1130293
49	Raleigh-Cary, NC	797110	1125827
50	Buffalo-Niagara Falls, NY	1170109	1123804

The population size of the above metropolitan areas widely vary from New York-Northern New Jersey-Long Island with a population estimate of 19,069,796 NY-NJ-PA to Raleigh-Cary, NC with population of 1,125, 827 slightly above King's (1991) 1 million threshold discussed above. For the period under study, Raleigh-Cary, NC experienced the highest population growth rate at 41.2% followed by Las Vegas-Paradise, NV at 38.2%. However, New Orleans' population declined by 9.6%.

The second unit of analysis adopted in this study is the household as a recipient of income. Other works have used the family as the unit of analysis in studying distribution of income. The shortcoming of the family as a unit is that it restricts the study to studying only people living together that are related by marriage, adoption or blood, living out those that are in common low marriages or living alone. The household however includes everyone, so long as they live under the same roof. The study looks at income distribution in households in sample metropolitan areas. There is considerable variation also in

economic characteristics of households units in sample metropolitan areas as evidenced by the disparities in average household income. The table below is a snapshot of this variation.

Table 2: A Snapshot of Average Income Variation in Sample Units.

Metropolitan Statistical Area	Average Household Income 2010 in $
San Jose-Sunnyvale-Santa Clara, CA	108,685
New York-Northern New Jersey-Long Island, NY-NJ-PA	91,732
Los Angeles-Long Beach-Santa Ana, CA	82,000
Chicago-Naperville-Joliet, IL-IN-WI	79,647
Dallas-Fort Worth-Arlington, TX	75,803
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	80,876
Memphis, TN-MS-AR	59,545
Buffalo-Niagara Falls, NY	60,684
Tampa-St. Petersburg-Clearwater, FL	60,216

The income level measured by the mean household incomes is from $ 60,216 for Tampa-St. Petersburg-Clearwater, FL to $108,685 for San Jose-Sunnyvale-Santa Clara, CA. The numbers of those employed in manufacturing sector varies from 16.6 percent for Milwaukee-Waukesha-West Allis, WI to 3.1 percent for Washington-Arlington-Alexandria, DC-VA-MD-WV. The distribution of the 50 MSAs are such that they represent each region of the nation, as regional location is considered a factor in income distribution.

4.3.3.1 Operationalization of Variables

The following paragraphs discuss briefly how the study will approach the measurements of dependant and independent variables.

4.3.3.2 Measuring Globalization

The phenomenon of globalization in itself as discussed in chapter three has subjective meanings to different people. This poses a challenge in measuring it. It is therefore difficult to attach a mean value to globalization phenomenon. However, 3 measures from previous studies are adopted. These are earnings from producer services (see discussion below), manufacturing and immigration (Zhong and Sassen 2007). Zhong and Sassen (2007) state that though globalization has many facets, three of them are

outstanding: outsourcing of manufacturing, the rise of producer services, and immigration. Producer services like finance, accounting, internet consulting, and law firms are critical to support other global businesses, and have been identified as critical markers of the knowledge driven economy and of globalization". The same argument is made by Florida, 2002; Sassen, 1991; King, 1990 and Meyer, 1986. Therefore, this study will adopt these three variables as in prior works in Global city studies (Friedmann, 1982; Meyer, 1986; King, 1990; Sassen, 1991; Anjomani & Sekio 2004; Zhong & Sassen 2007) to measure economic globalization. These variables are:

1) Share of Earnings by Producer Services: That is the proportion of earnings received by producer services sectors in the metropolitans area's total earnings to measure the changing economic structure of global era in which producer services including legal, account, research, management, and other related services increase in their economic shares in the entire economy.

2) Proportion of Hard Manufacture Employment: That which is the proportion of durable goods manufacturing sector employment to the metropolitan area's total employment. The argument is that in globalized metropolitan areas the share of manufacturing employment is dwindling due to restructuring forces.

3) Proportion of Immigrant Population: That which is change in the proportion of immigrants in the metropolitan area since 1990 to reflect Friedmann's insight that global cities attract many immigrants, and are characterized by their cultural diversity.

The equation for measuring globalization is therefore expressed as follows:

f (**Globalization**): $(S_{X1}\text{-}S_{X2}), (M_{X1}\text{-}M_{X2})$ & $(IP_{X1}\text{-}IP_{X2})$

Where: $S_{X1}\text{-}S_{X2}$ is Δ in the share of producer services between 2000 and 2010.

$M_{X1}\text{-}M_{X2}$ is the Δ in share of hard manufacture between 2000 and 2010.

$IP_{X1}\text{-}IP_{X2}$ is the Δ in share of immigrant population between 2000 and 2010.

This study will employ a total of fourteen independent variables, which were identified as significant by previous studies on income inequality. They represent the following characteristics of the urban societies: urban population size and growth; racial and ethnic composition; gender; age structure; educational level; economic structure; income level and region. These variables are discussed in depth in chapter 2. Table 3 below shows these variables.

Modifications are made for two conventional variables to reflect changing social structures: Previous studies have used the percentage of Blacks to represent minority/race as a factor in measuring income inequality. This study adopts the entire non-white population to reflect the changing demographics and allegedly disadvantaged economic status. Many existing works also look at one educational variable usually percentage of high school graduates. We adopt both high school graduates and those with bachelor's degree.

Table 3: Independent and Dependent Variables

Traditional Inequality Determinants:	Independent Variable	Abbreviation	Abbreviation(Δ)	Dependant Variables(measure of inequality)
Population size				Gini coefficients
	Population	POP	CPOP	Ratio of quintiles
Region				
	Dn-1			
	Dn=1(South)	R1	R1	
	Dn=2(N. East)	R2	R2	
	Dn=3(Mid West)	R3	R3	
Race				
	% of Non-White Pop	RACE	CRACE	
Gender				
	% of female worker	FWK	CFWK	
	% of female headed household	FHH	CFHH	
Age Structure				
	% of older than 65 years	OLD	COLD	
Education				

Table 3-continued

	% of High school grad or higher	ED1HS	CED1HS	
	% of Bachelor degree holder or higher	ED2BA	CED2BA	
Economic Structure				
	% in manufacturing employment	EMFG	CEMFG	
	Earnings in manufacturing	TEMFG	CTEMFG	
Economic condition				
	Unemployment rate	UNEMP	CUNEMP	
Globalization indicators:				
	Δ % of producer services employment	PSERVE	CPSERVE	
	Δ Earnings in Producer services	ESERVE	CESERVE	
	Δ % of manufacturing employment	MGF	CMGF	
	Δ Earnings in manufacturing	MFG	CMFG	
	Δ Net migration	MIG	CMIG	

The equation expressing the relationship between globalization and income inequality is:

Income Inequality = $I_{X1} - I_{X2}$ = f (Globalization)

Where: $I_{X1}-I_{X2}$ is Δ in measure of inequality between 2000 and 2010.

Income Inequality = $I_{X1} - I_{X2}$ = f [($S_{X1}-S_{X2}$), ($M_{X1}- M_{X2}$) & ($P_{X1}-P_{X2}$)]

Where: $S_{X1}-S_{X2}$ is Δ in the share of producer services between 2000 and 2010.

$M_{X1}- M_{X2}$ is the Δ in share of hard manufacture between 2000 and 2010.

$IP_{X1}-IP_{X2}$ is the Δ in share of immigrant population between 2000 and 2010.

The above equation(s) forms the basis of all existing works in income inequality in global cities. This research as discussed earlier goes ahead to examine the effect of other determinants of inequality therefore we extend the above equations to factor the traditional determinants of inequality in welfare economics literature modifying the equation to:

Income Inequality= I_{X1}- I_{X2} = f [(S_{X1}-S_{X2}), (M_{X1}- M_{X2}) (IP_{X1}-IP_{X2})] & [(A+ES+EC+C+G+R…..)]

Where: *I* is the level of income inequality at year x.

A is age,

ES is Δ in economic infrastructure

EC is Δ in economic conditions

E is Δ in education,

G is Δ in Gender

R is Δ region (a dummy variable) etc.

4.3.3.4 Dependent Variables: Measuring Income Inequality

To measure income inequality two dependant variables are adopted for this study, Gini index and quintile ratios. To measure income inequality the study will adopt a household as the income recipient unit instead of a family. Doing so allows for the inclusion of persons in a non-family household, such as those in common-law marriages or those who are living alone (Anjomani and Sekio 2004). For a geographical unit of analysis, U.S. metropolitan areas with a population of more than one million in 2010 are selected (see table 1). According to King (1990), a certain population size is an important prerequisite for accommodating globalized economic activities such as multinational companies and corporate headquarters. This study as stated above employs 2 different methodologies of measuring income inequality. These methods are discussed below:

i) Gini coefficient: It is the most widely used and reliable measure of income inequality. The Gini index varies between 0 and 1. When at 0 it reflects complete equality and at 1 it designates total inequality that is, one person has all the income, all others have zero. Graphically, the Gini coefficient is represented by the area between the Lorenz curve and the line of equality. On figure 2 below, the Lorenz curve designates the cumulative income share on the vertical axis against the distribution of the population on

the horizontal axis. In the following example, 65 percent of the population obtains around 60 percent of total income. If each individual had the same income, or total equality, the income distribution curve would be the straight red line in the graph – the line of perfect equality.

Lorenz Curve

Income %

(vertical axis values: 1, 0.8, 0.6, 0.4, 0.2, 0)

A

B

Population

(horizontal axis values: 0, 50, 100, 150, 200, 250)
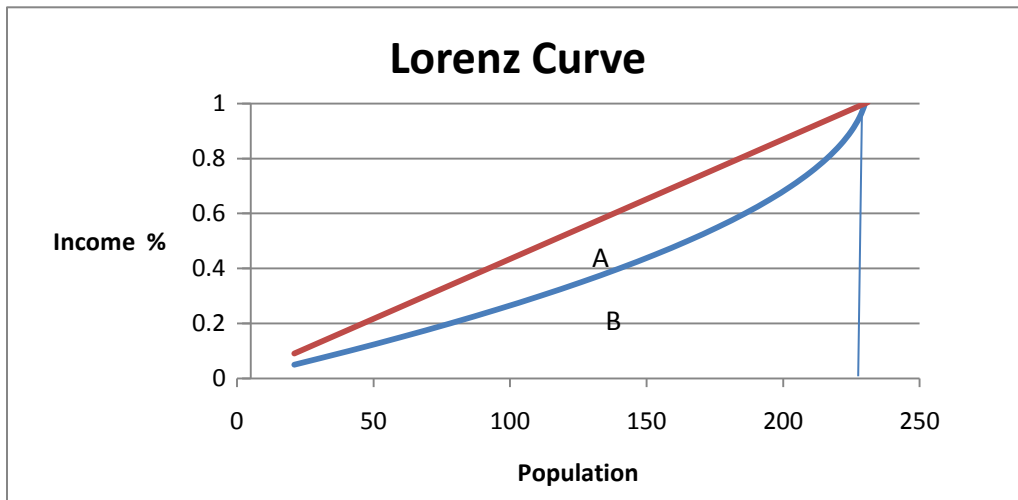
Figure 2: The Lorenz Curve

The Gini coefficient is calculated as the area A divided by the sum of areas A and B. If income is distributed completely equally, then the Lorenz curve and the line of total equality are merged and the Gini coefficient is zero. If one individual receives all the income, the Lorenz curve would pass through the points (0,0), (225,0) and (225,225), and the surfaces A and B would be similar, leading to a value of 1.0 for the Gini-coefficient.

The formula is as follows:

$$G = 1 - \sum_{i=1}^{K} (F_{i+1} - F_i) Y_{i+1}$$

where K is number of income categories, F is proportion of households in the i-th income category, and Y is proportion of income in the i-th income category (Alker, 1965). The Gini coefficient for each sample metropolitan area is calculated by applying this formula to the household income data of the 2000 Census

and 2010 ACS data. The other inequality measures discussed below will also be obtained based on the 2000 Census data and 2009 ACS data.

ii) <u>Ratio of the income shares of the highest to the lowest quintiles</u>: This measure is to examine the income polarization and plays a complementary role to the Gini coefficient. It also serves to strengthen the internal validity of the study. The measure is obtained by dividing a sample of data into five groups referred to as quintiles. Each quintile with an equal number of observations. A quintile is therefore a single number with a segment equal to one-fifth of the whole. In our case, to obtain the ratio, all the households, which are ranked by income, are divided into five equal numbers of groups and the total household income of the highest quintile is divided by that of the lowest quintile.

The greater the ratio, the higher the degree of polarization. The formula for calculating quintiles is as follows:

$$R_5 = \frac{5x \; (N_> + [1/2]) \; N_=}{N_t}$$

Where: $N_>$ is the number of values greater than the specified number in a sequence.

$N_=$ is the number of values equal to specified number in a sequence.

N_t is the total number of values in a sequence.

4.3.4 Phases of Research

The research is laid out in 3 phases. Phase 1 will examine the relationship between income inequality and the predictor variables using 2000 American community Survey (ACS) data. Phase 2 will examine the relationship between income inequality and the predictor variables using 2010 American community Survey (ACS) data. Phase 1 and 2 will have similar equations but using different sets of stationary data. Phase 3 will examine the relationship between change in income inequality and change in the predictor variables between 2000 and 2010. Two measures of income inequality are used as the dependent variables, the Gini coefficient and the ratio of the income shares of the highest quintile to the lowest quintile (quintile ratios). See table 4 below for a breakdown on the research phases.

Table 4: Phases of Research

Phase 1	

Analysis of income distribution using <u>stationary</u> 2000 data for both inequality (dependant variables) and the predictor variables. The equation for this relationship is:

$$\textbf{\textit{Income Inequality}= I_{X1} = f\,[(S_{X1}+M_{X1}+IP_{X1})]\ \&\ [(A+ES+EC+C+G+R….)]}$$

Phase 2	

Analysis of income distribution using <u>stationary</u> 2010 data for both inequality (dependant variables) and the predictor variables. The equation for this relationship is:

$$\textbf{\textit{Income Inequality}= I_{X1} = f\,[(S_{X1}+M_{X1}+IP_{X1})\ \&\ [(A+ES+EC+C+G+R….)]}$$

Phase 3	

Analysis of <u>change</u> of income distribution between 2000-2010 by examining <u>change</u> over time for both globalization indicators and the traditional determinants of inequality. The equation for this relationship is:

$$\textbf{\textit{Income Inequality}= I_{X1}\text{-}\,I_{X2} = f\,[(S_{X1}\text{-}S_{X2}) + (M_{X1}\text{-}\,M_{X2}) + (IP_{X1}\text{-}IP_{X2})]\&[(\Delta A+ \Delta ES+ \Delta EC+ \Delta C+G+ \Delta R…..)]}$$

As already stated above, a total of twenty variables are adopted so as to represent the following characteristics of the urban societies: (I) urban population size: (2) region; (3) racial and ethnic composition: (4) gender: (5) age structure: (6) educational level: (7) economic structure: (8) economic condition: (9) income level: (10) globalized economic structure: and (12) globalized social structure. All the variables are adopted from the theoretical arguments and empirical results of the existing works on income inequality and global city thesis already discussed in chapters two and three respectively with few modifications. The following table shows the statistical techniques for the various phases:

Table 5: Techniques of Analysis

	STATISTICAL TECHNIQUE	DEPENDANT VARIABLES
Phase 1		
	Regression analysis and Pearson's correlation coefficient.	Gini index Ratio of quintiles
Phase 2		
	Regression analysis and Pearson's correlation coefficient.	Gini index Ratio of quintiles
Phase 3		
	Regression analysis and Pearson's correlation coefficient.	Gini index Ratio of quintiles

The two statistical techniques will complement one another. Correlation and linear regression are not the same however they are related in that while regression finds the line that best predicts Y from X. Correlation quantifies how well X and Y vary together. The employments of both techniques serve to strengthen this research. The use of both measures fits the intention of this study since we are examining whether inequality and 14 independent variables are associated, without necessarily inferring a cause-and-effect relationship.

4.4 Summary

The chapter provided a layout of the research process as well as the context of research. i) Lack of enough empirical studies to back polarization theory, lack of studies that alienate traditional causes of inequality as possible tributaries of inequality in large metro areas, and also the adoption of limited measures of inequality in previous works are cited as some of the justification for this dissertation. The chapter also provided a rationale for the selection of the two units of analysis namely, metropolitan areas and households of income recipients. It also highlighted the operationalization of the various determinants of inequality as well as the indicators of globalization. The fifty largest metropolitan areas in the United States are adopted as the sample. The research is divided in 3 phases examining different facets of the relationship between inequality measures and predictor variables. In total there are fourteen independent variables adopted for the research and two dependant variables.

CHAPTER 5

RESULTS AND DISCUSSIONS

5.1 Overview

This chapter presents a discussion of the results of our analysis and the findings of the research agenda outlined in chapter four. It also provides conclusions drawn from the results and outlines policy implications and recommends future research. The analysis and discussions center on the following issues: (i) whether income inequality in large US metro areas mirror inequality in global cities as explained by "polarization thesis". (ii) Whether this inequality is associated with globalization as explained by polarization thesis or by traditional determinants of inequality in economics or both? The results of the statistical analysis are laid out in 3 phases as discussed in chapter four.

5.2 Summary of Findings

The study employed 2 measures of inequality as already averred, the Gini and quintiles ratio. We look at the Gini results followed by the results on quintiles ratio. The Gini index in large metro areas went up as was expected by an average of 5% between 2000 and 2010. However, not all metro areas saw an increase in income inequality, in some metro areas the index declined. The largest increase in the index was registered in Miami-Fort Lauderdale-Pompano Beach, FL MSA whose index spiked by 0.2 representing a 68.6% increase, while the largest decline was in Riverside-San Bernardino-Ontario, CA MSA whose Gini index plummeted by 0.033 representing a decline of -7.1%. In total, five out of the fifty metropolitan areas saw a decline in the Gini index, notably New York-Northern New Jersey-Long Island, NY-NJ-PA MSA whose Gini index almost remained the same shrinking by a sixth of a percentage point. Further discussions on factors associated with this decline are discussed later of this chapter (see appendix B for growth in Gini indices in the sample cities).

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The change in quintiles ratio of the fifty largest metro areas also showed that inequality grew by an average of 0.02 representing a 38% growth. Only one metropolitan areas saw a decline of the quintiles ratio, Riverside-San Bernardino-Ontario, CA that recorded a decline of -0.03 which in percentage terms would be -7.1%. The highest increase of quintile ratio was by 0.03 representing an increase of 81.2% registered in New Orleans-Metairie-Kenner, LA. This is in contrast to the results of the Gini index that showed that overall inequality in the New Orleans-Metairie-Kenner, LA metro area had declined by -2.1%.

The reasons for such discrepancy(s) can be explained by the fact that the Gini index and shares of aggregate income such as quintiles ratio are particularly sensitive to changes in data collection measures[3]. Any change that would affect a relatively small number of cases (especially those in the upper end of the income distribution has the potential to affect these measures, while having practically no effect on median income[4]. See appendix A for a breakdown of growth in income inequality using quintile ratios between 2000 and 2010 in the fifty MSAs.

<div align="center">5.3 Statistical Analyses</div>

5.3.3.1 Phase 1(2000 Data): Findings

This section reports the results of our analysis using <u>stationary</u> year 2000 data for both inequality (dependant variables) and the predictor variables. The equation for this relationship is:

Income Inequality= I_{XI} = Income Inequality= I_{XI} = f [(S_{XI}+M_{XI}+IP_{XI})] & [(A+ES+EC+E+G+R+P)]

Where XI represents year 2000; S is service industry, M is manufacturing and IP is migration;

And: A is age structure, ES is economic structure, EC is economic conditions, E is education, G is gender, R is region and P is population.

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[3] www.census.gov/prod/1/pop/p60-191.pdf
[4] Ibid.

We employed two statistical techniques; Pearson's correlation and linear regression. It is worthy to note that neither technique directly answers the question of causality. The purpose as already stated, was to establish the relationship between traditional determinants of inequality and those of globalization using two measures of inequality, the Gini and quintiles ratio as dependent variables. The two measures yielded different results consistent with (Ram 1991) assertion that, different measures of inequality yield different results. We start by discussing the correlation results, followed by the regression results.

5.3. 3.1.1 Phase 1: Pearson's Correlation Results (Phase 1 2000 Data)

The correlation results found that population was significantly associated with income inequality expressed in Gini index. With an *r* value of .303, indicating a less than moderate association, the results indicate that metropolitan areas with higher populations are likely to have higher income inequalities. The finding is consistent with several of existing works that have pointed to a positive association between the two variables. The results also show a strong relationship between gender and income inequality when expressed in quintile ratios. The direction of the association is however inconsistent with the majority of existing works. Gender expressed in the proportion of female headed household and expressed as the employment levels of female headed households is associated with income of inequality with *r* values of -.541 and .629 respectively, show above moderate association between these variables and income inequality. Higher quintile ratios were associated with lower levels of female headed households.

As stated, the direction is inconsistent with existing works. For instance, existing works associate higher inequality with lower levels of female employment. The association with inequality expressed in quintile ratio shows a direct relationship implying higher inequalities are associated with higher numbers of female employment. However, when you look at the relationship expressed in Gini index, the direction of the relationship changes such that higher levels of inequality is associated with lower levels of female employment at *p* values of .066, a value close to 0.005 statistical significance. The explanation here is that higher female employment amongst households with higher income would spike the earnings in higher quintile segments of the population, therefore increase the value of the quintile ratios (Danziger 1976).

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The quintile ratio is more sensitive to this kind of variation within subgroups than the Gini which measures aggregate inequality. The same explanation suffices for the inverse relationship between quintile ratio and female headed households observed in our results.

Our results also observed a statistically significant association between income inequalities in terms of quintile ratios with economic conditions reflected by unemployment rates, with r value of .384. These results are similar in direction as the association observed above between inequality and gender, whereby the direction is inconsistent with majority of existing works when inequality is expressed in quintile ratio but consistent with existing works when expressed in Gini terms. This can be explained by the fact that a few unemployed people in the lower quintiles increased the quintile ratios. Though with an almost statistically significant p value of .055 the Gini results point to the direction observed by existing works, where higher unemployment rates are generally associated with higher inequalities. Extremely high unemployment rates however are likely to equalize inequalities for instance when there is a catastrophic natural disaster that puts majority of people out of work.

The results also posted significant association between employment in service industry and inequality expressed in quintile ratios. With an r value of -.378, higher inequalities were associated with low employment in the service sector. The opposite was true when service industry was expressed in terms of total earnings, the r value changes to .384 indicating that higher inequalities are associated with higher earnings in the service industry which is consistent with the majority of existing works. Migration was found to also have a statistically significant positive association with inequality expressed in Gini terms, with a p value of 0.041. Higher Gini index was associated with higher migration, a finding that is congruent with majority of existing global city studies literature. As expected, our results also showed significant association between proportion of high school graduates and income inequality expressed in quintile ratio terms, this was the case also with the proportion of bachelors degree graduates however due to multicollinearity we removed the later from the model. The table below shows the results of the SPSS correlation output.

Table 6: Phase 1 (2000 Data) Pearson's Correlation Output

		QRATIO00	GINI00	POP	RACE	FWK	FHH	OLD	ED1HS	EMFG	TEMFG	UNEMP	PSERVE	TESERVE	MIG
QRATIO00	Pearson Correlation	1	-.214	.132	.131	.629[**]	-.541[**]	-.191	.507[**]	.080	.249	-.303[*]	-.378[**]	.384[**]	.277
	Sig. (2-tailed)		.135	.361	.364	.000	.000	.193	.000	.583	.081	.036	.007	.006	.051
	N	50	50	50	50	49	49	48	49	50	50	48	50	50	50
GINI00	Pearson Correlation	-.214	1	.303[*]	.182	-.264	.197	.108	-.208	.238	.270	.279	-.051	.226	-.290[*]
	Sig. (2-tailed)	.135		.032	.207	.066	.175	.464	.152	.096	.058	.055	.727	.115	.041
	N	50	50	50	50	49	49	48	49	50	50	48	50	50	50

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

5.3.3.1.2 Linear Regression Results Phase 1 (2000 Data)

This section is a report of the results of the regression analysis using stationary 2000 data for both dependant variables and the predictor variables. We have two set of equations, one examining inequality as expressed in Gini index and two as expressed in terms of quintile ratio. We start our discussions with the Gini index results.

Phase 1: Gini Index Results

This section examines the effect of predictor variables on the Gini index, as already stated using 2000 data. The equation for this relationship is:

Gini Index= I_{X1} = Income Inequality= $I_{X1} = f [(S_{X1}+M_{X1}+IP_{X1})] \& [(A+ES+EC+E+G+R+P)]$

Where XI represents year 2000; S is service industry, M is manufacturing and IP is migration;

And: A is age structure, ES is economic structure, EC is economic conditions, E is education, G is gender, R is region and P is population.

The results showed one statistically significant negative relationship among the variables examined- that is the association between the Gini index and the rate of female participation in the workforce with a *p* value of .019. This is consistent with existing works; where higher levels of female participation in the workforce are thought to negatively impact income inequalities. None of the other variables showed a statistically significant association with the Gini index. Table 7 below is the SPSS output of the regression analysis.

Table 7: Regression Output Gini Index 2000 Data

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.655	.137		4.769	.000
	POP	-1.640E-9	.000	-.262	-.670	.508
	RACE	.000	.001	.064	.242	.810
	FWK	-.004	.002	-.732	-2.495	.019
	FHH	.002	.003	.153	.581	.566
	Old	.000	.001	-.048	-.283	.779
	ED1HS	.000	.001	-.064	-.280	.782
	ED2BA	.001	.001	.186	.564	.577
	EMFG	.000	.001	.055	.252	.803
	TEMFG	1.661E-12	.000	.209	.723	.476
	UNEMP	.003	.005	.105	.559	.581
	PSERVE	-.002	.002	-.210	-.967	.342
	TESERVE	-1.461E-13	.000	-.020	-.046	.963
	MIG	-4.804E-7	.000	-.150	-.816	.421
	R1	.006	.009	.140	.602	.552
	R2	.016	.013	.206	1.239	.225
	R3	.007	.011	.147	.643	.526
a. Dependent Variable: GINI00						

In an attempt to improve our results, we performed log transformations of the data before running the regression without observing meaningful change in the outcome. Table 8 below is the model summary, as indicated, the R^2 of .611 indicates that 61.0% of the change in independent variables can be explained by our model.

Table 8: Model Summary for Gini Index 2000 Data

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.782[a]	.611	.397	.0154276
a. Predictors: (Constant), R3, ED2BA, Old, POP, R2, FHH, EMFG, UNEMP, MIG, PSERVE, ED1HS, R1, RACE, TEMFG, FWK, TESERVE				
b. Dependent Variable: GINI00				

From the scatter plot below in figure 3, with one or two outliers, the residuals are generally scattered along the zero horizontal line indicating a relatively good fit of the model.
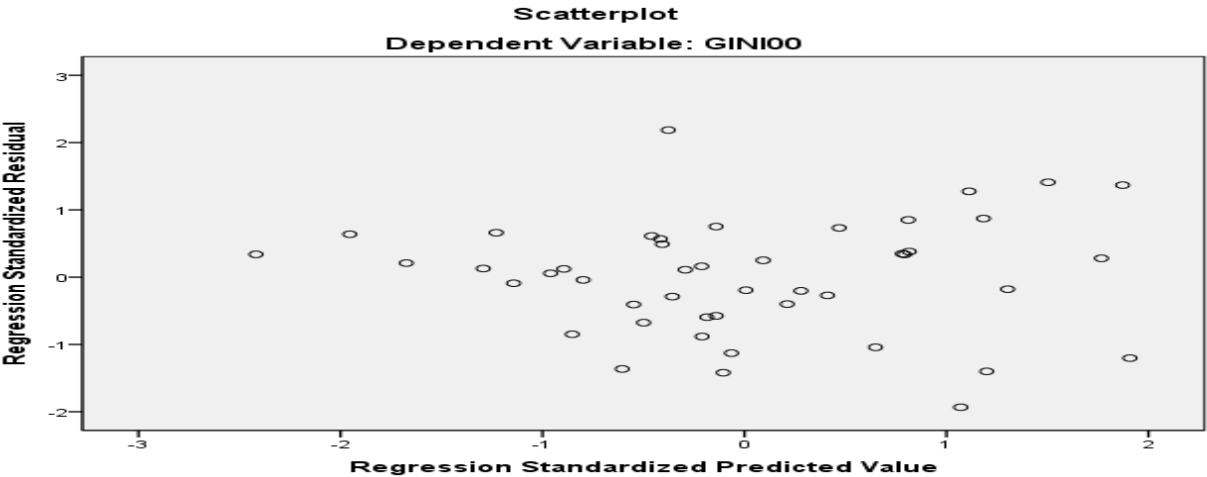
Figure 1: Scatter Plot Gini 2000

Figure 4 below further illustrates the fitness of the model, the observation is that the

residuals are scattered along the zero diagonal line is slight and therefore quite convincing that that they

are normal and satisfies the normality assumption of the modeling process.

Figure 2: Plot of Regression Standardized Residuals Gini 2000

Phase 1: Quintile Ratio Results

This section examines the effect of predictor variables on the quintile ratios using 2000 data: The equation for this relationship is:

Quintile ratio= I_{X1} = Income Inequality= I_{X1} = f [(S_{X1}+M_{X1}+IP_{X1})] & [(A+ES+EC+E+G+R+P)]

Where XI represents year 2000; S is service industry, M is manufacturing and IP is migration;

And: A is age structure, ES is economic structure, EC is economic conditions, E is education, G is gender, R is region and P is population.

Our results show that with a *p* value of 0.00, the results affirmed the argument that the level of female participation in the workforce is positively associated with the levels of inequality. This is congruent with Durden and Schwarz-Miller (1982) observations at congressional district level. Notably, our results also confirmed with a *p* value of 0.01 that the number of female headed households has a significant negative relationship with inequality expressed in quintile ratios. The first explanation could be that with higher participation of women in the labor force, there is an increase of two-earner households (married female) which increases the income of a few households in the upper quintiles therefore enlarging the income gap. The explanation for the negative association between female headed household and income inequality as already explained in our correlation results is that fewer female headed households with lower income would dampen the earnings in lower quintile segments of the population, therefore increasing the value of the quintile ratios (Danziger 1976). Race as a representation of minorities (non-White) population was also found to have positive significant relationship on the levels of inequality. With a *p* value of 0.000 our results were consistent with the argument that a higher proportion of non-White population is associated with higher income inequalities (Yang 2007, Massey et.al, 1990). The explanation put forth by prior studies is that existing income inequalities are partly as a result of labor market discrimination due to the racial cleavages that exist in the American society (Massey et.al, 1990). None of the other variables registered a significant correlation with the quintiles

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ratios. Consistent with literature in global city studies, at 90% confidence interval, our results also showed that proportion of employment in manufacturing industry is positively associated with high income inequality. Region 1(south) was also found to be statistically negatively associated with income inequality with a *p* value of.048; this is inconsistent with majority of existing literature, a possible explanation is that the economic restructuring that resulted to massive growth of the south's economy may have a negative impact on the income inequality. Table 9 below shows the output of the regression results.

Table 9: Regression Output Quintile Ratio 2000 Data

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	-.030	.027		-1.116	.274
	POP	-2.510E-10	.000	-.101	-.523	.605
	RACE	.001	.000	.591	4.489	.000
	FWK	.001	.000	.629	4.320	.000
	FHH	-.002	.001	-.473	-3.629	.001
	Old	.000	.000	.163	1.949	.061
	ED1HS	.000	.000	.053	.465	.646
	ED2BA	8.762E-5	.000	.053	.326	.747
	EMFG	-6.521E-5	.000	-.035	-.317	.753
	TEMFG	8.933E-13	.000	.284	1.982	.057
	UNEMP	-.001	.001	-.087	-.928	.361
	PSERVE	.000	.000	.104	.968	.341
	TESERVE	3.343E-13	.000	.116	.539	.594
	MIG	7.609E-8	.000	.060	.659	.515
	R1	-.004	.002	-.238	-2.064	.048
	R2	-.001	.003	-.041	-.503	.619
	R3	-.003	.002	-.166	-1.465	.154
a. Dependent Variable: QRATIO00						

Coefficients[a]

Age was also found to be positively associated with income inequality at 90% significant levels, consistent with arguments in existing literature. Tables 8 below is a summary of 13 linear bivariate

equations in our model and as observed, the coefficient of determination R^2 is 0.904 indicating that 90.4%

of the variation in the independent variable can be explained by the variations in the predictor variables.

Table 10: Model Summary for Quintile Ratio 2000 Data

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.951[a]	.904	.851	.003025219299
a. Predictors: (Constant), R3, ED2BA, Old, POP, R2, FHH, EMFG, UNEMP, MIG, PSERVE, ED1HS, R1, RACE, TEMFG, FWK, TESERVE b. Dependent Variable: QRATIO00				

The scatter plot below in figure 5 gives a visual illustration of the fitness of the model; we observe that

when the residuals are graphed against the predicted values, it shows a random scatter along the

horizontal zero line, indicating a good fit of the model.
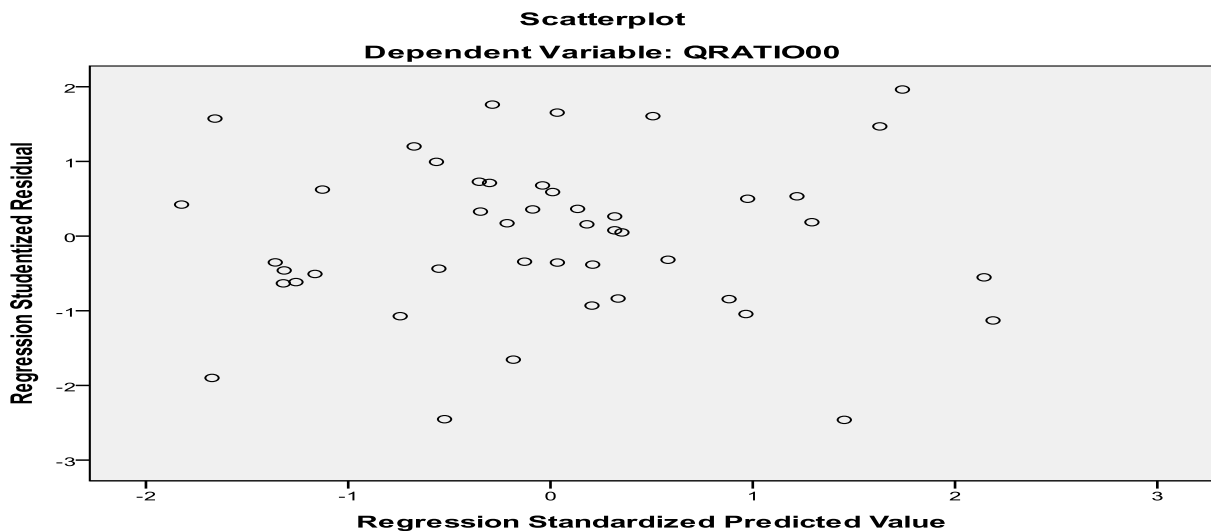
Figure 3: Scatter Plot Quintile Ratio 2000

The same case applies to the residual plot below, the residuals are scattered along the normal probability

line. The normal probability plot is not too far from the straight diagonal line. The indication here is that

the residuals are normal and satisfies the normality assumption of the modeling process.

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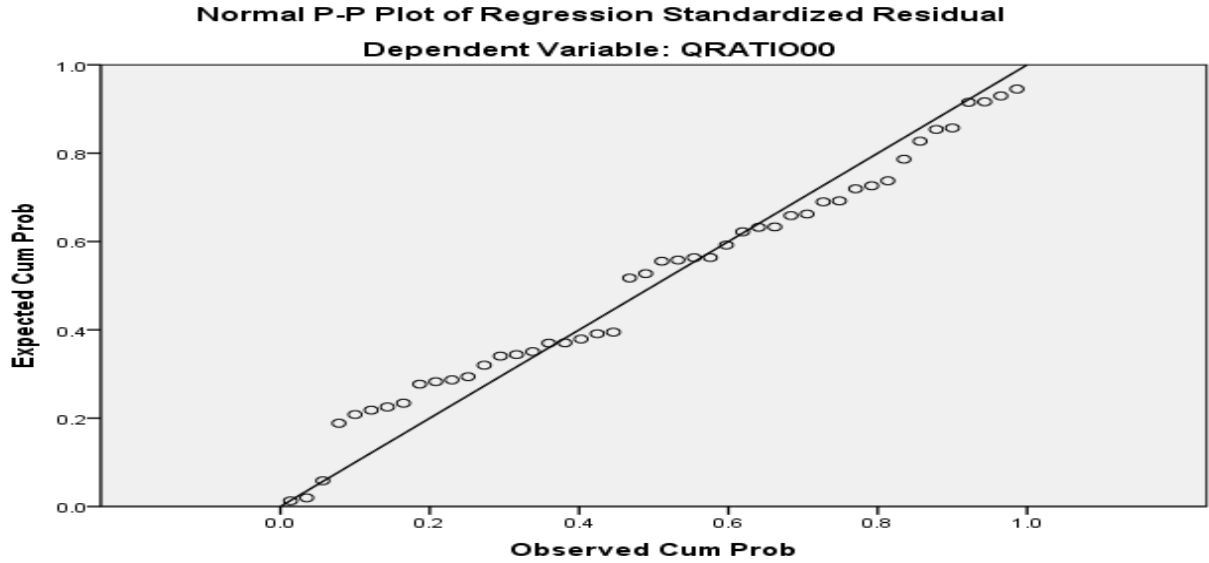
Figure 4: Plot of Regression Standardized Residuals Quintile Ratio 2000

5.3.3.2 Phase 2 (2010 Data): Findings

This section reports the results of our analysis using <u>stationary</u> year 2010 data for both inequality (dependant variables) and the predictor variables. The equation for this relationship is:

Income Inequality= I_{XI} = Income Inequality= I_{XI} = f [(S_{XI}+M_{XI}+IP_{XI})] & [(A+ES+EC+E+G+R+P)]

Where XI represents year 2010; S is service industry, M is manufacturing and IP is migration;

And: A is age structure, ES is economic structure, EC is economic conditions, E is education, G is gender, R is region and P is population.

We employed two statistical techniques; Pearson correlation and linear regression. We start with a report on the correlation results followed by regression results.

5.3.3.2.1 Phase 2: Pearson's Correlation Result,(Phase 2, 2010 Data)

The correlation results showed significant associations between income inequality expressed in Gini terms in 7 of the 14 independent variables. The number increased to 8 variables when inequality was expressed in terms of quintile ratios. The results with a *p* value of 0.002 indicate positive correlation

between income inequality expressed in Gini index with the percentage of high school graduates but no association with population with bachelor's degree. Our results are not consistent with observations that education has an equalizing effect on income inequality for this reason: Though many studies have lend credence theoretically and empirically to this income equalizing effect of education, according to Danziger [1977], some measures of education might not have a linear effect on income inequality. For example, when college graduation rates are adopted as a measure and its value is low, an increase in this variable would tend to increase the levels of inequality [Danziger, 1977]. However, when the percentage is high, an increase in the value of this variable would tend to decrease the inequality. The quintile ratio results with a p value 0.005 significant level showed a negative association between inequality and high school education consistent with majority of literature that associates higher income inequality with lower levels of education.

Our results indicate that earnings in the service industry were correlated with higher income inequality in Gini terms at p value of 0.002. The results are consistent with those in globalization literature but this does not imply causation. The association of the service industry is not restricted to global cities as our results indicate but it's congruent with the argument that producer services increases income at the top levels of income stratification (Sassen 1991). However the direction of this association changes when quintile ratios are adopted as a measure of inequality, and instead of a positive one it becomes negative, that is higher quintile ratios are associated with lower service earnings in the service sector. This is difficult to explain, we can theorize however that low levels of earnings in service industry can lead to a very small number of individuals at the peak of income stratification therefore raising the median income of the upper quintile.

The results also reveal significant positive correlations (p value of 0.001) between Gini index and percentage of female headed households, consistent with the observations that higher numbers of female headed households increases income inequality (Danziger 1976). The direction of this relationship

however changes when quintile ratios are adopted; at the same .001 significant level, they show that higher inequality is correlated with low numbers of female headed households.

Another gender related dimension which is the percentage of female participation in the workforce was found to be significantly associated with the Gini index. At.008 significant level, higher income inequality was associated with low female participation in the workforce, consistent with many existing works (Thurow 1973). The quintile ratio measure of inequality did not however post a significant association with female participation in the labor force however the with the p value of 0.061 it is nonetheless a strong association in the opposite direction, affirming that though in most instances higher numbers of female participation in the labor force has an equalizing effect on income if it occurs in poor households, however it can have the opposite effect when it occurs at higher income households adding to the share income of households in higher income quintiles (Haworth, Long, and Rasmussen 1978).

The Gini results revealed significant positive association with population. A higher population in the metro areas is correlated with higher levels of inequality. This is congruent with several existing works. However, the results pointed to a different direction of association measuring income inequality in quintile ratios, showing at .003 significant level income inequality is higher with lower populations. This can be explained by the reasoning that the Gini is a measure of aggregate inequality and may not be able to capture some variations in subgroups of a population.

Another significant association was noted with migration. Higher quintile ratios are correlated with high levels of migration at 0.015, which is consistent with observations in existing works in global city studies however, a higher Gini index was associated with lower migration. This is inconsistent with existing literature and a possible explanation is that lower migration could be as a result of higher unemployment rates and tough economic conditions that discourage migration which are factors that are correlated with higher inequalities.

The association between age and inequality posted a p value of 0.02 when measured against the Gini confirming a statistically significant association, the higher the population of the elderly the higher

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the inequality, congruent with existing works. However, the association is stronger with quintile ratio with a *p* value of 0.006 but on the opposite direction- higher quintile ratio was associated with lower numbers of the elderly population. The reason behind this change in direction is that a small number of the elderly would significantly lower the mean income of the lowest quintile which would then add to the ratio of quintiles. The table below shows the SPSS output of the correlation results.

Table 11: Phase 2 (2010 Data) Correlation Output

		GINI09	POP	RACE	FWK	FHH	Old	ED1HS	EMFG	TEMFG	UNEMP	PSERVE	TESERVE	MIG	QRATI009
GINI09	Pearson Correlation	1	.539**	.129	-.370**	.442**	.329*	-.433**	-.039	.505**	.139	.073	.481**	-.424**	-.811**
	Sig. (2-tailed)		.000	.373	.008	.001	.020	.002	.789	.000	.337	.615	.000	.002	.000
	N	50	50	50	50	50	50	50	50	50	50	50	50	50	50
QRATI009	Pearson Correlation	-.811**	-.418**	.035	.267	-.441**	-.382**	.388**	-.054	-.411**	-.095	.022	-.396**	.343*	1
	Sig. (2-tailed)	.000	.003	.807	.061	.001	.006	.005	.711	.003	.513	.877	.004	.015	
	N	50	50	50	50	50	50	50	50	50	50	50	50	50	50

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

This section is a report of the results of the regression analysis using stationary 2010 data for both dependant variables and the predictor variables. We have two sets of equations, one examining inequality as expressed in Gini index and two as expressed in terms of quintile ratio. We start our discussions with the Gini index results.

Gini Index Results:

This section examines the effect of predictor variables on the Gini index, as already stated using 2010 data. The equation for this relationship is:

Gini Index= I_{XI} = Income Inequality= I_{XI} = f [(S$_{XI}$+M$_{XI}$+IP$_{XI}$)] & [(A+ES+EC+E+G+R+P)]

Where XI represents year 2010; S is service industry, M is manufacturing and IP is migration;

And: A is age structure, ES is economic structure, EC is economic conditions, E is education, G is gender, R is region and P is population.

We modified the data by performing log transformation for this section as an attempt to improve our model which as a result showed significant improvement, albeit with a minor decline on the R-squared value. Incongruent with majority of existing works in welfare economics, the results show a significant negative association between population and income inequality, with *p* values of .027. The implication is that lower population resulted in higher inequality. There is no logical explanation for this result. Another significant but negative association was observed between the Gini index and high school education with a *p* value of .033, consistent with arguments that low level of education attainment contributed to higher income inequalities [Ning 2010; Gregorio, J.D., Lee, J.W., 2002; Zhang, 2007; Lemieux, 2006]. The observation was similar whether high school graduation rates or bachelor's graduation rates were adopted to measure the levels of inequality.

Our results however were inconsistent with the argument in existing works in global city literature [Soja 2000; Beck, 2000; Sassen 1991] which hypothesize that the nature of employment characterized with

high service employment is positively associated with income inequality. With a *p* value of .079, the results showed a negative linear relationship between inequality and employment rates in service industry.

However, the results seemed to concur with global city thesis and existing works in welfare economics that low levels of manufacturing jobs were associated with high levels of income inequality, with a *p* value of .014. The explanation for this is that manufacturing sector has a more homogeneous distribution of skilled workers compared to other sectors in the primary and tertiary sectors as well as the fact that unionism (collective bargaining) is more deeply entrenched in the sector as compared to other industries [Garofalo and Fogarty 1979]. The Table below shows the SPSS output of the results.

Table 12: Regression Output Gini Index 2010 Data

Model		B	Std. Error	Beta	t	Sig.
		Unstandardized Coefficients		Standardized Coefficients		
1	(Constant)	1.167	.461		2.530	.021
	POP2	-.046	.019	-1.461	-2.409	.027
	RACE2	.011	.008	.363	1.374	.186
	FWK2	-.050	.072	-.199	-.694	.497
	FHH2	-.002	.028	-.026	-.083	.935
	OLD2	.082	.031	.791	2.635	.017
	ED1HS2	-.224	.096	-.615	-2.336	.031
	ED2BA2	-.025	.053	-.355	-.477	.639
	EMFG2	-.054	.020	-1.401	-2.716	.014
	TEMFG2	-.005	.054	-.177	-.092	.928
	UNEMP2	.017	.016	.232	1.106	.283
	PSERVE2	-.090	.049	-.765	-1.859	.079
	TESERVE2	.061	.061	2.388	.991	.335
	MIG2	-.001	.002	-.069	-.365	.720
	R1	.001	.010	.041	.113	.911
	R2	.001	.011	.022	.099	.923
	R3	-.006	.011	-.175	-.571	.575

Coefficients[a]

a. Dependent Variable: GINI09

The scatter plot in figure 7 below gives a visual illustration of the fitness of the model; we observe that when the residuals are graphed against the predicted values, it shows a random scatter along the horizontal zero line, indicating a good fit of the model.

Figure 5: Scatter Plot Gini 2010
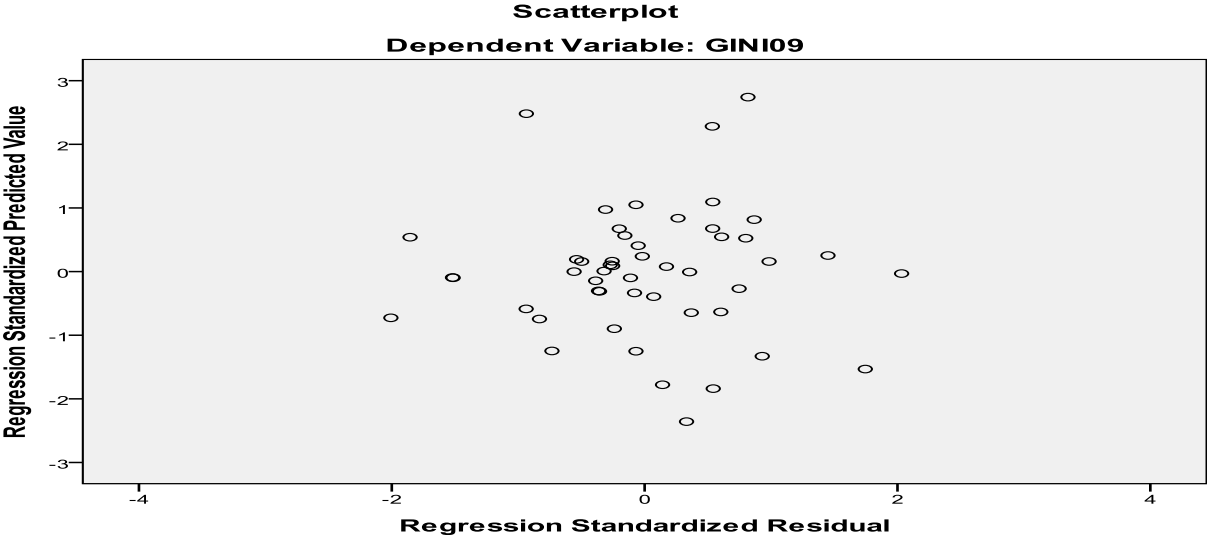
The same case applies to the residual plot in figure 8 below, the residuals are scattered along the normal probability line. The normal probability plot is not too far from a straight line. The indication here is that the residuals are normal and satisfies the normality assumption of the modeling process.
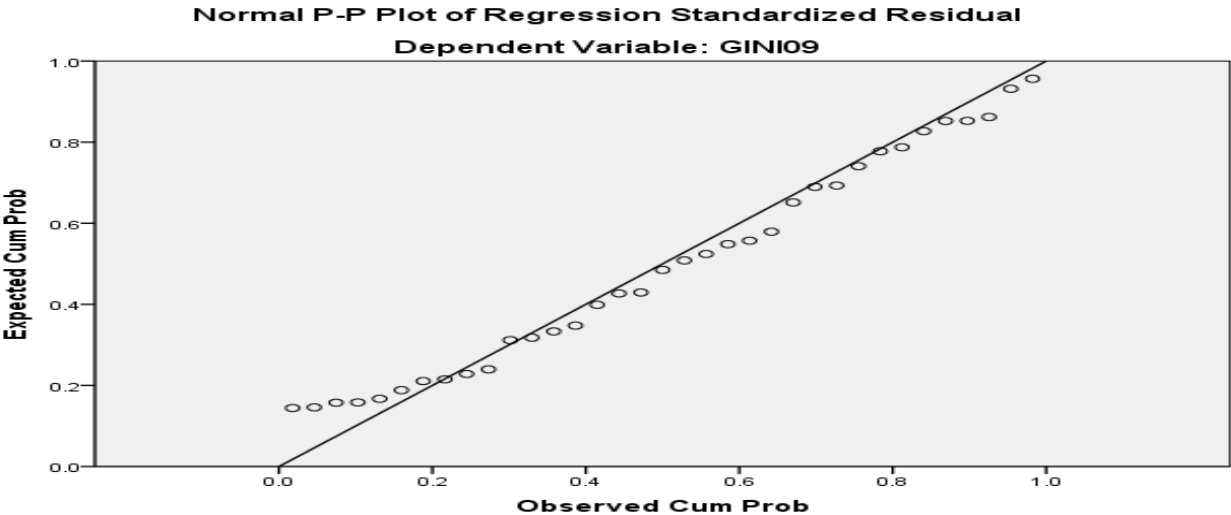

Figure 6: Plot of Regression Standardized Residuals Gini 2010

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Phase 2: Quintile Ratio Results

This section examines the effect of predictor variables the quintile ratios using 2010 data: The equation for this relationship is:

Quintile ratio= I_{XI} = Income Inequality= I_{XI} = f [(S_{XI}+M_{XI}+IP_{XI})] & [(A+ES+EC+E+G+R+P)]

Where XI represents year 2010; S is service industry, M is manufacturing and IP is migration;

And: A is age structure, ES is economic structure, EC is economic conditions, E is education, G is gender, R is region and P is population.

At 90% confidence interval, the results were consistent with the argument that the proportion of female headed households is associated with income inequality. The association here was however negative implying that low levels of income inequality were associated with higher levels of female headed households. The explanation as already explained in our correlation results is that fewer female headed households with lower income would dampen the earnings in lower quintile segments of the population, therefore increasing the value of the quintile ratios (Danziger 1976). The quintile ratio is more sensitive to this kind of variation within subgroups than the Gini which measures aggregate inequality.

As was the case with the Gini results, the results showed significant association between education and income inequality confirming the hypothesis that educational attainment has significant correlation with income inequalities [Ning 2010; Gregorio, J.D., Lee, J.W., 2002; Zhang, 2007; Lemieux, 2006]. The results reveal an inverse relationship between quintile ratio and levels of educational attainment at bachelor's level, with a *p* value of .044. This is consistent with the argument that lower educational attainment contributes to higher income inequality. However, the relationship becomes positive if percentage of high school graduates is the adopted measure. This can be explained by the fact that almost everyone has a high school education, and therefore this may not be a reliable measure.

At *p* value of .058 the results concurred with the argument that income inequality was associated with higher rates of employment in service industry as hypothesized by global city thesis. The association of

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manufacturing employment and income inequality was also statistically significant (p value of .014), contrary to global city thesis that lower manufacturing employment was associated with higher income inequality. Table 13 below shows the *SPSS* results output.

Table 13: Regression Output Quintile Ratio 2010 Data

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	-.691	.185		-3.736	.001
	POP	.008	.007	.448	1.221	.236
	RACE	.008	.003	.440	2.463	.022
	FWK	.032	.027	.216	1.199	.244
	FHH	-.021	.011	-.402	-1.955	.064
	OLD	-.026	.012	-.417	-2.229	.037
	ED1HS	.186	.037	.863	4.974	.000
	ED2BA	-.040	.019	-.950	-2.145	.044
	EMFG	.018	.007	.813	2.676	.014
	TEMFG	-.021	.021	-1.256	-.966	.345
	UNEMP	-.006	.006	-.128	-.887	.385
	PSERVE	.033	.016	.467	2.006	.058
	TESERVE	.009	.023	.623	.402	.692
	MIG	.001	.001	.166	1.356	.189
	R1	-.001	.003	-.066	-.431	.669
	R2	-.002	.004	-.041	-.370	.714
	R3	.001	.003	.024	.181	.857
a. Dependent Variable: QRATI009						

The *SPSS* summary of the model in table 14 below shows an R^2 value of .754, the model accounts for 75.4% of the variations in the dependent variables; an R^2 value of 1.0 indicates that the regression line perfectly fits the data.

Table 14: Model Summary for Quintile Ratio 2010 Data

<table>
<tr><th colspan="5">Model Summary[b]</th></tr>
<tr><th>Model</th><th>R</th><th>R Square</th><th>Adjusted R Square</th><th>Std. Error of the Estimate</th></tr>
<tr><td>1</td><td>.869[a]</td><td>.754</td><td>.635</td><td>.005431033479</td></tr>
<tr><td colspan="5">a. Predictors: (Constant), R3, MIG, UNEMP, R2, FHH, PSERVE, OLD, EMFG, ED1HS, RACE, TESERVE, R1, FWK, ED2BA, POP, TEMFG
b. Dependent Variable: QRATI009</td></tr>
</table>

We also observe that when the residuals are graphed against the predicted values, it shows a random

scatter along the horizontal zero line (see figure 9 below), indicating a good fit of the model.
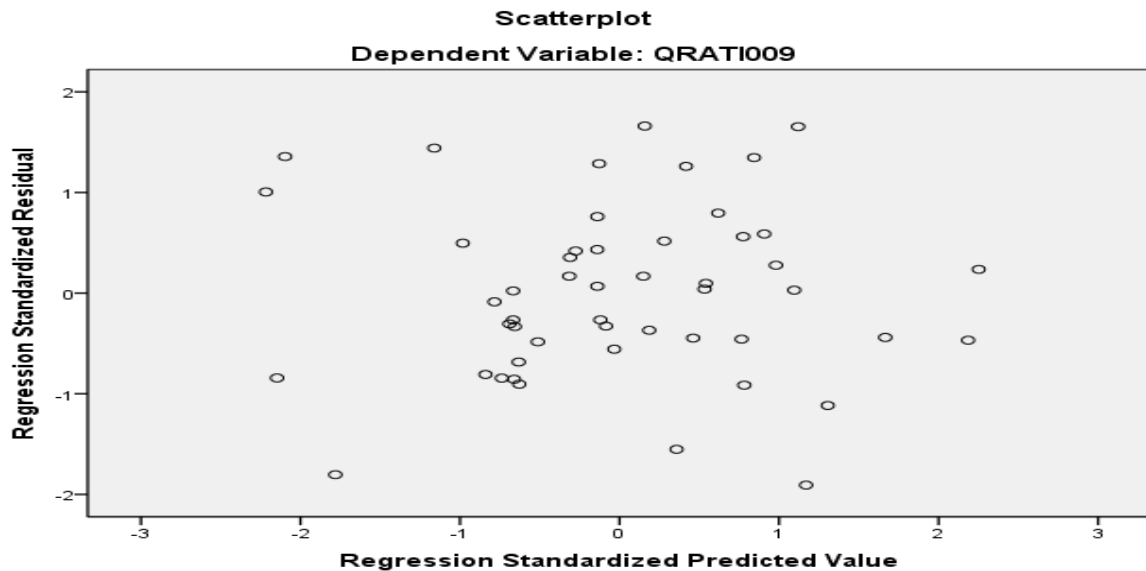
Figure 7: Scatter Plot Quintile Ratio 2010

5.3.3.3 Phase 3 (2000-2010 Data): Findings

Unlike the 2 previous phases that looked at stationary data for year 2000 and 2010 respectively, this

section reports the results of our analysis in change of income distribution between 2000 and 2010 by

examining <u>change</u> over time for both globalization indicators and the traditional determinants of inequality. The equation for this relationship is:

Income Inequality= I_{X1}- I_{X2} = f [(S_{X1}-S_{X2}) + (M_{X1}- M_{X2}) + (IP_{X1}-IP_{X2})] & [(Δ A+ Δ ES+ Δ EC+ Δ C+G+ Δ R)]

Where XI represents year 2010, X2 represents year 2000, S is service industry, M is manufacturing and IP is migration;

And: A is age structure, ES is economic structure, EC is economic conditions, E is education, G is gender, R is region and P is population.

We employed two statistical techniques; Pearson correlation and linear regression. We start with a report on the correlation results followed by regression results.

5.3.3.3.1 Phase 3: Pearson's Correlation Results Phase 3(2000-2010 data)

The results show that inequality expressed in Gini terms is correlated with the proportion of female in the workforce, with a *p* value of 0.06. Slight level of association existed between change in female headed households and change in income inequality over this period; this is also the case with change in net immigration. The *r* values for these associations are -.224 and -.225 indicating a minor increase in Gini index with a decline of the two variables.

Due to multicolinearity, we removed the change in high school graduation rates from the equation, as it showed a high correlation with female headed households. There are no logical relations between the two variables. However, we maintained CEDBA2 (change in population with a bachelor's degree) to measure the relationship between educational attainment and income inequality.

There was however a statistically significant association between change in proportion of employment in the producer service industry and change in inequality as expressed in quintile ratios. The *p* value of the association is .000. The direction of this association was the same even when inequality was expressed in Gini terms however, the association was statistically insignificant. The results showed

an inverse association between change in earnings in producer services and inequality with a *p* value of 0.004. As already mentioned, as is the case with regression results, change in other 12 predictor variables did not show any statistically significant association when correlated with change in income inequalities.

In effort to improve the results, we used natural logarithms of the predictor variables and observed a slight improvement on the results revealing a statistically significant correlation between income inequalities expressed in quintile ratio and 2 other predictor variables: total earnings in manufacturing and employment rates in manufacturing. The *p* values for these associations were .007 and .044 respectively. Both associations are in the negative direction, which means an increase in quintile ratios is associated with lower earnings in manufacturing and lower employment rates in manufacturing.

Both observations are consistent with polarization thesis as espoused by global city hypothesis. The results also indicated a statistically significant association between income inequality and employment rates in service industry and total earnings in service industry. This association was also in the negative direction, implying higher inequalities were associated with lower output in service industry. The observations are not consistent with existing works and a possible logical explanation for these would be a lower number of extremely well paid individuals in the service sector at the upper quintile would exacerbate the differences the highest and lowest quintile as we have already discussed below. Tables 15 shows the *SPSS* output of the Pearson's product- moment correlation coefficient results. .

Table 15: Phase 3(2000-2010) Correlation Output

		GINI2-1	QR2-1	CPOP	CRACE	CFWK	CFHH	COLD	CED2BA	CEMFG	CTEMFG	CUNEMP	CPSERVE	CESERVE	CMIG
GINI2-1	Pearson Correlation	1	-.050	.139	-.072	.365**	-.224	-.096	-.183	.104	.053	-.056	.068	-.059	-.225
	Sig. (2-tailed)		.729	.336	.617	.006	.118	.507	.204	.472	.716	.700	.637	.684	.116
	N	50	50	50	50	50	50	50	50	50	50	50	50	50	50
QR2-1	Pearson Correlation	-.050	1	-.164	.114	.159	.022	-.087	-.021	.095	-.083	-.060	-.397**	-.541**	.112
	Sig. (2-tailed)	.729		.255	.429	.269	.878	.546	.886	.510	.566	.681	.004	.000	.440
	N	50	50	50	50	50	50	50	50	50	50	50	50	50	50

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

This section was primarily concerned with testing the relationship between change in inequalities and change in all the 14 variables between 2000 and 2010. The previous sections examined this relationship only at a stationary point in time with data at that time. The observations in phase 1 and 2 did not look at change of the variables over time. This phase however, examined the change of inequality with change in all the variables. We have two sets of equations, one examining inequality as expressed in Gini index and two as expressed in terms of quintile ratio. We start our discussions with the Gini index results.

Gini Index Results:

This section examines the effect of change in predictor variables on the change in Gini index as already stated, using change from 2000 to 2010 data. The equation for this relationship is:

Δ Gini Index= Δ Income Inequality= I_{X1}- I_{X2} = f [(S_{X1}-S_{X2}) + (M_{X1}- M_{X2}) + (IP_{X1}-IP_{X2})] & [(Δ A+ Δ ES+ Δ EC+ Δ C+G+ Δ R)]

Where XI represents year 2010, X2 represents year 2000, S is service industry, M is manufacturing and IP is migration;

And: A is age structure, ES is economic structure, EC is economic conditions, E is education, G is gender, R is region and P is population.

The results indicated two statistically significant associations. The relationship between the rates of female workforce participation and the Gini index posted a *p* value of .014; race was also found to have a positive statistically significant association with a p value of 0.53. In an effort to improve the results, we performed log transformation of predictor variables and regressed them with the change in Gini index and did not yield much of a difference in results. At 90% confidence interval region 1 (south) was also found to be have a positive statistically significant association with income inequality, consistent with older works. Table 16 below is the SPSS output of the regression results.

Table 16: Regression Output Change in Gini Index

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.028	.010		2.805	.008
	CPOP	4.213E-11	.000	.001	.003	.998
	CRACE	.001	.000	.311	2.006	.053
	CFWK	-.004	.001	-.432	-2.608	.014
	CFHH	.000	.002	.038	.120	.905
	COLD	.000	.001	-.090	-.647	.522
	CED1HS	-.001	.001	-.529	-1.318	.197
	CED2BA	6.472E-5	.001	.014	.062	.951
	CEMFG	.001	.001	.095	.728	.472
	CTEMFG	-2.723E-13	.000	-.024	-.162	.872
	CUNEMP	-.001	.002	-.142	-.788	.436
	CPSERVE	-.005	.003	-.235	-1.512	.140
	CESERVE	-9.479E-16	.000	-.002	-.012	.990
	CMIG	-3.288E-8	.000	-.015	-.047	.963
	R1	.008	.005	.285	1.761	.088
	R2	.008	.008	.128	.985	.332
	R3	.005	.006	.152	.845	.404

a. Dependent Variable: GINI2-1

As can be observed from our model summary in table 17 below, the model accounts for 61.3% of the variation in independent variable, and the scatter plot below.

Table 17: Model Summary for Gini Index Phase 3

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.783[a]	.613	.425	.0109656

a. Predictors: (Constant), R3, COLD, CPSERVE, R2, CPOP, CEMFG, CFWK, CFHH, CTEMFG, R1, CRACE, CED2BA, CESERVE, CUNEMP, CMIG, CED1HS
b. Dependent Variable: GINI2-1

The alignment of the residuals in figure 10 below indicates that the residuals are scattered along the normal probability line that it satisfies the normality assumption of the modeling process.
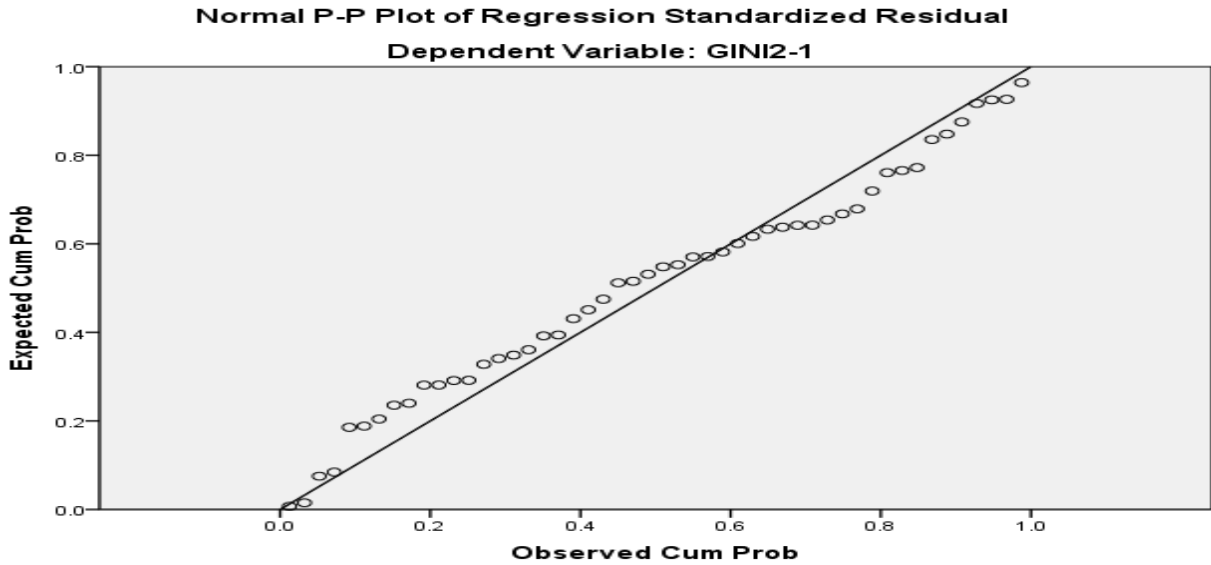
Figure 10: Plot of Regression Standardized Residuals Gini (2000-2010)

Phase 3: Quintile Ratio Results

This section examines the effect of change in predictor variables on the change in quintile ratios as already stated, using change from 2000 to 2010 data. The equation for this relationship is:

Δ *Quintile ratio= Δ Income Inequality= I_{X1}- I_{X2} = f [(S_{X1}-S_{X2}) + (M_{X1}- M_{X2}) + (IP_{X1}-IP_{X2})] & [(Δ A+ Δ ES+ Δ EC+ Δ C+G+ Δ R)]*

Where XI represents year 2010, X2 represents year 2000, S is service industry, M is manufacturing and IP is migration;

And: A is age structure, ES is economic structure, EC is economic conditions, E is education, G is gender, R is region and P is population.

Measuring inequality by the quintile ratio, our results showed significant relationship between change in earnings in service industry and change in level of employment in the service industry and change inequality with a *p* value of 0.001 and 0.092 respectively. The direction of the association is

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however not consistent with literature in global city studies observation that higher employment in service industry has an exacerbating effect on income inequality. As already explained earlier, this is because quintile ratios are sensitive to in-group inequality and a small number of highly paid individuals would spike the income in the top quintile increasing the ratios between the lowest and highest quintiles. At 90% confidence interval, change in proportion of women in the workforce was also found to be significantly associated with income inequality. Table 18 below shows the *SPSS* output of our results.

Table 18: Regression Output Quintile Ratio Phase 3

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	.025	.006		3.816	.001
	CPOP	1.397E-8	.000	.455	1.186	.243
	CRACE	.000	.000	-.140	-.879	.385
	CFWK	.003	.001	.427	2.477	.018
	CFHH	.001	.002	.123	.372	.712
	COLD	-3.342E-6	.001	-.001	-.007	.995
	CED1HS	.000	.000	-.153	-.370	.713
	CED2BA	.000	.001	-.109	-.471	.641
	CEMFG	.000	.001	-.045	-.314	.755
	CTEMFG	-8.522E-13	.000	-.108	-.725	.473
	CUNEMP	.002	.001	.294	1.564	.127
	CPSERVE	-.004	.002	-.290	-1.732	.092
	CESERVE	-1.845E-13	.000	-.620	-3.475	.001
	CMIG	3.237E-7	.000	.210	.594	.556
	R1	.043	.019	.700	2.312	.025
	R2	.028	.025	.219	1.140	.260
	R3	.034	.020	.448	1.716	.093
a. Dependent Variable: QR2-1						

Our results further indicated that region 1 (south of the United States) was more associated with higher income inequality as compared to the other 3 regions, consistent with observations in older literature that associated the region with higher income inequality. A better picture emerges of the significance of region 1 when the *p* values of the regions are compared. For instance, region 3 (Midwest)

had a *p* value of .093; and region 2 (N. East) had a *p* value of .260. Thus when compared with the other

regions, the difference is clear that the South is more associated with inequality.

The table below shows the modeling summary, the R-squared value, indicates that our model accounts for

50.4% of the variation in the independent variables.

Table 19: Model Summary for Quintile Ratio Phase 3

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.710[a]	.504	.325	.00859443361429
a. Predictors: (Constant), R3, COLD, CPSERVE, R2, CPOP, CEMFG, CFWK, CFHH, CTEMFG, R1, CRACE, CED2BA, CESERVE, CUNEMP, CMIG, CED1HS				
b. Dependent Variable: QR2-1				

The alignment of the residuals in the scatter plot in figure 11 below shows that they are randomly

scattered along the zero horizontal line. The plot of residuals in figure 13 below also indicate that the

residuals are scattered along the normal probability line with a slight deviation meaning that it satisfies

the normality assumption of the modeling process.
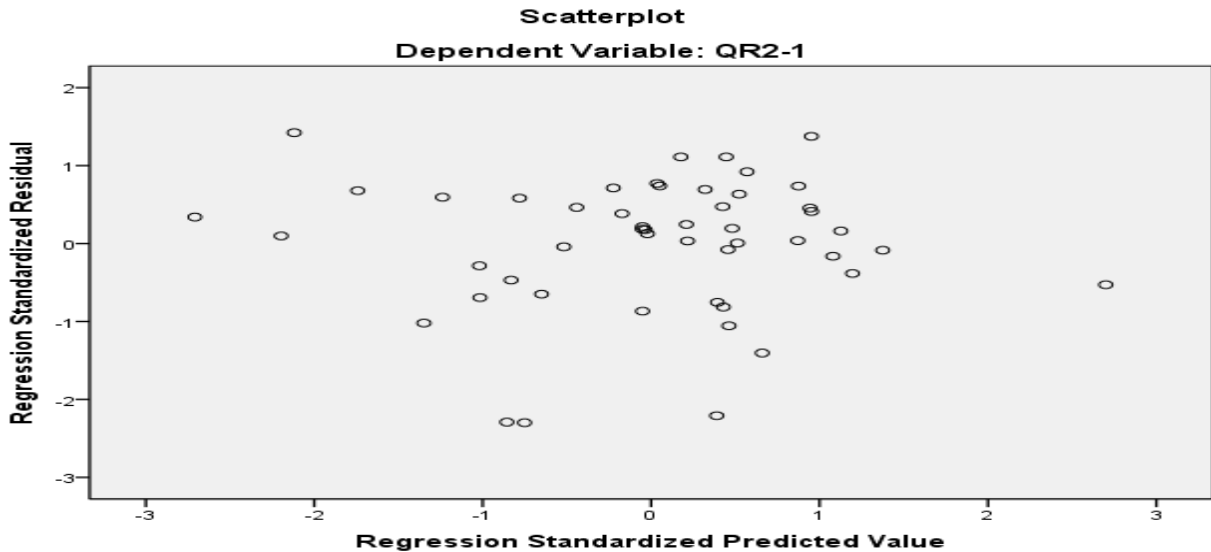
Figure 11: Scatter Plot Quintile Ratio (2000-2010)
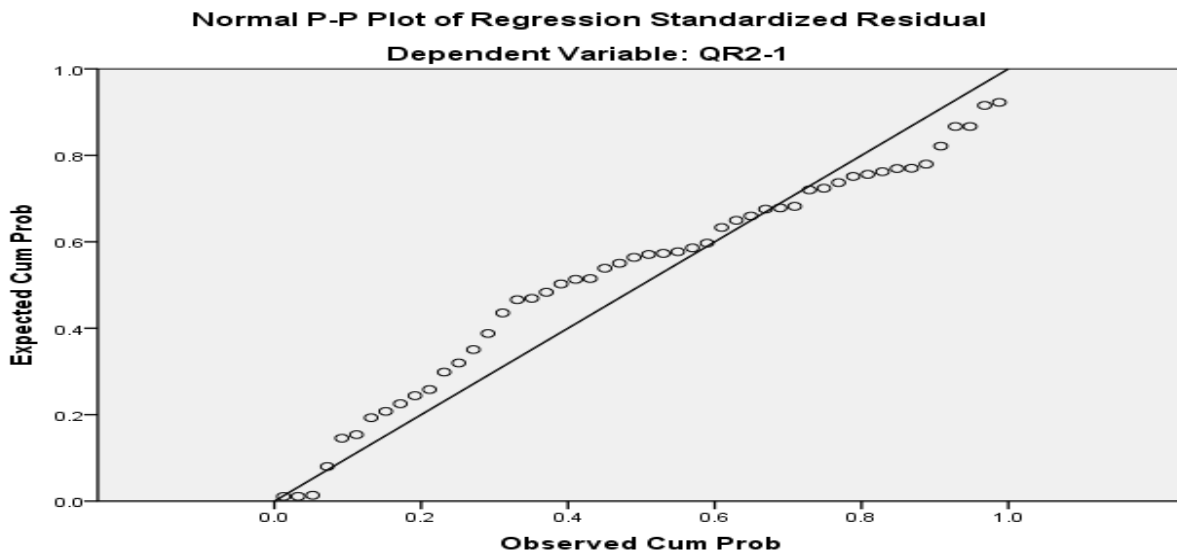
Figure 12: Plot of Regression Standardized Residuals Quintile Ratio (2000-2010)

<u>5.4 Conclusions, Policy Implications & Recommendations</u>

5.4.3 Conclusions

A reflexive analysis of our findings necessitates that we revisit the arguments surrounding the issue of growing income inequalities in the introductory paragraphs of chapter 1. That dramatic growth in income inequality in the American society is a fact that enjoys solid support among scholars is also confirmed by analysis of 50 largest US metropolitan areas. Our findings observed that income inequality in these metropolitan areas grew by 5% when expressed in Gini coefficient and of 0.02 representing 38% growth when expressed in quintile ratio. The question that largely remains unanswered in most scholarly works is what are the key causes of this inequality? The obvious answer is stagnating incomes in majority of the populations while a smaller section of the population has seen their incomes grow steeply.

The second question is why are the incomes stagnant? Existing works and neither does this dissertation provide an answer to this. Existing works single out decline in manufacturing and increase of service industry and nothing else. According to our findings, although these two factors were consistently statistically significantly associated with income inequalities in the 3 phases of this research, they can

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only explain a small fraction of the growing inequalities that we have observed. Existing works have also pointed out a host of other factors that contribute to inequality which we have discussed exhaustively in our literature review and incorporated them in our research models. And therein could be the answer to the probable causes of the growing inequalities- a myriad of factors, others known and others still emerging.

Our results by and large give us mixed findings on the strength of the associations between the various determinants of inequalities and inequality depending on what measure of inequality is used and what parameters of the variables are used. For example when inequality is looked at one stationary time and regressed with stationary predictor variables data, as we did in phase 1 and phase 2 of the study, the results are largely consistent with what has been observed in existing works. Two when *change* in inequality is viewed across a decade and regressed with stationary predictor variables data the results are less consistent with observations in existing works. Third, when *change* in inequality is regressed against change in predictor variables in the period under study, the results are less consistent with existing works. In all the three phases the correlation results were more consistent with existing works however that leaves the fundamental question of causation largely unanswered, an issue captured by differing views informing debate on rising inequalities as encapsulated in chapter 1 and extensively reviewed in existing works in chapters 2 and 3.

Literature on global city thesis, points out that the phenomenon of income polarization is largely experienced in big cities notable the three financial capitals of the world, New York, Tokyo and London, though it would have been great to have included the last two in our sample, our findings however obliterates any distinctions in the trajectory of income inequalities in large metropolitan areas. The question of whether the factors identified by global city thesis as the distinct tributaries of these inequalities namely migration, proportion of manufacturing employment and employment in producer services are more associated with income inequality also depends on what measure of inequality is employed.

An observation worthy of note however is that education, proportion of female headed households and levels of participation of women in the work force and proportion of employment in service industry were some of the most consistent variables associated with inequality in all the 3 phases of our research. This answers the second research question of our dissertation which factors are primarily associated with inequalities. Our findings do not support the polarization thesis' view that income inequality in large metropolitan areas is primarily driven by proportion of labor force participation in service industry, manufacturing industry and migration, though service industry and manufacturing industry showed a strong association with income inequality. This is because factors identified by welfare economics, which includes economic structure expressed in terms of employment rates in manufacturing, level of participation of females in the workforce, female headed households and education, also are significantly associated with inequalities. Our results certainly see no significant association between migration and income inequalities as argued by polarization thesis/ global city thesis. The point is that no single factor or 2 factors by themselves would cause the magnitude of inequalities observed in the period under review.

5.4.4 Significance of Findings to Global City Thesis

Our findings are congruent with the assertion that income inequality or polarization of income has been growing in large metropolitan areas as promulgated by the global city thesis. However, the extent to which this polarization is connected to growth in producer services, decline in manufacturing and migration is something that our findings do not see peculiar correlations and therefore do not make these factors more critical than those observed by economic literature. The findings therefore are not conclusive on the role of globalization in this phenomenon.

We would like to suggest that polarization thesis as explained by global city thesis is a process subject to the progressive theory of social change and is not limited to big cities. In his classic, "The Division of Labor in Society", Durkheim argued that when we compare small and big cities, i.e. mechanical and organic societies, in mechanical societies there is limited specialization of

labor and therefore income is more homogeneous. This is the same argument that Ferdinand Toennis makes in his Gemmeinschaft *und Gesselschaft* (community and society) abstraction of human societies. In other words, we would have seen a similar polarization in Paris and Berlin in the 19th Century purely on the basis of division of labor. But as stated, our results are not conclusive in any way, further examination of the subject may yield richer findings.

5.4.5 Policy Implications

The problem of income inequality is not only potentially catastrophic to the American economy but also to the democratic foundations of our society if it proceeds unchecked. The philosophical understanding in just and democratic societies is the belief in human dignity which allows all to enjoy relative prosperity where room for socio-economic mobility exists. Runaway inequality deprives us of that opportunity.

The results of our findings necessitate a few changes in one major policy area:

i)   Manufacturing Vs Service sectors in local economic development policies

ii)   Education and labor Force training.

5.4.5.1: Manufacturing Vs Service sectors in local economic development policies

Regional and local economic development planning policies usually target specific industries to attract and or develop, it could be service firms or manufacturing firms or a combination of both. In this light, local and regional governments' economic development policies have some influence not only on job creation but also on what type of jobs will be created by choosing which industries to pursue , what incentives to give in terms of tax breaks, and what partnerships to build amongst others economic development tools. A balanced choice of service and manufacturing firms may neutralize the levels of income inequality. As noted in chapter 1, the characterization the specializations of cities can no longer be viewed as distinctly service or manufacturing (Growe 2010; Stein 2003), our results validates this view by observing that we cannot speak with near certainty which of these sectors are associated with income inequality. The implication is that local economic development policies to be pursued should be driven by

what Bradshaw and Blakely (2006) term as " local capacity" referring to economic, social, technological, political abilities, natural resources, capital investment and location of a city and prevailing global conditions.

5.4.5.2 Education & Labor Force Training

 As reviewed in chapter 2, and observed in our findings, educational attainment has a significant association with earning prospects and therefore income inequality. One of the factors mentioned in the above paragraph is technological capacity which falls within the purview of educational attainment. Regional and local economic development policies can increase their capacity to attract certain industries with sustainable educational partnerships. This is contrary to the prevailing business recruitment policies that have been described as smoke stack chasing.

Drawing from the findings of this dissertation and the observations in existing works as reviewed in chapter 2, the link between education and skilled workforce and resultant income disparities cannot be belabored. The variation in education and skill was the "foremost justification for inequality growth in the United States throughout the 1970s, 1980s and 1990s" [Clark, 2002; Piketty, 2003; Piketty & Saez, 2006; Smith, 2001; Wolff, 2000; Lemieux 2008]. Thus there is need to have local economic development strategies that foster and sustain interstitial relationships between industry and education, and more importantly an equal dispersion of education and training opportunities.

The issue of revenue allocation to education both at national and local level is crucial for ensuring national and global competitiveness. The great recession has left all levels of government in the United States fumbling on budget cuts, and education funding has not been spared, leaving most schools districts across the nation with severe shortage of essential staff which negatively impacts the learning process. Funding for education and especially access to education by economically underprivileged individuals is critical in reduction of the growing income inequalities.

It has been argued elsewhere that America's place in the 21st Century will be defined on how we are able to equip our human capital not only with technical competencies but also on "soft skills" which

are critical in global commerce. These soft skills refer to abilities such as speaking multiple languages, cultural sensitivity etc. Our education policy and human capital training should incorporate these tenets. This is important particularly in view of the continuing economic globalization and the progressive integration of the hitherto traditional societies into the world economy.

5.4.6 Recommendation for Future Research

As observed, the results have tended to vary depending on which measure of inequalities is employed. As stated most of the existing works have used a single measure of inequality, we employed two measures however more conclusive results may be obtained with multiple measures. Second, our research was centered in examining whether global city thesis holds true in large U.S metropolitan areas, the answer is yes but not as scripted by the thesis, since other determinants of income inequality in economic literature posted more significant results compared to producer services, manufacturing and migration.

 Results may differ if the geographical unit of analysis is changed to cities rather than metropolitan areas. Increasing the number of samples from 50 as adopted in our studies to a 100 would yield better generalizability and allow for better control of variables that may otherwise generate spurious results. Lastly, due to lack of data, our dissertation did not look at the relationship between stock ownership and income inequality, when this data becomes available in the future it would be important that this relationship be examined.

APPPENDIX A

CHANGE IN QUINTILE RATIOS IN SAMPLE MSAS 2000-2010

MSA	Quint.Ratio 2000	Quint.Ratio 2010	Numeric Change	Percent Change
Atlanta-Sandy Springs-Marietta, GA	0.06221	0.070858	0.00865	13.9
Austin-Round Rock, TX	0.05628	0.075651	0.01937	34.4
Baltimore-Towson, MD	0.06643	0.069016	0.00258	3.9
Birmingham-Hoover, AL	0.04087	0.064783	0.02392	58.5
Boston-Cambridge-Quincy, MA-NH	0.05540	0.060558	0.00516	9.3
Buffalo-Niagara Falls, NY	0.04037	0.066266	0.02590	64.2
Charlotte-Gastonia-Concord, NC-SC	0.05449	0.065987	0.01150	21.1
Chicago-Naperville-Joliet, IL-IN-WI	0.05655	0.064815	0.00826	14.6
Cincinnati-Middletown, OH-KY-IN	0.05068	0.070617	0.01994	39.4
Cleveland-Elyria-Mentor, OH	0.04660	0.061706	0.01511	32.4
Columbus, OH	0.05199	0.069861	0.01788	34.4
Dallas-Fort Worth-Arlington, TX	0.05621	0.070789	0.01458	25.9
Denver-Aurora-Broomfield, CO /1	0.06198	0.070446	0.00847	13.7
Detroit-Warren-Livonia, MI	0.05319	0.064751	0.01156	21.7
Hartford-West Hartford-East Hartford, CT	0.05674	0.069773	0.01304	23.0
Houston-Sugar Land-Baytown, TX	0.05002	0.064484	0.01446	28.9
Indianapolis-Carmel, IN	0.05396	0.077096	0.02313	42.9
Jacksonville, FL	0.05025	0.075706	0.02546	50.7
Kansas City, MO-KS	0.05476	0.080321	0.02556	46.7
Las Vegas-Paradise, NV	0.05173	0.085906	0.03418	66.1
Los Angeles-Long Beach-Santa Ana, CA	0.05893	0.062131	0.00320	5.4
Louisville/Jefferson County, KY-IN	0.04538	0.073385	0.02800	61.7
Memphis, TN-MS-AR	0.04204	0.064368	0.02233	53.1
Miami-Fort Lauderdale-Pompano Beach, FL	0.03948	0.059354	0.01987	50.3
Milwaukee-Waukesha-West Allis, WI	0.05244	0.072589	0.02015	38.4
Minneapolis-St. Paul-Bloomington, MN-WI	0.06633	0.081491	0.01516	22.9
Nashville-Davidson--Murfreesboro--Franklin, TN	0.05083	0.076241	0.02541	50.0
New Orleans-Metairie-Kenner, LA	0.03468	0.062828	0.02815	81.2
New York-Northern New Jersey-Long Island, NY-NJ-PA	0.04873	0.050201	0.00147	3.0

Oklahoma City, OK	0.04113	0.072636	0.03151	76.6
Orlando-Kissimmee, FL	0.05115	0.080433	0.02928	57.2
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	0.05033	0.061165	0.01084	21.5
Phoenix-Mesa-Scottsdale, AZ	0.05354	0.076069	0.02253	42.1
Pittsburgh, PA	0.04099	0.072525	0.03153	76.9
Portland-Vancouver-Beaverton, OR-WA	0.05500	0.082009	0.02701	49.1
Providence-New Bedford-Fall River, RI-MA	0.04100	0.066293	0.02529	61.7
Raleigh-Cary, NC	0.05538	0.084974	0.02959	53.4
Richmond, VA	0.05467	0.048006	-0.00667	-12.2
Riverside-San Bernardino-Ontario, CA	0.05893	0.08033	0.02140	36.3
Sacramento--Arden-Arcade--Roseville, CA	0.05167	0.081196	0.02953	57.2
Salt Lake City, UT	0.06170	0.090121	0.02842	46.1
San Antonio, TX	0.04391	0.068165	0.02425	55.2
San Diego-Carlsbad-San Marcos, CA	0.05369	0.074248	0.02056	38.3
San Francisco-Oakland-Fremont, CA	0.06908	0.061701	-0.00738	-10.7
San Jose-Sunnyvale-Santa Clara, CA	0.06908	0.06896	-0.00012	-0.2
Seattle-Tacoma-Bellevue, WA	0.06043	0.080025	0.01959	32.4
St. Louis, MO-IL	0.05070	0.071396	0.02069	40.8
Tampa-St. Petersburg-Clearwater, FL	0.04409	0.0749	0.03081	69.9
Virginia Beach-Norfolk-Newport News, VA-NC	0.05118	0.088739	0.03756	73.4
Washington-Arlington-Alexandria, DC-VA-MD-WV	0.06643	0.081284	0.01485	22.4

APPPENDIX B

CHANGE IN GINI INDICES IN SAMPLE MSAS 2000-2010

MSA	Gini 2000	Gini 2010	Numeric Change	Percent Change
Atlanta-Sandy Springs-Marietta, GA	0.425	0.458	0.033	7.8
Austin-Round Rock, TX	0.418	0.447	0.029	6.9
Baltimore-Towson, MD	0.419	0.451	0.032	7.6
Birmingham-Hoover, AL	0.481	0.477	-0.004	-0.8
Boston-Cambridge-Quincy, MA-NH	0.464	0.47	0.006	1.3
Buffalo-Niagara Falls, NY	0.455	0.46	0.005	1.1
Charlotte-Gastonia-Concord, NC-SC	0.438	0.479	0.041	9.4
Chicago-Naperville-Joliet, IL-IN-WI	0.454	0.469	0.015	3.3
Cincinnati-Middletown, OH-KY-IN	0.436	0.454	0.018	4.1
Cleveland-Elyria-Mentor, OH	0.454	0.471	0.017	3.7
Columbus, OH	0.428	0.451	0.023	5.4
Dallas-Fort Worth-Arlington, TX	0.439	0.465	0.026	5.9
Denver-Aurora-Broomfield, CO /1	0.4144	0.454	0.0396	9.6
Detroit-Warren-Livonia, MI	0.4478	0.462	0.0142	3.2
Hartford-West Hartford-East Hartford, CT	0.4188	0.448	0.0292	7.0
Houston-Sugar Land-Baytown, TX	0.454	0.477	0.023	5.1
Indianapolis-Carmel, IN	0.424	0.45	0.026	6.1
Jacksonville, FL	0.4203	0.448	0.0277	6.6
Kansas City, MO-KS	0.4223	0.439	0.0167	4.0
Las Vegas-Paradise, NV	0.4166	0.431	0.0144	3.5
Los Angeles-Long Beach-Santa Ana, CA	0.468	0.479	0.011	2.4
Louisville/Jefferson County, KY-IN	0.442	0.453	0.011	2.5
Memphis, TN-MS-AR	0.468	0.469	0.001	0.2
Miami-Fort Lauderdale-Pompano Beach, FL	0.293	0.494	0.201	68.6
Milwaukee-Waukesha-West Allis, WI	0.426	0.453	0.027	6.3
Minneapolis-St. Paul-Bloomington, MN-WI	0.405	0.434	0.029	7.2
Nashville-Davidson--Murfreesboro--Franklin, TN	0.439	0.449	0.01	2.3
New Orleans-Metairie-Kenner, LA	0.486	0.476	-0.01	-2.1
New York-Northern New Jersey-Long Island, NY-NJ-PA	0.507	0.504	-0.003	-0.6
Oklahoma City, OK	0.434	0.46	0.026	6.0
Orlando-Kissimmee, FL	0.423	0.451	0.028	6.6
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	0.462	0.47	0.008	1.7

Phoenix-Mesa-Scottsdale, AZ	0.427	0.446	0.019	4.4
Pittsburgh, PA	0.473	0.458	-0.015	-3.2
Portland-Vancouver-Beaverton, OR-WA	0.407	0.435	0.028	6.9
Providence-New Bedford-Fall River, RI-MA	0.479	0.453	-0.026	-5.4
Raleigh-Cary, NC	0.4231	0.428	0.0049	1.2
Richmond, VA	0.4138	0.44	0.0262	6.3
Riverside-San Bernardino-Ontario, CA	0.468	0.435	-0.033	-7.1
Sacramento--Arden-Arcade--Roseville, CA	0.425	0.435	0.01	2.4
Salt Lake City, UT	0.383	0.425	0.042	11.0
San Antonio, TX	0.424	0.461	0.037	8.7
San Diego-Carlsbad-San Marcos, CA	0.431	0.45	0.019	4.4
San Francisco-Oakland-Fremont, CA	0.446	0.472	0.026	5.8
San Jose-Sunnyvale-Santa Clara, CA	0.446	0.446	0	0.0
Seattle-Tacoma-Bellevue, WA	0.411	0.436	0.025	6.1
St. Louis, MO-IL	0.434	0.452	0.018	4.1
Tampa-St. Petersburg-Clearwater, FL	0.455	0.459	0.004	0.9
Virginia Beach-Norfolk-Newport News, VA-NC	0.38	0.42	0.04	10.5
Washington-Arlington-Alexandria, DC-VA-MD-WV	0.419	0.435	0.016	3.8

REFERENCES

Abrahamson, Mark. [2004]. *Global Cities.* New York: Oxford University Press

Abu Lughod, J. [1999] New York, Chicago, Los Angeles. *America's Global Cities.* University of Minnesota Press, Minneapolis.

Acemoglu, D. [2002]. Technical change, inequality, and the labor market. *Journal of Economic Literature* 40 [1]:7–72

Ahluwalia, M.S. & Chenesy, H. [1974] A model *of* distribution and growth', in H. Chenecy, et al., *Redistribution with Growth* . Oxford University Press.

Ahluwalia, Montek S., Nicholas Carter, & Hollis Chenery. [1979] .Growth and Poverty in Developing Countries,. *Journal of Development Economics,* VI, 299–341.

Aigner. D, & A. J. Heins. [1967]. On the determinants of Income Inequality. *American Economic Review* 57: 1*75-8.t.*

Alesina, A.F. & Rodric, D. [1994]. Distribution politics and economic growth. Quarterly Journal of Economics 109, 465–490.

Anjomani, A. & Sekio, K. [1998]. "Income Inequality in Globalized Urban Societies" Presented on April 25, at The 1998 Urban Affairs Association Annual Meeting.

___ [2004]. An Integrative Approach to Globalization and Income Polarization Effects. International Journal of the Humanities. Vol. 2: 3

Ashenfelter, O. & Rouse, C. [2000]. Schooling, intelligence and income in America. In: Arrow, K., Bowles, S., Durlauf, S. [Eds.], Meritocracy and Economic Inequality. Princeton University Press, Princeton, NJ, pp. 89–117.

Baldwin, R., Forslid, R., Martin, P., Ottaviano, G. & Robert-Nicoud, F. [2003]. *Economic Geography and Public Policy*. Princeton University Press, Princeton [NJ].

Ballmer-Cao, & Scheidegger, S. [1979]. Compendium of data for World System Analysis. *Bulletin of the Sociological Institute of the University of Zurich*.

Barrios, Salvador & Strobl, E. [2009] .The dynamics of regional inequalities. Regional Science and Urban Economics 39:575–591.

Barro, R. J. & Sala-i-Martin, X. [1992]. "Convergence," *Journal of Political Economy*, 100, 223–51, 1992.

Basu, K. [2006]. Globalization, Poverty, and Inequality: What is the Relationship? What Can Be Done? *World Development* Vol. 34, No. 8, pp. 1361–1373.

Baum-Snow, M. & Pavan, R. [2010]. Inequality and City Size. Unpublised Manuscript. National Science Foundation Award SES-0720763.

Beach, C. M. [1977]. Cyclical sensitivity of aggregate income inequality. *Review of Economics and Statistics*, *59*, 56–66.

Beaverstock, J. V. [2002]. Transnational elites in global cites: British expatriates in Singapore's financial district. *Geoforum.* 33 [4], pp. 525-538.

Beaverstock, J.V & Taylor, P.J. [1999]. .A roster of world cities. *Cities,* Vol. 16, No. 6, pp. 445–458.

Beck, U. [2000]. *The Brave New World of Work*. Cambridge: Cambridge University Press.

Becker GS [1967]. Woytinski lecture, University of Michigan. Reproduced in *Human Capital* [2nd edn]. University of Chicago Press, Chicago.

Berman E., Bound J., & Griliche, Z. [1994]. Changes in the demand for skilled labor within U.S. manufacturing: evidence from the annual survey of manufactures. *Quarterly Journal of Economics* 109 [2]:367–397.

Blackburn M.L, & Bloom D.E. [1987]. Earnings and income inequality in the United States. *Population Development Review* 13 [4]:575–609

Blank, R. M. [1989]. Disaggregating the effect of the business cycle on the distribution of income. *Economica*, *56*, 141–163.

Blank, R. M., & Blinder, A. S. [1986]. Macroeconomics, income distribution and poverty. In S. Danziger & D. Weinberg [Eds.], *Fighting poverty, what works and what does not* [pp. 180–208]. Cambridge, MA: Harvard University Press.

Bornschier, V., & Chase-Dunn, C. [1985]. *Transnational Corporations and Underdevelopment Transnational Corporations and Underdevelopment.* Praeger Publishers.

Bornschier, V., Chase-Dunn, C., & Rubinson, R. [1978]. Dependency-theory-International-relations; Investments-Foreign-Developing-countries. *The American Journal of Sociology* [84] 651-83

Bound J., & Johnson G. [1992]. Changes in the structure of wages in the 1980s: an evaluation of alternative explanations. *American Economic Review* 82 [3]:371–392

Bourguignon, F. [1979]. The Decomposable Income Inequality Measures. *Econometrica* [47]901-20.

Bradshaw, T. and Blakely, E. [2006]. *Planning Local Economic Development [3rd Edition].* University California Press.

Braun, D. [1992]. Income Inequality and Economic Development: Geographic Divergence. *Social Science Quarterly* 72 520-36.

Canova, F. [2004]. Testing for convergence clubs in income per capita: a predictive density approach. *International Economic Review* 45 [1], 49–77.

Castells, M. [2004]. Informationalism, Networks, and the Network Society: A Theoretical Blueprint. *The Network Society*. Cheltenham, UK: Edward Elgar, 3-45.

Castells, M. [1998].*End of Millennium. Volume 3 of The Information Age: Economy, Society, and Culture*. Oxford: Blackwell.

Castells, M. [1989]. *The Informational City: Information Technology, Economic Restructuring and the Urban Regional Process.* Oxford: Blackwell.

Cetina, K. & Bruegger, U. [2000]. Canadian Journal of Sociology 25, 2: 141-168

Chenery, H., & Syrquin, M. [1975]. *Patterns of Development, 1950-1970*. Oxford University Press, New York.

Clark, C. M. [2002].Wealth and poverty: On the social creation of scarcity. *Journal of Economic Issues*, *36*, 415–421.

Cobb. James C. [1984]. *Industrialization and Southern Society*: *1877-1984* Lexington: University Press of Kentucky.

Cohen, R. B. [1981].The new international division of labour, multinational corporations and urban hierarchy. In *Urbanisation and Urban Planning in Capitalist Society*, ed M Dear and A Scott, pp 287–315. Methuen, London.

Conlisk. J. [1967]. One Cross-State Evidence on Income Inequality. *Review of Economics and Statistics.* 49 115-18.

Cornia, A. Addison, T., & Kiiski, S. [2003]. Income Distribution Changes and their Impact in the Post-World War II Period. *WIDER Discussion Paper*, No. 2003/28, Helsinki.

Cornia, G.A. [2004]. *Inequality, Growth, and Poverty in an Era of Globalization*. New York: Oxford University Press INC.

Coughlin. Bilen K. [1994].The Emergence of the "Global City". *The Chronicle of Higher Education 40*: A8-9.

Czamanski , S. & Isard W. [1965], Techniques for Estimating Local and Regional Growth. *Peace Research Society（International）Papers*, VOl. 3**.**

Danziger, S., R. Haveman & Smolensky, E. [1977]. The measurement and trend of inequality: Comment. *American Economic Review* 67. 505-5 12.

Danziger, S. [1976].Determinants of the Level and Distribution of Family Income in Metropolitan Area. *Land Economics* 52 [Nov. 467-478.

Das, M., & Mohapatra, S. [2003]. Income inequality: The aftermath of stock market liberalization in emerging markets. *Journal of Empirical Finance*, *10*, 217–248.

Deininger, K., & Squire, L. [1998]. New ways of looking at old issues: Inequality and growth. *Journal of Development Economics*, 57.

Delacroix, Jacques and Charles Ragin. [1981]. Structural blockage: a cross-national study of economic dependency, state efficacy, and underdevelopment. *American Journal of Sociology* 86:1311-47

Dicken, P. [1998]. *Global shift* [3rd edn]. London: Paul Chapman.

Dollar, D. & Kraay A. [2000]. Growth is good for the poor. *Development Research Group, The World Bank*.

Douglass, M. [2000]. The Rise and Fall of World Cities in the Changing Space-Economy of Globalization: Comment on Peter J. Taylor's, World Cities and Territorial States under Conditions of Contemporary Globalization. *Political Geography*, 19 [1]: 43–9.

Durden, G. C., and Schwarz-Miller, A. V. [1982]. The distribution of individual income in the U.S. and public sector employment. *Social Science Quarterly* 63:39-47.

Durkheim, E. [1893]. *The Division of Labour in Society.*

Durlauf, S.N., Quah, D. [1998]. The new empirics of economic growth. Centre for Economic Performance. *London School of Economics and Political Science, Discussion Pape*r No. 384.

England, P. [1992]. *Comparable worth: Theories and evidence*. New York: Aldine de Gruyter.

Evans, P., & Timberlake, M. [1980]. Dependence, Inequality and Growth of the Tertiary: a comparative Analysis of less developed countries. *American Sociological Review* 45:531-52.

Fainstein, *S.,* Gordon, S, & Haloc, M. [1992]. *Divided Cities: New York and London in the Contemporary World.* Oxford: Blackwell.

Fama, E., & French, K. [2001]. Disappearing dividends: Changing firm characteristics or lower propensity to pay? *Journal of Financial Economics*, *60*, 3–43.

Farbman, M. [1975]. The Size Distribution of Family Income in U.S. SMSAs. 1959. *The Review of Income and Wealth* 2: 217-37.

Feagin, J R and Smith, M. P. [1987]. Cities and the new international division of labour. In *The Capitalist City*, ed M P Smith and J R Feagin, pp 3–36. Blackwell, Oxford.

Firebaugh, G. [1999].Empirics of World Income Inequality. *American Journal of Sociology.* CIV 1597–1630.

Firebaugh, Glenn. [2003]. *The New Geography of Global Income Inequality.* Harvard University Press.

Florida, R. [2002]. *The Rise of the Creative Class: And How it's transforming work, leisure, community and everyday life.* New York: Perseus Book Group.

Forbes, K. J. [2000]. A reassessment on the relationship between inequality and growth, American Economic Review, 90, pp. 869–887. Lewis, W.A. 1954. 'Unlimited Development with Unlimited Supplies of Labour'. *Manchester School*. 1954, 22 [2]: 139-91.

Ford, Edward J. [1977]. Explaining Inter-Urban Variation in the Level and Distribution of Income. *Review of Social Economy [*35] 67-77.

Frank, A.G. [1969]. *Capitalism and Underdevelopment in Latin America.* Modern Reader.

Frank, Mark W. [2009].Inequality And Growth in the United States: Evidence From A New State-Level Panel of Income Inequality Measures. *Economic Inquiry* Vol. 47, No. [1] 55–68

Freeman, R.B. [1976]. The overeducated American. Academic. New York

Friedmann, J. [1986]. The World City Hypothesis. *Development and Change*, 17: 69–83.

Friedmann, J. and Wolff, G. [1982]. World City Formation: An Agenda for Research and Action. *International Journal of Urban and Regional Research*, 3: 309–44

Gabaix X, Landier A. [2007]. Why has CEO pay increased so much? Q J Econ, in press

Galtung, J. [1971]. A Structural Theory of Imperialism. *Journal of Peace Research 8 [2]:81-117*

Garofalo, G., & Fogarty. M. [1979].Urban Income distribution and The Urban Hierarchy Hypothesis. *Review of Economic Statistics* 61 381·88.

Geddes, P. [1915]. *Cities in Evolution*. Benn, London.

Godfrey, B. and Zhou, Y. [1999]. Ranking World Cities: Multinational Corporations and the Global City Hierarchy. *Urban Geography*, 20 [3]: 268–81.

Gottschalk, P. [1997].Inequality, Income Growth, and Mobility: The Basic Facts. Journal of Economic Perspectives, 11, 21–40.

Gregorio, J. D., Lee, J. W. [2002]. Education and Income Distribution: New Evidence from Cross- country Data. *Review of Income and Wealth* 48, 395-416.

Growe, Anna . [2010].Human capital in the German urban system – patterns of concentration and specialization" *European Journal of Spatial Development*. Online Publication Date: 18 August 2010.

Gugler, J. [Ed.]. [2004]. *World Cities beyond the West: Globalization, Development and Inequality.* Cambridge: Cambridge University Press.

Hall, P . [1966]. *The World Cities*. Heinemann, London.

Hamnett, C. [1994]. Social Polarisation in Global Cities: Theory and Evidence. *Urban Studies* 31 [3]: 401-424.

Harry Flam, H., Flanders, J., [1991]. *Heckscher–Ohlin Trade Theory*. MIT Press, Cambridge [MA].

Hartog, J. [1976]. Age-Income Profiles, Income Distribution and Transition Proportions. *Journal of Economic Theory 13, 448-457*

Haworth, T., Long, J.E., & Rasmussen, D. [1978]. Income Distribution, City Size and Urban Growth. *Urban Studies* 15 1·7.

Heckman, J. [2005]. China's Human Capital Investment. *China Economic Review* 16, 50-70.

Heenan, D .A. [1977]. Global cities of tomorrow. *Harvard Business Review* 55 [May/June], 79–92.

Hohenberg. Paul M. [1992]. The Global City: New York. London. Tokyo" The *Journal of Economic Literature* 30: 2187-88.

Hsing, Y., & Smyth, D.J. [1994]. Kuznet's Inverted- U Hypothesis Revisited. *Applied Economics Letters*, 1, 111-13.

Hymer, S . [1972]. The multinational corporation and the law of uneven development. In *Economics and World Order from the 1970s to the 1990s*, ed J Bhagwati, pp 113–140. Collier-Mac-Millan, New York.

Joel, L. [1984].Income Inequality: The American States. *Social Science Quarterly* 65 : 854-60.

Johnston, D.C. [2003]. Top 1% in '01 Lost Income, But Also Paid Lower Taxes. *New York Times* September 27.

Jones, C. [1997]. On the Evolution of the World Income Distribution. *Journal of Economic Perspectives,* XI 19–36.

Juhn C, Murphy KM, Pierce B . [1993]. Wage inequality and the rise in returns to skill. *Journal of Political Economy* 101 [3]:410–442.

Kanter, R. [1977]. Some effects of proportions on group life: Skewed sex ratios and responses to token women. *American Journal of Sociology*, *82* [5], 965–990.

Kantor, P. [1992].Dual City: Restructuring New York. *Political Science Quarterly* 107: 175-77.

Kasarda, J. [1989]. The Ghetto Underclass: Social Science Perspectives. *Annals of the American Academy of Political and Social Science*, Vol. 501, pp. 26-47

Katz L.F. & Murphy K.M. [1992]. Changes in relative wages, 1963–1987: supply and demand factors. *Quarterly Journal of Economics* 107 [1]:35–78.

Kaya, Y. [2008]. Proletarianization with polarization: Industrialization, globalization, and social class in Turkey, 1980–2005. *Research in Social Stratification and Mobility* 26: 161–181.

Kelly. K. C. [1977]. Urban Disamenities and the Measure of Economic Welfare. *Journal of Urban Economics* 4: 379-88.

Kennickell, Arthur B. [2003]. A Rolling Tide: Changes in the Distribution of Wealth in the U.S., 1989–2001. *Unpublished manuscript. Washington, DC: Federal Reserve Board*.

Kerckhof, A.C., Fogelman, K., & Manlove, J. [1997]. Staying ahead: the middle class and school reform in England and Wales. *Sociology of Education* 70, 19–35.

Kim, S., Margo, R.A. [2004]. Historical perspectives on U.S. economic geography. In: Henderson, J.V., Thisse, J.F. [Eds.], *Handbook of Regional and Urban Economics*, vol. 4 [Chapter 66]. Elsevier, Amsterdam, pp. 2981–3019.

Kimhi, A. [2004]. *Growth, Inequality and Labor Markets in LDCs: A Survey*. CESifo Working Paper No. 1281.

King, A. D. [1990]. *Global Cities: Post-Imperialism and the Internationalization of London*. New York: Routledge, 1990.

Kirschenman, J., & Neckerman, K. M. [1991]. "We'd love to hire them, but...": The meaning of race for employers. In C. Jencks, & P.E. Peterson [Eds.], *The Urban Underclass* [pp. 203-232]. Washington, DC: Brookings.

Knox, P. L. [1995]. World cities in a world system. In *World Cities in a World-System*, ed P L Knox and P J Taylor, pp 3–20. CUP, Cambridge.

Knox, P. L., & Agnew, J. A. [1994]. *The geography of the world economy* . London: Arnold.

Knox, Paul. [1994]. Economic crisis and urban restructuring [1972-1983]. In *Urbanization: An Introduction to Urban Geography,* 52-75. Englewood Cliffs, New Jersey: Prentice Hall.

Kremer, M., Onatski, A., & Stock, J. [2001] .Searching for Prosperity. *Carnegie-Rochester Conference Series on Public Policy,* LV 275–303.

Krueger, A. B. [1993]. How computers have changed the wage structure: Evidence from microdata, 1984–89. *Quarterly Journal of Economics*, *108*, 33–60.

Krueger, A. B. [2003]. Inequality, Too Much of a Good Thing, in Inequality in America: What Role for Human Capital Policies? edited by J. J. Heckman and A. B. Krueger. Cambridge: MIT Press, 2003, 1–75.

Kujath, H. J. [2009]. Efficiency of metropolitan regions in the knowledge economy – A perspective of institutional theories, in: J. Knieling [Eds.], *Metropolitan regions. Innovation, competition, ability of action*. Hannover.

Kuznets. S. [1955]. Economic Growth and Income Inequality. *The American Economic Review 14* : 1-28.

Lee, S., Song, D. and Ducruet, C. [2008]. A tale of Asia's world ports: The spatial evolution in global hub port cities. *Geoforum* 39 372–385.

Lemieux, T. [2006]. Post-secondary education and increasing wage inequality. *American Economic Review* 96 [2]:195–199.

Lemieux, T. [2008].The changing nature of wage inequality. *Journal of Population Economics* 21:21–48.

Levy F, Murnane R.J. [2006]. *How computerized work and globalization shape human skill demands*. MIT and Harvard mimeo.

Lewis, A. [1954]. Economic development with unlimited supply of labour. *The Manchester School of Economics and Social Studies*, *22* [2], 139–191.

Li, F. N., Findlay, A. M. and Jones, H. [1998]. A Cultural Economy Perspective on Service Sector Migration in the Global City: The Case of Hong Kong. *International Migration*, 36, pp.131-158.

Liu, Z., Stengos, T. [1999]. Non-Linearities in Cross-Country Growth Regressions: A Semiparametric Approach, *Journal of Applied Econometrics*, vol. 14, pp. 527-538.

Londoño, J.L., & Székely, M. [1997]. Persistent Poverty and Excess Inequality . *Working Paper 35* 7 . Inter –American Development Bank.

Long. J. E. Rasmussen D.W. & Haworth,C.T. [1977].Income Inequality and City Size. *Review of Economics and Statistics* 59: 244- 46.

Lorenz, M. O. [1905]. Methods of Measuring the Concentration of Wealth. *Quarterly Publications of the American Statistical Association* 9: 205-219.

Marsden, P.V., Kalleberg, A.L. & Cynthia R. C. [1991]. Gender Differences in Organizational Commitment: Influences of Work Position and Family Roles. *Work and Occupations*, 20:368-390.

Massey, D. & Eggers, M. [1990]. The Ecology of Inequality: Minorities and the Concentration of Poverty, 1970–1980. *American Journal of Sociology*, 95, 1153–1188.

Mathur. Vijay K. [1970]. Occupational Composition and Its Determinants: An Intercity Size Class Analysis. *Journal of Regional Science* 10: 81-91.

Milanovic B. [2002]. Can we discern the effect of globalization on income distribution? Evidence from household budget surveys. World Bank Policy Research Paper2002:2876.

Milanovic, B. [2003]. The Two Faces of Globalization: Against Globalization as We Know It. *World Development* Vol. 31, No. 4, pp. 667–683.

Mollenkopf. John H., & Manuel Castells, M. [1991]. *Dual City: Restructuring of New York.* New York: Russell Sage Foundation, 1991.

Moss, P., Salzman, H., & Tilly, C. [2000]. Limits to market-mediated employment: From deconstruction to reconstruction of internal labor markets. In F. Carre´, M. A. Ferber, L. Golden, & S. A. Herzenberg [Eds.] *Nonstandard work: The nature and challenges of changing employment relationships* [pp. 95–121]. Champaign, IL: Industrial Relations Research Association.

Murray, Barbara B. [1969]. Metropolitan Interpersonal Income Inequality. *Land Economics* 65:121·25.

Nelson, J.I. [1984]. Income Inequality: The American States. *Social Science Quarterly* 65 [3] 854-860.

Newhouse. J. [1971]. A Simple Hypothesis of Income Distribution. *Journal of Human Resource 6* [1971]: 51·7-1.

Ning, G. [2010] .Can educational expansion improve income inequality? Evidences from the CHNS 1997 and 2006 data. *Economic Systems* 34: 397–412.

Nord, Stephen. [1980]. Income Inequality and City Size: An Examination of Alternative Hypotheses for Large and Small Cities. *Review of Economics and Statistics* 62:502·8.

O'Loughlin, J. & Friedrichs, J. [eds] . [1996]. *Social Polarization in Post-industrial Metropolises* , de Gruyter, Berlin; New York.

Panizza, U. [2002]. Income Inequality and Economic Growth: Evidence from American Data. *Journal of Economic Growth*, 7: 25–41.

Partridge, M. D. [2005]. 'Does Income Distribution Affect U.S. State Economic Growth? *Journal of Regional Science*, 45, 336–94.

Partridge, M. D. [1997].Is Inequality Harmful for Growth? Comment. American Economic Review, 87, 1019–32.

Persson, T. and G. Tabellini, G. [1994]. Is Inequality harmful for Growth? *The American Economic Review*, Vol. 84, No. 3, pp.600-621.

Piketty T. [2003]. Income inequality in France, 1901–1998. *Journal of Political Economy,* 111 [5]:1004–1042.

Piketty T. & Saez E. [2003]. Income inequality in the United States, 1913–98. *Quarterly Journal of Economics* 118 [1]:1–39.

Piketty, T., & Saez, E. [2006].The Evolution of Top Incomes: A Historical and International Perspective. *American Economic Review,* 96, 200–05.

Puga, D. [2002]. European regional policies in light of recent location theories. *Journal of Economic Geography* 2 [4], 373–406.

Quah, D. T. [1997]. Empirics for Growth and Distribution: Polarization, Stratification and Convergence Clubs. *Journal of Economic Growth*, 2, 27–59, 1997.

Quah, D. T. [1993]. Galton's Fallacy and Tests of the Convergence Hypothesis. *Scandinavian Journal of Economics*, 95, 427–43,

Quah, D. [1996]. Twin Peaks: Growth and Convergence in Models of Distribution Dynamics. *Economic Journal,* CVI ,1045–1055.

Rajan, R. [2010]. *Fault Lines: How Hidden Fractures Still Threaten the World Economy.* Princeton Books.

Rassekh, F., Thompson, H. [1998]. Micro Convergence and Macro Convergence. Factor Price Equalization and Per Capita Income. *Pacific Economic Review* 3 [1], 3–13.

Rauch. James E. [1993]. Economic Development, Urban Underemployment and Income Inequality. *Canadian Journal of Economics* 16 [1993]: 901·18.

Reskin, Barbara. [1988]. Bringing the men back in: Sex differentiation and the devaluation of women's work. *Gender & Society*, *2* [1], 58–81.

Richardson, H. [1973]. *The Economics of Urban Size.* Westmead: Saxon House.

Rimmer, P. J. [1991]. The global intelligence corps and world cities: engineering consultancies on the move. In *Services and Metropolitan Development: International Perspectives*, ed P W Daniels, pp 66 107. Routledge, London.

Rindermann, H., Sailer M., & Thompson, J. [2009]. The impact of smart fractions, cognitive ability of politicians and average competence of peoples on social development. *Talent Development and Excellence 1* [1]: 3-25.

Robinson, S. [1976]. A note on the u-hypothesis. *American Economic Review* 66 [3], 437-440.

Robinson, W.I. & Jerry H. [2000]. Towards a Global Ruling Class: Globalization and the Transnational Capitalist Class. *Science and Society* 64 [1]:11-54.

Romer, P.M. [1986]. Increasing Returns and Long-Run Growth. *Journal of Political Economy* 94 [5], 1002–1037.

Rosés, Joan R., Martínez-Galarraga, J., & Tirado, D. A. [2010].The upswing of regional income inequality in Spain [1860–1930]. *Explorations in Economic History* 47:244–257.

Ross, J.S. Robert and Kent C. Tracht. [1990]. *Global Capitalism: The New Leviathan*. Sunny Press.

Ruthenberg, D. & Stano, M. [1977]. The Determinants of Interstate Variation in Income Distribution. *Review of Social Economy* 35 1:55-66.

Sabapathy, A., S.D. [2009]. *Environmental Equity in Globalizing Cities of Developing Countries: An Examination of Work Travel Patterns and Exposures to Air Pollution in the 'New Economy' of Bangalore City, India [*Unpublished doctoral dissertation*]*.The University of Hawaii.

Sala-I-Martin, X. [2006]. The World Distribution of Income: falling Poverty and Convergence, Period. *Quarterly Journal of Economics* Vol. CXXI 2 [351-397.

Sassen, S. [1991]. *The Global City: New York, London, Tokyo*. Princeton University Press, Princeton, NJ.

Sassen, S. [1994]. *Cities In a World Economy*. Pine Forge Press, Thousand Oaks, CA.

Scully. G. W. [1969]. Interstate Wage Differentials a Cross-section Analysis. *American Economic Review* 59: 757.73.

Segal, D. [1976]. Are There Returns to Scale in City Size? *Review of Economics and Statistics* 58: 339·50.

Sekio, K. & Anjomani, A. [1998]. Income Inequality in Globalized Urban Societies. Presented on April 25, at *The 1998 Urban Affairs Association Annual Meeting Studies*, 39, 2367–2376.

Sklair, L. [2001].*The Transnational Capitalist Class*. Blackwell publishing.

Slaughter, M.J. [1997]. Economic Development and International Trade. *American Economic Review* 87 [2], 194–199.

Slaughter, M.J. [2001]. Does trade liberalization converge factor prices? Evidence from the antebellum transportation revolution. *Journal of International Trade and Economic Development* 10 [3], 339–362.

Smeeding, T. [2005]. Public Policy, Economic Inequality, and Poverty: The United States in Comparative Perspective. *Social Science Quarterly*, Supplement to Volume 86:955-983.

Smith, J. P. [2001]. Why is wealth inequality rising? In F. Welch [Ed.], *The causes and consequences of increasing inequality* [pp. 83–115]. Chicago: University of Chicago Press.

Smith, M. P. [2001]. *Transnational Urbanism: Locating Globalization.* Malden: Blackwell.

Soja, E. [2000]. *Postmetropolis: Critical Studies of Cities and Regions*, Oxford: Blackwell.

Stein, R. [2003]. Economic Specialisation in Metropolitan Areas Revisited: Transactional Occupations in Hamburg'. *Urban Studies*, 40, pp. 2187– 2205.

Sullivan, A., & Sheffrin S. [2003]. *Economics: Principles in action*. Upper Saddle River, New Jersey 07458: Pearson Prentice Hall. p. 348. ISBN 0-13-063085-3.

Sullivan, G. [1983]. Uneven Development and National Income Inequality in Third World Countries: A Cross-National Study of the Effects of External Economic Dependence. *Sociological Perspectives* 26 [2]:201-31.

Sylwester, K. [2000]. Income Inequality, Education Expenditures, and Growth. *Journal of Development Economics,* [63] 379–98.

Taylor, P. J. [1997]. *Hierarchical tendencies amongst world cities: a global research proposal. Cities* **14** [6], 323–332.

Taylor, P. J. [2004]. *World city network. A global urban analysis*. London, Routledge.

Taylor, P. J., Catalano, G., & Walker, D. R. F. [2002]. Measurement of the world city network. *Urban Studies,* 39, 2377-2394.

Thornton, J., Angello**,** R. & Link**,** C. [1978]. Poverty and Economic Growth: Trickle. Down Peters Out. *Economic Inquiry* [July 1978], XVI, 385-394.

Tönnies, F. 1912]. *Gemeinschaft und Gesellschaft,* 2nd ed.

Thrupp, M. [2001]. Education policy and social class in England and New Zealand: an instructive comparison. *Journal of Education Policy* 16, 297–314.

Thurow, L. [1975]. *Generating inequality: Mechanisms of distribution in the U.S. economy*. New York: Basic Books.

Thurow, L.C. [1970]. Analysing the American income distribution. *American Economic Review* 60, May, 261-269.

Thurow, L. [1973]. Toward a Definition of Economic Justice. *The Public Interest* 31:56-80.

Tomaskovic-Devey, D. [1993]. *Gender & racial inequality at work: The sources and consequences of job segregation*. Ithaca, NY: ILR Press.

Tomaskovic-Devey, D., & Skaggs, S. [1999]. An establishment-level test of the statistical discrimination hypothesis. *Work and Occupations*, *26* [4], 422–445.

Tyner, J. A. [2000]. Global Cities and Circuits of Global Labour: The Case of Manila, Philippines. *Professional Geographer*, 52 [1], pp. 61-74.

Wade, R. [1990]. *Governing the Market: Economic Theory and the Role of Government in East Asian Industrialization.* Princeton University Press.

Wallerstein. I. [1974]. *The Modern World-System: Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century.* Academic.

Weede, Erich, and Horst Tiefenbach. [1981a]. Some Recent Explanations of Income Inequality: An Evaluation and Critique. *International Studies Quarterly 2b{2].2bb-'Q2.*

Weede, E.,& Tiefenbach, H. [1981b]. Correlates of Size Distribution of income: A Cross-National Analysis. *Journal of Politics* 43 [4]: 1029-4.

WeizsZcker, R.K. von. [1996]. Distributive implications of an aging society. *European Economic Review* [40] 729-746.

Wilson, W.M. [1987]. *The Truly Disadvantaged.* Chicago: University of Chicago Press.

Wolff, E. N. [2000]. *Recent trends in wealth ownership, 1983–1998* [Working Paper No. 300]. Jerome Levy Economics Institute.

Yang, S. [2007].Racial disparities in training, pay-raise attainment, and income. *Research in Social Stratification and Mobility* [25] 323–335.

Zhang, L. [2008]. Political economy of income distribution dynamics. *Journal of Development Economics* [87] 119–139.

Zhong, X., Clark, T. & Sassen, S. [2007]. Globalization, Producer Services and Income Inequality across US Metro Areas. *International Review of Sociology.* Vol. 17, No. 3, pp. 385 _391

Zietz, J., & Zhao, X. [2009]. The short-run impact of the stock market appreciation of the 1980s and 1990s on U.S. income inequality. *The Quarterly Review of Economics and Finance* 49 42–53.

BIOGRAPHICAL STATEMENT

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