GLOBALIZATION AND INEQUALITY: SUBNATIONAL DIFFERENTIALS
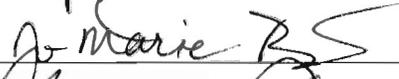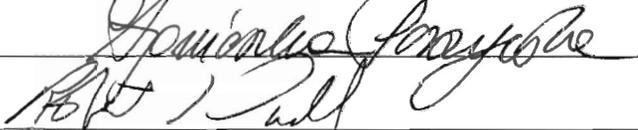WITHIN NATION STATES

by

Michael D. Keating
A Thesis
Submitted to the
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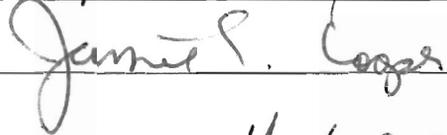                                     and Social Sciences

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Globalization and Inequality:  *Subnational Differentials within Nation States*

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Arts at George Mason University

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DEDICATION


This is dedicated to my loving fiancée Christine, my two wonderful parents Margaret and Denis, my caring sister Kathleen, and my faithful grandmother Catherine.

ACKNOWLEDGEMENTS

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ABSTRACT

GLOBALIZATION, NEOLIBERALISM, AND INEQUALITY: SUBNATIONAL
DIFFERENTIALS WITHIN NATION STATES

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George Mason University, 2008

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In this thesis I examine the nation state's place in the formulation and understanding of

global income inequality. The literature is very conflicted on the directional relationship

between neoliberal economic globalization and income inequality. I theorize that current

measurements of inequality, which use countries as "units" of measurement, are

insufficient. A subnational analysis of inequality shows varied rises and falls in

inequality across a national space. The varied directional impacts of neoliberal economic

globalization on income inequality in this paper helps to shed light on why there is so

much conflict in the literature. I further argue that future analyses of income inequality

should move beyond the state as a unit of analysis so that the true impacts of

decentralized economic policies, government programs, and the overall effects of

globalization can be understood by states, policy makers, and nongovernmental

organizations.

1.  Introduction


The world is changing at a rapid pace as the forces of globalization accelerate

global politics, cosmopolitan social interactions, and global economics.  In the past 20

years neoliberalism has become the predominant model pursued by lending agencies and

their client states.  The so-called "Washington consensus" advocates the lowering of

tariffs, opening of borders to capital flows, and retrenchment of government intervention

in economic affairs.  Social science literature is riddled with conflicting conclusions

about the true relationship between neoliberal policy and issues like income inequality.

Simultaneously a new literature has emerged questioning the legitimacy of the

nation state in an economically globalized world.  This perspective sees the state starting

to lose power over national economic development priorities as it opens its borders to

global markets.  This is significant because many of the analyses of neoliberal economic

globalization and income inequality are centered on the nation state as a point of

reference and ignore the possibility that the nation state may not be the proper context in

which to conceptualize inequality.

This paper will review a variety of the literature on the relationship between

neoliberal economic policy and income inequality, as well as conceptions of the state in

social science.  Next, it will conduct an empirical analysis of two topics:  first, it will

attempt to understand the true direction of the relationship between neoliberalism and

income inequality and second, it will test the assumption that the state is a proper lens for conceptualizing inequality. This analysis will examine changes in income inequality levels between two censuses in three cases: Brazil, Mexico, and South Africa. It will calculate inequality statistics at a subnational level to look for variation within the state for the two census years. It will then compare the inequality levels of the two years to test if statistically significant changes in inequality emerged after neoliberal policies were implemented. Next, it will discuss the results and analyze their implications for social science research and development policy. Finally, this paper will conclude with a section dedicated to future research.

2.  Literature Review


Conceptions of inequality vary in the literature, and these conceptions cover a full

spectrum of specific topics within the realms of economics, social programs, and political

rights.  Other literature attempts to combine different conceptions that fall under these

general categories to make their analyses multiperspectivist in nature.[1]  One of the most

popular approaches to analyzing inequality is by studying income inequality, which is

often used as a generic inequality measurement for understanding problems in developing

countries.  Numerous studies link income inequality to other forms of inequality such as

skewed access to healthcare, racism, and gender biases.[2]  Because income inequality is

correlated with so many other forms of inequality, this paper will conceptualize

inequality in its case studies using income inequality.  Although income inequality

certainly does not cover all forms of inequality in these countries, it will offer insight into

other possible economic, social, and political problems these countries may currently be

dealing with, or run the risk of in the future if inequality problems are not solved.

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[1] Trutz Haase, "Deprivation and Its Spatial Articulation in Ireland," 2005,
http://www.combatpoverty.ie/research/seminars/presentations/2005-05-
11_TrutzHaase&JonathanPratschke.pdf.
[2] Carola Gruen and Stephan Klasen, "Growth, Inequality, and Welfare: Comparisons Across Space and
Time," *Oxford Economic Papers* 60, no. 2 (April 2008); Richard Wilkinson and Kate Pickett, "Income
Inequality and Socioeconomic Gradients in Mortality," *American Journal of Public Health* 98, no. 4 (April
2008); Paul Hebert, Jane Sisk, and Elizabeth Howell, "When Does A Difference Become A Disparity?
Conceptualizing Racial And Ethnic Disparities In Health," *Health Affairs* 27, no. 2 (March); Meiyan Wang
and Fang Cai, "Gender Earnings Differential in Urban China," *Review of Development Economics* 12, no.
2 (May 2008).

The relationship between economic globalization and inequality is by no means simple. Scholars have firmly entrenched themselves on opposing sides of the debate over the effects of neoliberal economic policies. On the one hand authors claim that neoliberal policies help the poor, while their critics argue that neoliberal economic models make the rich get richer and the poor get poorer. As Emma Aisbett notes, both sides in the globalization debate claim to prove that globalization is good or bad for the poor.[3] Pro-neoliberal policymakers say that economic problems that adversely affect the poor occur because the government is inappropriately intruding on the market. Opponents are skeptical that open markets benefit the poor, and that they may actually exacerbate poverty. Thus, as markets are liberalized the living conditions of the poor deteriorate. So, proponents claim that the excessive government intervention and lack of free markets are the plight of the poor, but opponents claim that a lack of competent governance and excessively free markets are the source of the problem. Each side agrees, however, that poverty and inequality are negative things and should be avoided if possible.

Robert Wade argues that inequality is an important topic to study because of its negative effects on democratic governance.[4] High inequality usually creates a situation where a great deal of money is in the hands of a few people, who use wealth gain more power in influencing government policy, often favoring lower taxes and rejecting progressive redistributive policies. A common argument against the study of inequality is, "All policy makers should truly worry about is ending severe poverty; however,

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[3] Emma Aisbett, "Why Are the Critics so Convinced That Globalization Is Bad for the Poor?," January 2005, http://www.nber.org/papers/w11066.
[4] Wade in "Global Inequality."

beyond that the poor need to figure things out for themselves."[5]  Thomas Pogge argues

that if one cares about ending severe poverty, then he or she has to care about inequality.

He notes that in countries that have high levels of inequality, access to public information

about poverty is biased.  These distortions inhibit the publication of documents that study

the causal mechanisms of extreme poverty and possible policy solutions to it.  In many

cases those who are opposed to eradicating extreme poverty have power and are in the

upper classes, and redistributive policies would be contrary to their economic interests.

So, if one is going to solve poverty, then one must also solve severe inequality.[6]  Even in

areas with lower inequality levels the plight of the poor is often ignored.

A 2000 report by the World Bank the authors noted some divergent trends in

inequality.[7]  Inequality in the income distribution between countries widened

significantly over the past 40 years, and the GDP per capita in a number of countries has

steadily fallen behind the rest of the world.  On the other hand the average income

between industrialized countries and developing countries has narrowed.  Also, when

inter-country inequality is weighted by the number of people in a country, then poverty

rates decrease over the 40 year period.  Weighted populations are a more accurate way to

view measurements in a state centered context.  The inequality measurements of small

countries like El Salvador or Cambodia should not carry the same weight as the

inequality measurements of larger countries like of India or China because the

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[5] Colin Dueck, November 2007.
[6] *Global Inequality*, 132-147.
[7] World Bank, "Poverty in an Age of Globalization," October 2000,
www1.worldbank.org/economicpolicy/globalization/documents/povertyglobalization.pdf.

populations of these two later countries outnumber the populations of the two former

countries by a very significant margin.

So, naturally the next question one should ask is, "How is neoliberal economic

globalization affecting these countries?" Does it help them? Does it hurt them? Does it

do anything in the first place? This is a highly divisive question. The World Bank argues

that there is "compelling" evidence that increased openness to economic globalization,

such as trade and investment, accelerates the reduction of poverty in countries. In

addition, a lack of openness to this economic globalization leads to insufficient

performance of economies. Many times countries that cannot tap into economic

globalization are hindered by the domestic unrest or macro-economic instability.[8]

These statements, however, do not clarify the exact relationship between

neoliberal economic globalization and inequality. The World Bank claims that economic

openness is the source of reduction of poverty and inequality in many countries, and that

where there is poverty there are domestic inhibitors preventing countries from opening

their borders to global economic flows. Because these countries cannot open their

borders they cannot reap the benefits of economic globalization. This begs the question,

"How exactly does economic globalization play into this success?" It is certainly

possible that the reasons there are such high levels of poverty and inequality are because

of the domestic conditions themselves. So, constant war and conflict in a country may

lead to persistent poverty and inequality, not the lack of economic globalization.

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[8] Ibid., 5-6.

David Dollar and Aart Kraay argue that there is empirical evidence that economic globalization is decreases inequality.[9] First, for about 200 years there was a trend of increasing inequality until about 1975. Since then inequality has leveled off or decreased. Second, there is a very strong correlation between international trade and investment and economic growth. One can separate developing countries into those who have embraced neoliberal economic globalization and those who have rejected it. The globalizers see per capita growth, and the nonglobalizers do not. Third, inequality within countries has not increased because of economic globalization. Although it has gone up in countries, such as China, this is because of education, taxes, and social policies. Increases in inequality cannot be systematically associated with aspects of economic globalization.

Robert Wade is critical of the World Bank's methods of poverty and inequality measurements.[10] He begins an essay by identifying four propositions put forth by neoliberal economic advocates. First, poverty and inequality have both fallen over the past two decades for the first time in more than 150 years. Second, these trends come as a result of the economic integration of countries into the world economy. Third, anti-liberals' arguments are not valid because their policy prescriptions would create more inequality instead of less. Finally, developing countries should make it their top priority to integrate their economy into the global economy. Next, Wade identifies eight reasons as to why one should not put much stock in these conclusions by the World Bank.

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[9] David Dollar and Aart Kraay, "Spreading the Wealth," *Foreign Affairs* (February 2002).
[10] Robert Wade, "Globalisation, Poverty, and Income Distribution: Does the Liberal Argument Hold?," 2002, http://www.lse.ac.uk/collections/DESTIN/workingPapers.htm; Martin Wolf and Robert Wade, "Are Global Poverty and Inequality Getting Worse?," *Prospect*, March 2002, http://www.prospect-magazine.co.uk/article_details.php?id=4982.

First, the World Bank makes numerical comparisons over time that are in no way legitimate. For example, the World Bank often changes its methodologies and then compares numbers from before and after the change when these numbers are not comparable. Second, revisions of purchasing power parity numbers by the World Bank cause huge swings in poverty rates within the same country in the same year. Thus, broad conclusions by the World Bank should be taken with a grain of salt because of this extreme variation. One cannot help but wonder if the World Bank is changing methodologies to make its policies look good. Third, the World Bank is still using the $1 a day poverty line. This measurement is arbitrary and does not take into account other essentials like food, housing, and healthcare. Fourth, poverty headcounts are extremely sensitive to where one puts the poverty line. Seemingly small changes in the line can dramatically alter the number of poor. Fifth, the World Bank's poverty counts are calculated using household surveys. This approach has many shortfalls and biases that are compounded when they are used for national and international measurements. Sixth, if the World Bank does not have household surveys for a country, then it assumes that the income distribution is the same as it was the last time there was a household survey available. Seventh, the World Bank has done a large amount of guessing on a number of figures used to calculate purchase power parity values for India and China. These two countries are the backbone of the argument that inequality and poverty are better when countries pursue neoliberal policies. If their data is questionable in these two cases, then their conclusions are also questionable. Finally, the World Bank is also very sensitive to

the political environment surrounding it.  As a result, they will spin numbers to make themselves look good.  This leads to biases in the calculation of statistics.

As Wade notes, one of the cornerstones of the World Bank's supporting arguments for economic globalization's decreasing effects on inequality is the country of China.  As China becomes a richer nation it decreases the international inequality gap.  However, scholars have examined inequality within China and have found trends that go against the optimistic conclusions of the World Bank.[11]   First, they found that economic globalization was responsible for a large increase of inequality in China over time.  Second, the influx of capital is one of the most significant contributors to regional inequality within China.  Third, policies of privatization have a significant impact on inequality in a region.  Finally, the significance of education, location, urbanization, and dependency ratio is having less of an effect on inequality.  This leads one to question whether the claims of decreasing international inequality are really valid.

Arie Kacowicz discusses the links between globalization and poverty, and identifies nine potential relationships between the two.[12]  These relationships respond to the idea that there exists a zero-sum relationship between globalization and poverty.  One, globalization causes and deepens poverty.  Two, globalization reduces and even resolves the problem of poverty.  Three, there is no necessary link between globalization and poverty.  Four, there is a negative impact in the short term, turning into a positive impact on the economy in the long term.  Five, there is a positive impact in the short

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[11] Guanghua Wan, Ming Lu, and Zhao Chen, "Globalization and Regional Inequality:  Evidence from China," 2004, http://www.ciaonet.org/wps/wag01/wag01.pdf.
[12] Arie Kacowicz, "Globalization and Poverty: Possible Links, Different Explanations," *The Whitehead Journal of Diplomacy and International Relations* 6, no. 2 (November 2005).

term, turning into a negative impact in the long term.  Six, there is a negative impact to a certain point, turning into a neutral or insignificant impact.  Seven, there is a positive impact to a certain point, turning into a neutral or insignificant impact.  Eight, there is a neutral or insignificant impact in the beginning, then a positive impact.  Nine, there is a neutral or insignificant impact in the beginning, then a negative impact.  Kacowicz concludes that globalization may be ambiguous because of the number of potential relationships.  In some areas it may have positive effects on poverty, but in others it may have a negative effect.  He also theorizes why there is such a conflict on the relationship between globalization and poverty.  Opponents of neoliberal economics give a structural argument that highlights institutionalized inequality, macroeconomic, and political strategies of exploitation.  Proponents argue in terms of personal behaviors of the poor in economical terms.  Scholars may be simply talking past one another.

Branko Milanovic has written extensively about the ways in which organizations measure inequality.[13]  He sums them up in three concepts: unweighted international inequality, weighted international inequality, and global inequality.  In the first concept, unweighted international inequality, the gross domestic income (GDI) is calculated for each country.  After this, countries are compared with equal weight given to each state. The results of concept one show a steady increase of international inequality across time. In the second concept, weighted inequality, the GDI is calculated as it was in concept one.  However, when comparing countries with one another the values are weighted by population size.  So, the GDI of China will be given more weight than the GDI of

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[13] *Global Inequality*; Branko Milanovic, *Worlds Apart: Measuring International and Global Inequality* (Princeton, N.J: Princeton University Press, 2005).

Switzerland. The results of concept two show a recent steady decrease of international inequality. The third concept diverges from the other two. It moves from the country level to the household level by focusing on household surveys. Unfortunately there is no global census, so in order to calculate the third concept one must use the household surveys from all of the individual countries. One advantage to these surveys is that they take into account expenses that GDI does not, for example income used on healthcare, food, and housing. The current results of concept three are conflicting, and they show both an increase and a decrease of inequality in the 1980's and 1990's.

One of the main contributions of Milanovic's work is that it highlights the weaknesses of each of the three concepts. Concepts one and two are totally dependent on GDI. This measurement ignores within country inequality. So, the fact that the United States may have a high level of inequality within its borders is not captured in the GDI measurement where it ranks very highly. Also, these measurements are very sensitive, and slight changes in data can significantly affect the conclusions one reaches. Concept three also has a variety of drawbacks. Surveys can be very biased, and many times the rich are under-sampled. This leads to inaccurate measurements based on the survey data.

Giovanni Corina and Julius Court come to conclusions that are the opposite of the World Bank.[14] They find that since the middle of the 1980's inequality has risen in the World. They find that the reasons for increased inequality are not traditional (e.g. lack of education). Rather, new reasons have emerged in the past two decades that are the cause behind the increases in inequality. These new causes of inequality are very closely

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[14] Andrea Corina and Julius Court, "Inequality, Growth and Poverty in the Era of Liberalization and Globalization," November 2001.

associated with neoliberal economic policy and include: technological change, trade liberalization, stabilization and adjustment programs in developing countries, financial liberalization, privatization and the biased distribution of industrial assets, changes in the labor market institutions, and state tax and transfer systems. The authors warn to be careful about making generalizations with their conclusions. In each country and region the economic conditions and policy mixes vary. These causes are simply common themes that arose in the study. This study highlights how there is no one cause or solution to inequality.

Ann Harrison and Margaret McMillan argue that the World Bank oversimplifies its solutions to poverty and inequality.[15] They identify that there are six lessons learned on the relationship between globalization and poverty. One of the most significant lessons going forward is that trade and openness by themselves are not a solution to inequality. At the same time, attempting to escape the forces of economic globalization is not a way to solve inequality and poverty problems either. Rather, Harrison and McMillan argue that complimentary policies need to be put in place by the government to use the forces of globalization to their advantage. For example, if a government reduces obstacles to labor mobility when enacting trade reforms, it may make the labor market more adaptable to changes in the economy. A study by Stephen Jenkins and Philippe Van Kerm found progressive gains in income during a time of labor mobility, where the poor made more income gains than the rich.[16] One of the keys to solving the problem of

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[15] Harrison and McMillan, "On the Links Between Globalization and Poverty," *Journal of Economic Inequality* 5, no. 1 (April 11, 2007).
[16] Stephen Jenkins and Philippe Van Kerm, "Linking Mobility and Inequality," May 2003.

inequality may be mobility within society. This allows more flexibility in the choice of work.

This literature shows how that significant debate on the relationship between inequality and globalization exists. Not only is the literature contradictory, it is also quite confusing. The pro-neoliberal economists argue that free markets are the solution to inequality, while others claim that uncontrolled markets put the poor at an even greater disadvantage. Other authors argue that neoliberal economic policies only partially explain inequality in a given area, and that there are a variety of other factors that need to be researched. These studies only tell part of the story.

Geography has added another complex dimension to conceptions of inequality. Much of the social science's analysis of income inequality is directly tied to the nation state. This is highly significant in the conceptional analysis of inequality because simultaneously organizations like the World Bank have encouraged neoliberal policies. These policies emphasize laissez faire economics where government intervention is minimal and deregulation is encouraged.[17] The idea behind this is that markets will be much more efficient when information is dispersed throughout the population. By advancing this model of economics, neither "the state nor any other entity has ready access to any more than a small portion of the myriad of facts, generalizations, and judgments…which are known somewhere in the economic system and effect outcomes."[18] This economic model puts government in a poor position to make economic decisions and encourages it to stay out of the markets. This decentralization of

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[17] International Economic Association, *Inequality Around the World* (Basingstoke: Palgrave Macmillan in association with International Economic Association, 2002), 11.
[18] Ibid.

information minimizes risks to the economy so that no one person has the potential to make serious negative decisions about the economy. Thus, if bad economic decisions are made, their negative effects are much smaller on the whole economy.

Not everyone takes the state as a simple assumption that can be made in social science. Michael Mann, an historical sociologist, questions the sources of a state's political power from a sociological perspective. He argues that the state is "both a central place and a unified territorial reach."[19] This approach both isolates the nation state from the global, and advocates a national approach to social science. The power of a state comes from this unique attribute, and it is different from other sources of power in civil society, like economics and ideology. However, economic power groupings, such as class, corporations, and business in general, "normally exist in decentered, competitive or conflictual relations with one another."[20] Businesses are not territorially centered, nor are they confined by territory. They also have the ability to operate globally with little regard for territory. Modern and historical economic institutions are "not territorial,"[21] but they can also keep watch on states because many times these businesses are the reasons for the state's success.

If economic information is so decentralized, and national governments cannot effectively make decisions about the markets, then why would one center his or her analyses of income inequality on the nation state? The state can be an illusion in the global markets, and nationalized economies, with a few exceptions, are a thing of the past. Businesses that are directly affecting people's income levels do not pay attention to

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[19] *State/Space: A Reader* (Malden, MA: Blackwell Pub, 2003), 60.
[20] Ibid.
[21] Ibid.

boundaries.  Global economies have diversified and a whole spectrum of markets are spread across parts of a national space.

Ash Amin, a geographer, addresses different conceptions of the role of the state in economic globalization.  Those who subscribe to the national view believe that the world economy is still very territorialized; there are national sources of competitiveness and innovation, national patterns of economic inclusion/exclusions, and national inequality.[22] They are very skeptical of the idea that the world economy is based on transnational business, instantaneity, and global regulation.  The World Bank and the IMF subscribe to this type of thinking.  Mass transnational supply chains are growing across the world, transnational societies are becoming more prevalent, and there are new virtual spheres for public debate, shopping, and learning.[23]  According to Amin, this creates a new spatial ontology that thoroughly disrupts the mainstream ontology of the World Bank and IMF that is based on the idea that the world can be neatly divided into territorial units.[24] Finally, Amin argues that there are three regulatory dynamics that are evolving that make third world development more complicated.  First, transnational corporations play a major role in world development.  This comes in contrast to historical development that Mann discusses, which has focused on the state and its policies.  Second, transnational knowledge networks make development difficult.  Historically, developing countries were encouraged to pursue economic policies that will increase their educational capacities so that more educated people stay in the country.  With transnational

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[22] Ash Amin, "Regulating Economic Globalization," *Transactions of the Institute of British Geographers* 29, no. 2 (June 15, 2004): 222.
[23] Ibid., 224.
[24] Ibid.

knowledge networks, knowledge is no longer territorially centered. Thus, the educated are now more likely to migrate and contribute to "brain drains." Third, there is a new global migration of the poor. This is extremely challenging to states as they try to regulate migration as underground transnational networks run entire industries based upon the movement of people.

When taken together, one can see how Amin's and Mann's visions of the state contrast with one another. Amin focuses on the historical role of the state; whereas, Mann emphasizes the spatial ontology of the state. This can lead to very different conclusions about the place of the state in a globalized world.

States perform three different types of interventions in economics. They intervene in public finance, structural reforms, and macro-policies.[25] Public finance includes public expenditures on programs targeted to specific individuals and groups, tax policies, public insurance, and pricing of publicly provided goods and services. Structural reforms include liberalization and regulation of specific markets, including labor and basic commodity markets, trade liberalization through the elimination of barriers such as tariffs, private and public governance reforms, privatization, land reforms, and environmental regulation. Macro-policies include government fiscal policies, independence of central banks, exchange rates, and public debt management.[26] While it appears that the state wields significant power over global markets, many are skeptical of this assertion. If anything, many of these state powers lead to the state having less power and control.

[25] *The Impact of Economic Policies on Poverty and Income Distribution: Evaluation Techniques and Tools* (Washington, DC: Copublication of the World Bank and Oxford University Press, New York, 2003), 3.
[26] Ibid.

William Sites argues that states are increasingly facilitating the advancement of economic globalization and decreasing in their own capacities by pursuing pro-growth variants of policy options like those laid out in the previous paragraph.[27] Organizations like the World Bank and the IMF, which are the international authorities on development matters, encourage these pro-growth policies in order to grow the domestic economy of the states. This creates a paradoxical situation where the state is both the facilitator and the victim of globalization.[28] These policies reduce the state control over economic transactions taking place within its borders and domestic development priorities. However, if states do not pursue pro-growth policies they are chastised and sometimes ostracized from the international community.

Canfei He, Dennis Wei, and Fenghua Pan highlight the need for a lower level approach in social science in a recent article. The authors highlight how prior research on Chinese industry was severely limited by its spatial unit of analysis – provinces. Because this data is aggregated, it hides the spatial variance of industry concentration within each province.[29] The authors' study reaches conclusions that contradict those in the previous literature – namely that globalization has facilitated the agglomeration of industries in China. This leads to areas that have highly concentrated industry and others that have none.[30]

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[27] William Sites, "Primitive Globalization? State and Locale in Neoliberal Global Engagement," *Sociological Theory* 18, no. 1 (March 2000).
[28] Ibid., 129.
[29] Canfei He, Y. H. Dennis Wei, and Fenghua Pan, "Geographical Concentration of Manufacturing Industries in China: The Importance of Spatial and Industrial Scales," *Eurasian Geography and Economics* 48, no. 5 (2007): 604.
[30] Ibid., 623.

He's, Wei's, and Pan's study highlights the importance of disaggregating data for more accurate social science. Not only does analysis lead to inaccurate conclusions at higher levels of aggregation in China, it also is inaccurate at the province level. To truly understand industrial agglomeration, one must move to more micro-level analysis. These authors also show how local government plays a significant role in influencing industry, making it important for social science to also take local government into account when doing research.

Scholars such as Ulrich Beck argue that the international system is changing rapidly as globalization progresses. Not only does this change the way one must view the world, it must also change the social sciences and their approach to empirical research. As Beck states, "the old game can no longer be played" because statist approaches no longer capture the true reality of global problems.[31] New global power struggles arise between the state, business, and global civil society with what Beck calls the meta-game of world politics.[32] This is not to say that states are powerless; rather one must change their perspective. The national perspective uses the state as a frame of reference, defines problems as national in nature, and distinguishes between the domestic and international realms. An alternative cosmopolitan outlook concentrates more on the transnational as a frame of reference, defines problems as global in nature, and does not distinguish between the domestic and international.[33] This movement towards the global is only one aspect of methodological cosmopolitan theory, and Beck emphasizes a multidimensional and multidisciplinary approach to the social sciences.

[31] Ulrich Beck, *Power in the Global Age* (Cambridge, UK: Polity Press, 2005), 3.
[32] Ibid., 2-3.
[33] Ibid., 111.

Beck also calls for social science to detach itself from the state on topics like inequality. Inequality should be analyzed globally, transnationally, and intranationally.[34] This will give social science improved ability to analyze topics at the local, national, transnational, and global levels.[35] Increased flexibility in research is one of the most important advantages to Beck's methodological cosmopolitanism. It allows researchers to better capture the complex realities of the world, and to move beyond national tunnel vision. In the discourses on globalization, it is now essential for social science to take these next steps in academic progress.

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[34] Ibid., 48-49.
[35] Ulrich Beck, *The Cosmopolitan Vision* (Cambridge, UK: Polity Press, 2006), 82.

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3.  Introduction of the Case Studies


It is evident from this literature review that two major issues are at hand.  First, what is the effect of neoliberal economic globalization on inequality?  The literature is conflicted on this topic, with all sides firmly entrenched in their positions.  Second, scholars are increasingly becoming skeptical of the place of the nation state in the global economy.  This bears great significance on the analysis of inequality.  If the state is less influential because of denationalized economics, then is the state truly the most appropriate lens through which to view social science topics?

The use of the state as the prime unit of analysis involves a number of assumptions, the first of which is that it assumes that citizens of a state interpret inequality at the national level.  It is unclear that is this is a valid assumption.  A person may hear through the media that there is poverty in a certain area of the country, and that there is a very rich area in another part of the country, but usually one concentrates on the things that surrounds his or her everyday life.  So, one is more sensitive to local inequalities rather than national ones.  In many instances, citizens of a country may have never even been to parts of the country included in the national level measurement.  Thus, it is not inherently appropriate for people to be grouped together at a national level.

There is another dimension to national level analyses of income inequality.  A national level statistic assumes that everything is constant across a given space.  In

essence, a national level inequality statistic is the mean inequality of the country.  This statistic misses the deviation of inequality within that space.  If a country has any significant deviation of inequality within a state, then the national statistic is both misleading and false.[36]

This is where my research begins.  After decades of decades of neoliberal economic globalization there is a heated debate centered on the assumption that the nation state is an adequate lens through which to view social science analyses.  National level statistics are used to make very broad, general, and important conclusions in social science and public policy for developing countries.  If the assumptions behind the use of these statistics are not valid, then this has serious implications for the future of social science research and development policy.

This study aims to test the state assumption of social science and policy makers in their analyses of inequality.  It will do so by moving to a more micro-level to look at income inequality.  If significant variance is found in income inequality throughout a country compared to the national statistic, then serious implications on modern social science research are in order.  This smaller level will also allow the research to analyze the effects of neoliberalism at a more nuanced level and determine the directional effects it has had on inequality levels in the cases.

This study will use three case studies: Brazil, Mexico, and South Africa.  These cases were selected for a variety of reasons.  First, all are considered developing

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[36] A simple example will highlight this point.  The mean of 48, 49, 51, and 52 is 50.  The mean of 1, 27, 73, and 99 is also 50.  While one could make the case that 50 is a fairly representative statistic of this first series of numbers, one would be hard pressed to argue that the second series of numbers is accurately represented by a mean of 50.

countries, and have embraced neoliberalism, as well as other policies that encourage

lowering of trade barriers, privatization, and government decentralization. These cases

also cover a range of geographical locations on three continents. The geographical and

population size of each case also varies from an extremely large country like Brazil to a

smaller country like South Africa. Since these countries have embraced neoliberalism,

and exposed themselves to a high degree of economic globalization, this will allow for

this project to test the conflictions in the literature. Specifically, does neoliberalism

decrease inequality, and is the state a valid lens through through to view a topic like

inequality. Census data in English was also available for these three countries through

the University of Minnesota. More details about the data will be discussed in later

sections. First, an introduction of the cases is necessary.

**Brazil**

Brazil is the largest country in Latin America, both in geographical size and population. The geographical and climate characteristics of Brazil are diverse, with tropical jungles, marshlands in the Amazon, coastal mountain ranges, semi-arid scrubland, plains, badlands, and extremely dense forests.[37] Because of its large size, 8.5 million kilometers, and geographical variations, many consider Brazil to be its own continent.[38] This diversity is not only present in the land of Brazil, it is also in the citizenry.

Brazil's population of 170 million is the sixth largest in the world and is forecast to grow to 250 million by 2050.[39] Racially, Brazil designates different levels of "blackness" in its citizens and is more racially diverse than the United States.[40] Data on this diversity is often hidden because of underlying racial tensions. About 55% of the population reports itself as "white," 30% as "mulatto," which is a person of mixed Spanish and Portuguese decent, and only 5% as "black."[41] Scholars have argued that because of the racial complexities underlying Brazilian society, many citizens consider themselves Afro-Brazilian as a general category, although this aggregated category is a bit too simplistic.[42]

Brazil's economic development has proceeded quite rapidly over the past 50 years, and many now consider it to be one of the strongest economic forces in the global

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[37] Alfred P Montero, *Brazilian Politics: Reforming a Democratic State in a Changing World* (Cambridge, UK: Polity, 2005), 4.
[38] Ibid.
[39] Ibid.
[40] Ibid., 5.
[41] Ibid.
[42] Ibid.

South; however, equality was not part of Brazil's recent economic development.[43]  The

regions of Brazil have been impacted in many different ways by the global economy.[44]

Many studies on the impacts of neoliberal trade policies have been done at the national

level.  Studies at the regional level in Brazil are much less common.  Of the studies that

have been conducted at a more micro-level, regional variation in the country is evident.

For example, the gross domestic product of the regions was 0.118 in the North, 0.057 in

the Northeast, and 0.132 in the Center-South.[45]  Neoliberalism also affected

unemployment in the regions differently, causing decreases in the North and Center-

South, but increases in the Northeast. The people of the North and Center-South

benefited from employment opportunities at the expense of those in the Northeast.  The

economy has changed quite rapidly over time.  As of 1940, most of Brazil's economically

active population was employed in the agriculture and mining sector (67%); however, as

of 1996 this had shifted so that the service sector made up most of the economically

active population (56%) and agriculture and mining decreased (26%).[46]

Inequality is not only present in economic performance and opportunity, but also

in social programs.  Government policies have not reformed the disparities among

economic classes though progressive taxation, social security, and education.[47]  There is a

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[43] Eduardo A Haddad, *Regional Inequality and Structural Changes: Lessons from the Brazilian Experience* (Aldershot: Ashgate, 1999), 10.
[44] Ibid., 11.  One thing of note is that Eduardo Haddad divides Brazil up into three regions, the North, the Northeast, and the Center-South.  The North includes the States of Acre, Amapa, Amazonas, Mato Grosso, Para, Rondonia, and Roraima.  The Northeast includes the states of Alagoas, Bahia, Ceara, Maranhao, Paraiba, Pernambuco, Piaui, Rio Grande do Norte, Sergipe, and Tocantins.  The Center-South includes the states of Espirito Santo, Goias, Mato Grosso do Sul, Minas Gerais, Parana, Rio de Janeiro, Rio Grande do Sul, Santa Catarina, and Sao Paulo.
[45] Ibid., 109.
[46] Montero, *Brazilian Politics*, 77.
[47] Ibid., 74.

severe lack educational opportunities and healthcare access is also very limited for the poor of Brazil.  There are three levels of education in Brazil.  The first two levels are free, and include primary and secondary education (primary is the only mandatory level).  The third level is the undergraduate/graduate level, and is low costing; however, the admissions process heavily favors the rich.  This favoring deepens the existing inequality across Brazil.[48]  It is clear that inequality is structural in Brazil, and structural changes are necessary for the solutions to the problem.  A variety of policies have been implemented including high minimum wages, higher tax rates, and direct guarantees of income for the poor, but these have not had the effects for which they were intended.[49]  Only policies favoring universal access to education and health care will lead to social progress in Brazil.[50]

While Brazil has had many economic advances in recent decades, this advancement has been very unequal across the regions of Brazil.  Generally, macro-level measurements have been used to analyze the economic problems in Brazil.  Regional level studies of Brazil are less prominent.  A national level measurement tells only one part of the story.  This paper seeks to shed light on the distribution of income inequality across Brazil.

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[48] Ibid., 79.
[49] Albert Fishlow, "Brazil and Economic Realities," *Daedalus* 129, no. 2 (Spring 2000): 356.
[50] Ibid.

## Mexico

Mexico is a federal republic divided into 31 states and the Federal District of Mexico City. Mexico is a large country, 2 million square kilometers, but it is still much smaller than Brazil.[51] The states of Mexico vary greatly in terms of geographical characteristics, economic base, and personal well being.

The Mexican economy has undergone dramatic changes since the 1980's. In 1988 Mexico laid out a liberalization strategy led by export-oriented industrialization.[52] This strategy coincided with a new generation of policy makers beginning to gain influence in Mexico. Most were economists who had been educated in the United States and subscribed to many of the export-oriented beliefs that were in mainstream economics at the time.[53] The logic of these policies is as follows.

The first step was to pursue macroeconomic policies that were neutral to specific sectors of the economy. This would induce growth and development in specific sectors as they begin to succeed, and also save the government money that it was spending on economic subsidies. In other words, the Mexican government should get out of the Mexican economy as much as possible. The only big role the government is supposed to play in this policy is the stabilization of the macro-economy by controlling inflation, and attracting foreign investors. Foreign investment may also bring cheap imports with it. This will lead to cheaper products being made in Mexico. So, by opening up the borders to trade, Mexico allows cheap parts to flow into the country, uses the cheap imported

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[51] *Changing Structure of Mexico: Political, Social, and Economic Prospects*, Columbia University seminar series (Armonk, N.Y: M.E. Sharpe, 2006), 97.
[52] Enrique Dussel Peters, *Polarizing Mexico: The Impact of Liberalization Strategy*, Critical perspectives on Latin America's economy and society (Boulder: L. Rienner Publishers, 2000), 39.
[53] Ibid., 48-49.

parts to make an item, and then exports the cheap manufactured goods to other countries.

This will lead to market efficiency. Labor unions were also restricted during this time

period and only a few were permitted to negotiate with businesses and the Mexican

government.[54] Since the Mexican government enacted these policies it has been hesitant

to become involved in economic matters except when it bails out large business. This

specifically happened in the 1990's when privatized banks gave out bad loans causing a

credit crisis in financial sector.

The regions of Mexico are economically diverse, and vary in their successes and

failures.[55] The North American Free Trade Agreement (NAFTA) strongly impacted the

economy of Mexico when it was enacted in 1994. NAFTA eliminated almost all trade

barriers between the United States and Mexico. Supporters argued that this deal would

benefit Mexicans by improving their standard of living; opponents argued that it would

ruin thousands of small and medium sized businesses and create high levels of

unemployment.[56] These economic policies have led to regional polarization within

Mexico creating a scenario where some see prosperity and others are economically

disenfranchised. NAFTA led to a deconcentration of economic activity in the Central

Region (CE), and moved economic activity to the Northern Border Region (NB) and the

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[54] Ibid., 51-52.
[55] *Changing Structure of Mexico*, 123. Six regions were identified in this book. The Central Region (CE) includes Mexico City and the states of Hidalgo, Mexico, Morelos, and Tlaxcala. The Central-West Region (CW) includes the states of Aguascalientes, Colima, Guanajuato, Jalisco, Nayarit, Queretaro, and San Luis Potosi. The Northern Border Region (NB) includes the states of Baja California, Chihuahua, Coahuila, Nuevo Leon, Sonora, and Tamaulipas. The Central-North Region (CN) includes the states of Baja California Sur, Durango, Sinaloa, and Zacatecas. The Southeast Region (SE) includes the states of Campeche, Quintana Roo, Tobasco, Yucatan, and Veracruz. The South Region (SO) includes the states of Chiapas, Guerrero, Oaxaca, Michoacan, and Puebla.
[56] David Masci, "U.S. - Mexico Relations: Can Immigration an Drug Problems Be Solved?," *Congressional Quarterly Researcher* 11, no. 39 (November 9, 2001): 924-925.

Central-West Region (CW).  However, the economic prosperity of these three regions came at the expense of the Southeast Region (SE), the South Region (SO), and the Central-North Region (CN).[57]  These three regions have seen virtually no benefits from the free trade agreement, and an argument can be made that it has actually hurt these regions' development.  This regional polarization has divided many Mexicans.

The most important political party in Mexico during the 20th century was the National Revolutionary Party (PRI).  This single party dominated the government for most of the century, and only during the 1980's and the 1990's did its grip on power begin to loosen.  The National Action Party (PAN) was the main challenger to the PRI.  Traditionally these two parties have clashed on economic issues with the PRI heavily favoring labor issues and the PAN favoring business interests.  Finally, another political party was founded, the Democratic Revolutionary Party (PRD).  This party was established in 1988, but its influence on government has decreased steadily since its establishment.  The PAN finally gained the presidency in 2000.[58]

The Mexican statistical institute developed an index of well being that takes into account the age structure of the population, educational level of the working population, and the housing conditions.  The index ranges from 1 to 7, where the 1 is the best well being and 7 is the worst well being.  The average well being of the Mexican citizen is 3; however, this only tells part of the story.  When one looks at regions of Mexico, one finds

[57] *Changing Structure of Mexico*, 124-125.
[58] Charles H. Blake, *Politics in Latin America* (New York, New York: Houghton Mifflin, 2005), 346-347.

a great variation of well being that is missed by the national statistic.  Areas of the south are significantly worse than the national average with scores of 6 or 7.[59]

Mexico is a country that has undergone significant changes over the past two decades.  Neoliberal policy has taken a front seat in government policy with an emphasis on lifting of trade barriers, privatization, and minimal government intervention.  Politics have also changed over the past 20 years with the PRI losing control of the government for the first time in decades.  Finally, the economy has also changed rapidly as the door for economic globalization opened and NAFTA was created.

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[59] *Changing Structure of Mexico*, 97.

**South Africa**

South Africa is located on the southern tip of Africa and is considered an upper-middle-income country.[60] The GNP of South Africa is much larger than its neighboring countries, but these figures are deceiving upon closer inspection. South Africa is also one of the most unequal countries in the world, and if GNP were calculated in the northern rural parts of the country, then it might be considered one of the poorest countries in the world.[61] Underlying the inequalities in South Africa is a history of racism and apartheid that dates back 350 years.[62]

The inequalities in South Africa can be traced back to state policies from 1948 that helped lay the structural base for the modern day divide. In the 1950's, it was estimated that white South Africans made 10 times as much as black South Africans, 8 times as much as colored people,[63] and 5 times as much as Indian people.[64] Some have even called these estimates conservative. The apartheid regime was blatantly racist in its public programs, and welfare services openly discriminated against people of color.[65] Effective spending on healthcare, education, pensions, housing, and infrastructure was reserved for the whites. For example, in 1990 health spending on whites was almost

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[60] Finn Tarp, *The South African Economy: Macroeconomic Prospects for the Medium Term* (London: Routledge, 1996), 5.
[61] Ibid.
[62] Betty Mubangizi, "Responses to Poverty in Post-Apartheid South Africa: Some Reflections," *International Journal of Social Welfare* 17, no. 2 (April 2008): 174; Jeremy Seekings, *Class, Race, and Inequality in South Africa* (New Haven: Yale University Press, 2005), 49.
[63] "Colored" is an official designation of persons of mixed racial ancestry.
[64] Seekings, *Class, Race, and Inequality in South Africa*, 67.
[65] Christine Varga and Heather Brookes, "Preventing Mother-to-Child HIV Transmission Among South African Adolescents," *Journal of Adolescent Research* 23, no. 2 (March 2008): 174.

double of that on blacks, and many clinics remained segregated, even after the 1994 transition to democracy.[66]

The first general elections in South Africa took place in 1994, ending the authoritarian apartheid regime. Since then the government has attempted to implement a variety of poverty fighting programs to decrease inequality throughout the state; however, these programs have had limited successes. The government is constrained by global, political, and economic problems that prevent effective poverty fighting programs from taking place.[67] This has left many calling for a reform in the poverty fighting efforts.[68] Political divisions, mistrust of government, and violence are still a reality in South Africa. Local governments also remain weak, and government authority is highly fragmented throughout the local, regional, and national levels.[69]

Another major issue in South Africa is the spread of HIV/AIDS. Of the current population estimates of 47,432,000 people, approximately 5,500,000 are infected with HIV. Of adults aged 15 – 49 infection rates are close around 20%.[70] Trends show that the virus is increasing in prevalence in South Africa even though it is stable or decreasing in many of the other sub-Saharan African countries.[71] This disease devastates the population in ways that will linger for decades. Many times children's parents die because of complications with HIV/AIDS leaving them orphaned and alone to fend for themselves. Another alternative is that parents become too sick to work, forcing

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[66] Tarp, *The South African Economy*, 8.
[67] Claire Mubangizi, "Responses to Poverty in Post-Apartheid South Africa," 174.
[68] Ibid., 180.
[69] Tarp, *The South African Economy*, 12.
[70] United Nations, "2006 Report On the Global AIDS Epidemic," 2006, 455.
[71] Ibid., 11.

economic burdens upon young children causing them to drop out of school.  This creates

a new parentless, uneducated generation in South Africa.

South Africa's economy is diverse and contains many sectors.  The primary sector

of the economy is agriculture and mining, and includes wood, paper, and metals,

particularly silver.[72]  The secondary sector includes manufacturing, electricity, gas, and

construction.  The tertiary sector includes wholesale, retail, transportation, and financial

institutions.  These sectors cover a broad range of jobs, and all of them have expanded

significantly since the government transitioned to democracy in 1994.  Macroeconomic

policies since that transition have emphasized openness of markets, and thus far GDP has

grown quite rapidly in South Africa.  However, this fast growth with the presence of

extreme levels of inequality has many on edge about the future of South Africa.  The

divide between the haves and the have-nots could lead to major instability in the country,

and redistributive policies need to be a priority for policy makers.[73]

New regionalisms have emerged within South Africa where local characteristics

are interacting with global economics.  This includes regional divisions of ecological

geography types, economic bases, informal and illegal economies, and local

communities.[74]  On top of this regional diversity, there is also uneven economic

globalization that creates winners and losers.[75]  This regionalism makes economic

[72] Stan DuPlessis and Ben Smit, "South Africa's Growth Revival After 1994," *Journal of African Economies* 16, no. 5 (2007): 685.
[73] Ibid., 678.
[74] Timothy Shaw, Andrew Cooper, and Agata Antkiewicz, "Global and/or Regional Development at the Start of the 21st Century? China, India and (South) Africa," *Third World Quarterly* 28, no. 7 (2007): 1257-1258.
[75] Ibid., 1257.

development very complex.  Time will tell if South Africa will be able to cure itself of a

society that has been polarized by racism, money, politics, and disease.

4. Data and Methods

The data for each of these three case studies is a sample of their respective national censuses. Each of these samples were obtained using the University of Minnesota's Integrated Public Use Microdata Series – International (IPUMS). IPUMS is the largest collection of individual level census data in the world.[76] The names of people and other identifying information are removed from the data, and data is consistently coded so that cross-national comparisons can be made. This microdata is available at the personal level and the household level.[77] Details about each sample of census data are as follows.

The two Brazilian censuses used in this study last took place on September 1, 1991 and August 1, 2000. The Instituto Brasiliero de Geografia e Estatistica (IBGE) is the agency in charge of carrying out the census. The population surveyed in the census included all people living in the country, including those who live in a private residence or a collective house. Also included were those who were not present on the day of the census for various reasons; vacation, school, work, et cetra. Embassies and international Brazilian officials were not included in the censuses.[78]

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[76] *Integrated Public Use Microdata Series - International: Version 3.0* (Minneapolis: University of Minnesota, 2007), https://international.ipums.org/international/citation.html.
[77] Ibid.
[78] IPUMS, "IPUMSI - Sample Designs, Brazil," *Sample Designs, Brazil*, March 2008, https://international.ipums.org/international/sample_designs/sample_designs_br.html.

The censuses were collected using a systematic sample of Brazilian citizens. The sample unit is at the household level. A representative of the IGBE interviewed the head of the household or another person with sufficient knowledge of the household. There are no official estimates of the amount of coverage of the census, nor are there official estimates of the undercount of certain areas.[79] Another "long-form" sample was conducted by the IGBE on the same day by systematically sampling individual dwellings as well as families and individuals living in group dwellings. In municipalities with a population of 15,000 or more, 10% of the population was sampled, and in the remaining municipalities 20% of the population was sampled.[80]

The University of Minnesota Population Center (MPC) used a systematic sample of every second household of the long-form version of the census. This accounted for 8,522,740 people (5.8% of the total census) in 1991, and 10,136,022 people (6.0% of the total census) in 2000. The expansion of the sample used a Generalized Minimum Least Squares method, and sample weights were calculated. Each household had its own weight, and these weights must be used in order to have an accurate sample. The weight was then multiplied by two because the systematic sample by MPC included every other household.[81]

The two Mexican censuses used in this paper were conducted on March 12, 1990 and February 14, 2000 by the Instituto Nacional de Estadistica, Geografia, e Informatica (INEGI). The fieldwork periods were between March 12 – 16, 1990 and February 7 – 10, 2000 respectively. The enumeration unit was the occupied dwelling, and persons

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[79] Ibid.
[80] Ibid.
[81] Ibid.

who were 15 and older were surveyed who had sufficient knowledge about the other residents living there.  There were two versions of forms in the census, the long and short dwelling enumeration forms.  There are no official government estimates of the undercount of this census.

The sample used by the MPC for the 1990 Mexican census consisted of a 100% micro-data file created by the INEGI.  This file used a systematic sampling design, and results were sorted geographically by population size in order to increase the precision of the sample characteristics.  Each systematic sample was conducted independently for each municipality.  The total sample size of this file was 8,112,242 people; 10% of the total census.  This sample was also self-weighting.

The sample of the 2000 census used by the MPC consists of all long form census forms.  The MPC took the sample using a stratified cluster design.  The sample was stratified geographically by municipality and by urban area, and clusters were defined as enumeration areas that included blocks of dwelling or localities.  The sample also took into account population heterogeneity in locations of 50,000 or more people.  This was all done to form representative statistics.  The total sample size was 10,099,182 people; 10.6% of the total census.  Sample weights were also computed by the Mexican census agency so that accurate measurements are taken during analysis.

Two censuses were used from South Africa, one in 1996 and one in 2000.  The 1996 census was conducted on October 10, 1996.  Every person present on the night between October 9 and October 10 should have been included in the census.  The enumeration unit of the census were visiting points within an enumeration area.

Fieldwork for the census was done between October 10 and October 30, but in some cases the work continued longer.  There were five types of questionnaires in the census, but this project only uses a sample from two of the five kinds – the household and personal questionnaires.

The microdata used a 10% systematic sample of household questionnaires stratified by weights computed by Statistics South Africa (SSA).  This adjusted for any undercounts in areas, and yielded more accurate statistics of the entire population.  The total sample size of the 1996 census was 3,621,164 people.  One caution in the data was that 19 districts in the Eastern Cape were not organized at the household level.   This affects 1.3% of the entire sample.

SSA conducted South Africa's last census October 10, 2001.  The population included in the census were all people present country on October 9th and 10th including those living in houses, hostels, hotels, communal living quarters, and the homeless.  The enumeration unit was the household.  Three types of census questionnaires were developed by the SSA to apply to households, individuals of institutions, and institutions themselves.  Each household was required to produce at least one questionnaire, and was encouraged to be interviewed by a representative from the SSA.  Undercount estimates range from 15.55% to 26.21% of households depending on the province.  A household was defined as "a group of persons who live together, and provide themselves jointly with food and/or other essentials for living."[82]

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[82] Minnesota Population Center, "IPUMSI - Sample Designs, South Africa," *IPUMSI - Sample Designs, South Africa*, March 2008,
https://international.ipums.org/international/sample_designs/sample_designs_za.html.

The sample of the South African census at the MPA consisted of 3,725,655 individuals, roughly 10% of the total census. The SSA, used a stratified systematic technique, took the sample, and also computed weights for each individual and household so that accurate statistics can be calculated using the data.
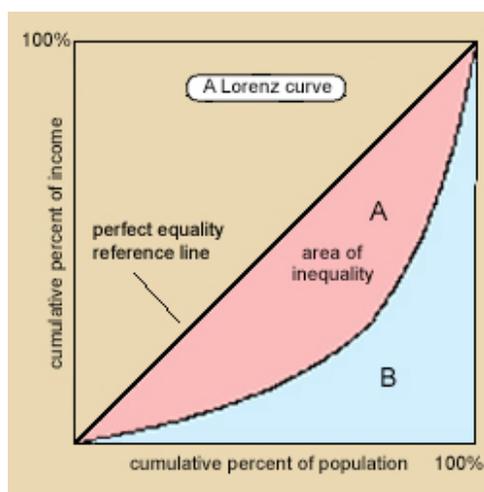
## The Gini Coefficient

The Gini coefficient is the summary statistic that will be calculated throughout this paper. This statistic is standard in the literature, and it helps one gauge the level of inequality in a particular population. Although the technical details that follow are a bit complicated, it is good to keep in mind that the final number is simply quantifying how much of something, in this case income, is concentrated in the hands of a few. Another way of looking at it is that the Gini coefficient is measuring how much of a population is deprived of income because it is in the hands of a few.

The Gini index is based up based upon the Lorenz Curve, a probability distribution function (PDF). These types of functions are the "building blocks of statistical theory," and the relative distribution of each state or province in the case studies is a proper version of a PDF.[83] A relative distribution allows researchers to have a "firm basis for estimation, inference, and interpretation."[84] Each state in Brazil and Mexico, and each province in South Africa will be a specific relative distribution.

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[83] Mark Stephen Handcock, *Relative Distribution Methods in the Social Sciences*, Statistics for social science and public policy (New York: Springer, 1999), 22.
[84] Ibid.

**Gini Coefficient:** The Lorenz Curve[85]

The Lorenz Curve compares two aspects of a population, the income distribution and the dollar distribution. The income distribution is the fraction of the population at level *Y*, and the dollar distribution is the likelihood that a specific dollar (or any other currency) came from an income level.[86] One unique aspect of the Lorenz curve is that it compares two qualities of the same population, as opposed to comparing two different populations like most other relative distributions.[87] In the figure ***Gini Coefficient*** the 45 degree line is the line of perfect equality, and the line between areas A and B is the line of inequality. This leads into the summary statistic of the Lorenz curve – the Gini coefficient.

The Gini coefficient is calculated from the Lorenz curve, and is equal to twice the area between the inequality curve and the perfect equality line (two times the area of A in ***Gini Coefficient***). The range of the statistic is from 0 to 1. Zero equals perfect equality,

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[85] Ralph Byrns, "LorenzCurve.jpg (JPEG Image, 252x252 Pixels),"
http://www.unc.edu/depts/econ/byrns_web/Art/Glossary/LorenzCurve.jpg.
[86] Handcock, *Relative Distribution Methods in the Social Sciences*, 33.
[87] Ibid., 34.

and one equals perfect inequality.[88]  This statistic is one of the most popular

measurements of inequality used in the world today.  The Gini coefficient can also be

written mathematically as:

$$G = 1 - \sum_{i=0}^{N} \left( \sigma Y_{i-1} + \sigma Y_i \right) \left( \sigma X_{i-1} - \sigma X_i \right)$$

Where $\sigma X$ and $\sigma Y$ are cumulative percentages, and N is the number of observations.  $X$

and $Y$ are both based upon the income and dollar distributions defined in the prior

paragraphs.  G is the Gini coefficient.[89]

The Gini coefficients in this paper are calculated via a complex process involving

the use of the Statistics Package for the Social Sciences (SPSS) and R.  The data in each

of these countries' censuses came in an SPSS format at the lowest level possible, the

person.  It included a number of variables:  State (Mexico and Brazil) or Province (South

Africa), household serial number, household weight, number of people per household,

and total income (Brazil and South Africa) or earned income (Mexico).  State/Province

was the geographical location where a person lived in the country.  Household serial

number was a unique number given to the members of each household.  Household

weight was the numerical weight assigned to each household so that the sample is

representative of the population.  Number of people per household was the number of

people living in each household.  Finally, total/earned income was the total/earned

income for each person.

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[88] Milanovic´, *Worlds Apart*, 20.
[89] Brian Slack and Jean-Paul Rodrigue, "Gini Coefficient," 3, 2008,
http://people.hofstra.edu/geotrans/eng/ch4en/meth4en/ch4m1en.html.

The goal of this was to calculate the Gini coefficient of income available per person per household. This statistic takes into account total household income while simultaneously considering how many people are present in each household. Other calculations of the Gini coefficient were considered before making the decision to calculate the inequality of total income available per person per household. For example, at first the Gini coefficient was going to be calculated at the personal level, but when does one begin to include people in this statistic? Many times young children do not generate income, and therefore they should not be included in the Gini coefficient. Also, some people begin to work at a younger age than others. Other people may not make any income, but still are very well off. For example, a woman could be a very successful business manager in the Mexican State of Baja, while her husband stays at home with the kids. She may make millions of pesos a year, but her husband makes none on the census. This approach would skew the Gini coefficient towards 1. As a result it is more appropriate to aggregate income totals to the household level.

This household approach was considered as a possible level to calculate the Gini coefficient. This way everyone in a household was included when calculating an income. What this does not do is take into account how many people are present in a household. For example, pretend there are two Mexican families who make 5,000 pesos a year. When calculating the household Gini coefficient both these families would be equal. What is missing from this story is how many people live in each family. The first household may only consist of a husband and wife, but the other household may consist

of a husband, a wife, and 5 children.  One can see how this simple household approach would skew the Gini statistic towards 0.

Calculating the amount of income available per person per household is the best of both worlds.  This is calculated by dividing the household income by the number of people living in the household.  Computing Gini statistics involved a complex process of data aggregation and disaggregation.

First the income total per person per household needed to be calculated.  In the cases of Mexico and Brazil the coding of the earned and total income per person needed to be altered.  For persons who did not report their income the number 9999999 was entered, and for those whose income was unknown or missing the number 9999998 was entered.  This would skew the Gini coefficient calculations, so coding for both of these values was changed to an income of 0.  Beforehand the data was scanned though, and in almost all cases where these two codes were reported it was a young child.

Next data was disaggregated from the country level to the state/province level in SPSS.  Then when it was at the state level the data was aggregated by household serial number.  When it was aggregated to the household level the income of each person was summed together giving a household total.  This in effect converted data from the personal level to the household level.  The other variables involved in the aggregation process, household weight and number of people in the household, were left alone.  Next the income total per person per household was calculated.  This was a simple calculation and involved dividing the total income of the household by the number of people.  Finally, two variables were then saved as comma delineated files (.csv); the income per

person per household and the weight per household.  This type of file is flexible, and many programs do not have any issues importing it.

Next, the data had to be imported into R.  This was done by creating a table out of the comma delineated file. The variable name "x" was assigned to the table that contained the income per person per household data, and "w" was assigned to the table that contained the household weights.[90]  The variables were then transformed into numerical vectors, "x1" and "w1" respectively so that analysis could be done on them.[91]

To calculate the Gini coefficient a software package called the Relative Distribution Package, written by Dr. Mark Handcock, was installed in R from the University of Washington.[92]  It was then loaded in so that Gini coefficients could then be calculated.[93]  The Gini coefficient command involves two parts, the numerical vector of income totals, and an optional weight vector.  Each household income total per person and the corresponding weight of the household were already loaded into R (remember they were called x1 and w1).  From this the two vectors were entered into the Gini coefficient command and it calculated the statistic.[94]

There were initial concerns about the income data because it was categorized into groupings.  For example, if a person made $900, then he or she would check the box on the census that said $1 - $4000.  In the data anyone who checked a category was assumed to have the mean income of that category.  So, even though that person only made $900,

---

[90] x = read.table("file_path\\file_name.csv")
w = read.table(file_path\\file_name.csv")
[91] x1 = x[,1]
w1 = w[,1]
[92] install.package("reldist")
[93] Mark Handcock, *Relative Distribution* (University of Washington).
[94] gini(x1, w1)

it would read that he or she made $2000 on the census.  After seeing this issue, a number

of simulations were run on the data to see if this averaging significantly influenced the

Gini coefficient outcome.  This was done by comparing the Gini coefficient of the

averaged incomes with an alternative Gini coefficient based upon a random number

generator.  The steps to calculating this randomly generated Gini coefficient were similar;

however, there was one additional step.  In R, a small program called "fixit" was run so

that random income numbers could be created.  Fixit would find all the incomes of a

particular average, and then replace them with randomly generated incomes that fell in

the income's range. [95]   Thus, if a vector of incomes included 5 people of the $1 - $4000

range, then the average $2000 income assigned to them was replaced with a random

number between 1 and 4000.  This random number generator in R used the uniform

distribution so that every number in a range had an equal probability of being selected.

     The following example shows how the data was transformed.  Note how the data

changes between lines one and three.

---

[95] fixit<- function(v, lb, ub)
{
m <- (lb-1+ub)/2
m <- as.integer (m)
 i <- seq(along = v)[v == m]
 r <- runif(length(i), lb, ub)
 v <- replace(v, i, r)
as.integer(v)
}
In the function fixit v stands for the vector one wants to alter, lb stands for the lower bound of that range (in this example 1), ub stands for the upper bound of that range (in this example 4000).  This program determines the mean m (in this example 2000) of the lower bound and upper bound, then identifies the sequence of numbers in vector v that match m.  It randomly generates as many numbers as there are in that sequence, and then replaces the numbers that match m with the randomly generated numbers that fall within the range (in this case 1 to 4000).

x = 2000, 7500, 12500, 2000, 2000, 7500, 2000, 22000, 2000
x = fixit(x, 1, 4000)
x = 404, 7500, 12500, 1787, 3289, 7500, 50, 22000, 984

This step was repeated for every interval of income numbers in a given province

or state.  The results of the new Gini coefficient were only slightly different than the

original Gini coefficient based upon the mean income totals with an average difference of

.004.  In the interest of time the averages of the ranges were used to calculate the Gini

coefficient for each state and province.

The other aspect of interest in this project is whether the implementation of

neoliberal policies has had a significant effect on income inequality in a given state or

province.  This became difficult to quantify by simply calculating a Gini coefficient, and

as a result a more complex approach was taken.  A sampling method called bootstrapping

was employed.  Bootstrapping resamples data multiple times in order to estimate the true

population characteristics.  It is a standard parametric and nonparametric method of

sampling in which data may be used to substitute for the population.[96]

In this case bootstrap sampling of incomes was done in R.[97]  The number of

bootstrap samples recommended varies in the literature, but generally at least 800 are

---

[96] James J. Higgins, *Introduction to Modern Nonparametric Statistics* (Pacific Prove, CA: Brooks/Cole, 2004), 250.

[97] In R a number of steps were taken to create a bootstrap sample.  First, incomes and the sequence of incomes were named into two different vectors, x and d.

```
>x = incomes
>w = sample weights
>d = seq(x)
```

Next a small function was written called "samplegini" specifically for the bootstrap command in R.

```
> samplegini <- function (x, d){
+ return(gini(x[d], w[d]))
+ }
```

In "samplegini" a Gini coefficient is calculated from the incomes in vector x that are randomly selected based upon the numbers selected from sequence d.

recommended and in some cases as many as 5000.[98]  In this project, 5000 bootstrap

samples were taken for every state and province in the data.  For each bootstrap sample,

2000 incomes were randomly selected, and the Gini coefficient was calculated for these

incomes.  By the end of the bootstrap sampling there were 5000 Gini coefficients.
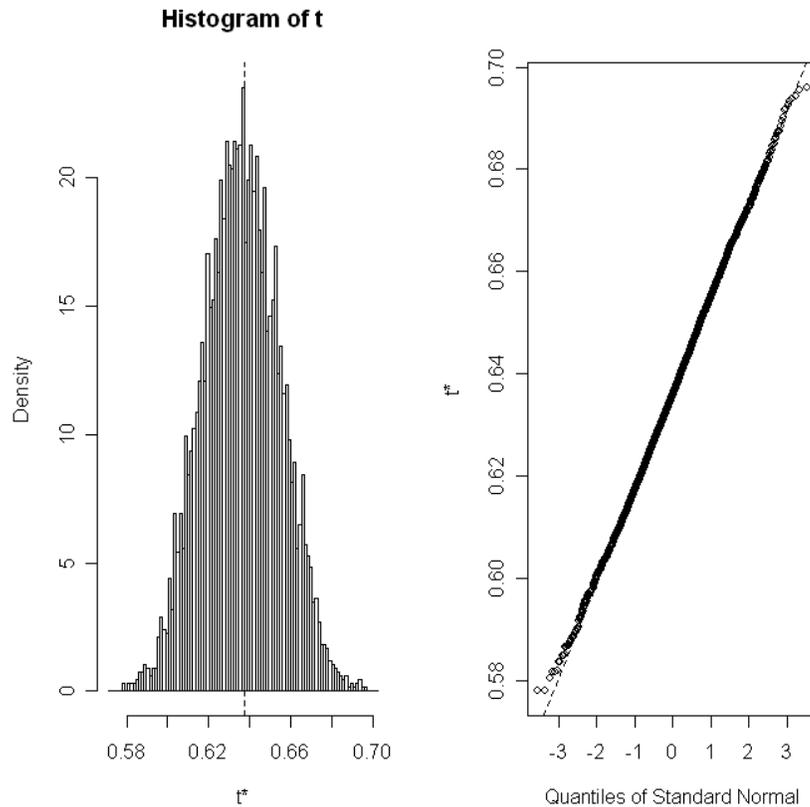


**Bootstap Estimation**  shows how the Gini coefficient sample approximates the population Gini coefficient as more and more bootstrap samples are taken of income levels.

---

> data = sample(x, 2000)
In this vector "data" is a random selection of 2000 incomes from income vector x.
Next the bootstrap sampling is conducted using a the command "boot."
> b = boot(data, samplegini, R=5000)
In "boot" a Gini coefficient is calculated using the function "samplegini" from above from a sample that is selected using the "data" command above.  This process is repeated 5000 times so that in the end a sample of 5000 Gini coefficients are created.  This gives a normal approximation of the true Gini coefficient.
[98] Ibid., 252.

The mean of the sample of Gini coefficients in the bootstrap samples was calculated, and a difference of means test was implemented to test for statistically significant differences between the two census years being compared. This statistical aspect strengthens the results of the cases so that conclusions are more quantitatively grounded.

## 5.  Results


The results of this study confirmed that Brazil is economically polarized.  They also show how varied of an impact neoliberal policies had on total income inequality within Brazil between 1991 and 2000.

**Brazil Data** shows the results of the calculations for each Brazilian state. The first column is the name of the state, the second column is the Gini coefficient of that state in the year 2000, the third column is the number of households in the sample of that state in the year 2000, the fourth column is mean monthly total income per person per household of that state in the year 2000, the fifth column is the Gini coefficient of that state in the year 1991, the sixth column is the number of households in the sample of that state in the year 1991, and the seventh column is the change in the Gini coefficient between 1991 and 2000.
In cases where a * is next to the change in the Gini coefficient $p < 0.000$.

| State | Gini 2000 | n 2000 | Mean 2000 | Gini 1991 | n 1991 | Change Gini |
|---|---|---|---|---|---|---|
| Rondonia | 0.6175 | 21,647 | 274 | 0.6392 | 13,430 | -0.0217* |
| Acre | 0.6473 | 8,409 | 230 | 0.6288 | 4,912 | 0.0185* |
| Amazonas | 0.6919 | 31,985 | 236 | 0.6327 | 22,792 | 0.0592* |
| Roraima | 0.6813 | 4,928 | 339 | 0.6717 | 2,743 | 0.0096* |
| Para | 0.6628 | 72,996 | 215 | 0.6381 | 51,924 | 0.0247* |
| Amapa | 0.6564 | 5,911 | 286 | 0.6012 | 3,037 | 0.0552* |
| Tocantins | 0.6571 | 21,521 | 212 | 0.6397 | 14,900 | 0.0174* |
| Maranhao | 0.6681 | 75,221 | 139 | 0.6069 | 52,921 | 0.0612* |
| Piaui | 0.662 | 47,267 | 158 | 0.6339 | 33,238 | 0.0281* |
| Ceara | 0.6688 | 100,571 | 190 | 0.6539 | 75,591 | 0.0149* |
| Rio Grande do Norte | 0.6608 | 46,337 | 217 | 0.6324 | 36,025 | 0.0284* |
| Paraiba | 0.6416 | 58,788 | 183 | 0.6375 | 44,846 | 0.0041* |
| Pernambuco | 0.671 | 112,825 | 225 | 0.6623 | 86,391 | 0.0087* |
| Alagoas | 0.6803 | 38,948 | 173 | 0.6341 | 30,746 | 0.0462* |
| Sergipe | 0.649 | 27,580 | 196 | 0.6298 | 21,070 | 0.0192* |
| Bahia | 0.669 | 189,454 | 204 | 0.6762 | 153,348 | -0.0072* |
| Minas Gerais | 0.6251 | 307,550 | 336 | 0.6288 | 231,120 | -0.0037* |
| Espirito Santo | 0.6161 | 49,410 | 343 | 0.6061 | 35,253 | 0.01* |
| Rio de Janeiro | 0.6296 | 221,488 | 511 | 0.6279 | 178,505 | 0.0017* |
| Sao Paulo | 0.6057 | 568,577 | 521 | 0.5765 | 439,865 | 0.0292* |
| Parana | 0.6155 | 168,076 | 377 | 0.608 | 124,655 | 0.0075* |
| Santa Catarina | 0.5751 | 96,816 | 408 | 0.5661 | 70,516 | 0.009* |
| Rio Grande do Sul | 0.5912 | 182,914 | 422 | 0.5986 | 146,282 | -0.0074* |
| Mato Grosso do Sul | 0.6313 | 34,700 | 336 | 0.6119 | 26,483 | 0.0194* |
| Mato Grosso | 0.6315 | 43,473 | 334 | 0.6166 | 30,416 | 0.0149* |
| Goias | 0.6153 | 87,566 | 322 | 0.5968 | 62,244 | 0.0185* |
| Distrito Federal | 0.6499 | 27,398 | 746 | 0.6234 | 19,203 | 0.0265* |
| | | | | | | |
| Brazil | 0.649 | 2,652,356 | 368 | 0.6424 | 2,012,276 | 0.0075* |

**Brazil 1991** shows the rounded Gini coefficient distribution across Brazil in 1991.

**Brazil 2000** shows the rounded Gini coefficient distribution across Brazil in 2000.

Brazil's inequality levels are quite constant throughout large parts of the country. The Northeastern part of Brazil has inequality levels that are generally between 0.64 and 0.67 depending upon the state in both censuses. As one travels further South and West in Brazil, inequality levels begin to change. In both 1991 and 2000, the Southern part of Brazil had the lowest levels of inequality compared to everywhere else in the country, with Gini coefficients around the high 0.50's to low 0.60's. The Western part of Brazil generally has higher levels of inequality compared to the rest of the country, and tops out

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at 0.6919 in the state Amazonas in 2000.  One exception was the eastern state of Bahia that had a Gini coefficient of 0.6762 in 1991, higher than everywhere else in Brazil.

The Gini coefficient of the whole country of Brazil was 0.6424 in 1991 and 0.6490 in 2000 based upon the samples of the Brazilian Censuses used.  This does not capture the true picture of variation in Brazil.  For 1991, the Gini coefficients range from 0.5661 in Santa Catarina to 0.6762 in Bahia, and for 2000 the Gini coefficients range from 0.5751 in Santa Catarina to 0.6919 in Amazonas.  In some instances inequality varies significantly in neighboring states.  Regional variation is also highlighted in the changes in inequality levels between 1991 and 2000.

Throughout the 1990's Brazil embraced neoliberal reforms as it opened its borders to more global capital flows.  The national Gini coefficient shows almost no change in the inequality levels, with an increase of only 0.007.  If a policy maker looks at this statistic he or she would think that this economic globalization has little or no effect on Brazil's inequality levels.  However, the micro-level results tell a much different story.  Inequality has increased and decreased throughout the country and in all cases with statistical significance.  For example, in Maranhao and Amazonas the Gini coefficient increased by 0.0612 and 0.0592, respectively; whereas, inequality decreased in Rondonia by 0.0217.  This significant regional variation is missed by the national level statistic.

The mean income levels of each state from the 2000 census shed light on the economic development of Brazil discussed in the previous section.  As Brazil embraced neoliberalism more capital flowed into the Southern and Western regions of the country, while the Northeast lost its economic successes.  The mean incomes in the Northeastern

States are the poorest in the country, while the highest incomes are in the Southern part of the country.

It is also clear that inequality has increased in most Brazilian states throughout the past decade.  In 23 of 27 states, there has been a statistically significant increase in total income inequality per person per household.  These results show that the states became more polarized as neoliberal reforms were implemented throughout the 1990's.

## Mexico

The results from Mexico show how much variation in income inequality and mean income is possible within a single country. It also offers results that contradict the relationship between neoliberalism and inequality shown in Brazil.

**Mexico Data** shows the results of the calculations for each Mexican state.  The first column is the name of the state, the second column is the Gini coefficient of that state in the year 2000, the third column is the number of households in the sample of that state in the year 2000, the fourth column is mean monthly earned income per person per household of that state in the year 2000, the fifth column is the Gini coefficient of that state in the year 1990, the sixth column is the number of households in the sample of that state in the year 1990, and the seventh column is the change in the Gini coefficient between 1990 and 2000. In cases where a * is next to the change in the Gini coefficient p < 0.000.

| State | Gini 2000 | n 2000 | Mean 2000 | Gini 1990 | n 1990 | Change Gini |
|---|---|---|---|---|---|---|
| Aguascalientes | 0.5642 | 19,132 | 1,184 | 0.6556 | 13,457 | -0.0914* |
| Baja California | 0.6171 | 36,390 | 2,542 | 0.6438 | 37,680 | -0.0267* |
| Baja California Sur | 0.6287 | 9,311 | 2,089 | 0.6853 | 6,940 | -0.0566* |
| Campeche | 0.6672 | 15,686 | 1,029 | 0.6949 | 11,219 | -0.0277* |
| Coahuila | 0.601 | 47,433 | 1,460 | 0.6481 | 41,419 | -0.0471* |
| Colima | 0.5858 | 12,835 | 1,208 | 0.6306 | 9,120 | -0.0448* |
| Chiapas | 0.7517 | 96,539 | 564 | 0.7893 | 60,815 | -0.0376* |
| Chihuahua | 0.6142 | 72,906 | 1,662 | 0.6669 | 54,547 | -0.0527* |
| Distrito Federal | 0.6273 | 190,499 | 2,153 | 0.6655 | 183,762 | -0.0382* |
| Durango | 0.665 | 35,716 | 904 | 0.7488 | 26,658 | -0.0838* |
| Guanajuato | 0.6492 | 81,402 | 966 | 0.6987 | 72,487 | -0.0495* |
| Guerrero | 0.7313 | 75,493 | 711 | 0.7627 | 51,963 | -0.0314* |
| Hidalgo | 0.6568 | 62,016 | 721 | 0.6801 | 37,231 | -0.0233* |
| Jalisco | 0.6024 | 149,135 | 1,358 | 0.6572 | 106,008 | -0.0548* |
| Mexico | 0.6132 | 252,961 | 1,249 | 0.6828 | 192,786 | -0.0696* |
| Michoacan | 0.6749 | 105,453 | 797 | 0.7248 | 68,873 | -0.0499* |
| Morelos | 0.6075 | 37,319 | 999 | 0.6458 | 25,046 | -0.0383* |
| Nayarit | 0.5969 | 18,937 | 859 | 0.6725 | 17,285 | -0.0756* |
| Nuevo Leon | 0.5851 | 82,346 | 1,874 | 0.6653 | 65,838 | -0.0802* |
| Oaxaca | 0.7355 | 158,123 | 538 | 0.7923 | 60,236 | -0.0568* |
| Puebla | 0.666 | 133,358 | 820 | 0.7164 | 78,911 | -0.0504* |
| Queretaro | 0.7239 | 28,211 | 1,747 | 0.7051 | 19,978 | 0.0188* |
| Quintana Roo | 0.616 | 16,440 | 1,798 | 0.7009 | 10,717 | -0.0849* |
| San Luis Potosi | 0.6766 | 58,296 | 828 | 0.7455 | 38,850 | -0.0689* |
| Sinaloa | 0.58 | 41,759 | 1,035 | 0.6469 | 43,180 | -0.0669* |
| Sonora | 0.6065 | 60,008 | 1,505 | 0.6333 | 38,714 | -0.0268* |
| Tabasco | 0.6731 | 40,038 | 866 | 0.7455 | 29,160 | -0.0724* |
| Tamaulipas | 0.6165 | 58,108 | 1,419 | 0.665 | 50,026 | -0.0485* |
| Tlaxcala | 0.5985 | 30,639 | 796 | 0.6913 | 14,079 | -0.0928* |
| Veracruz | 0.6557 | 187,974 | 788 | 0.6896 | 128,772 | -0.0339* |
| Yucatan | 0.6481 | 53,166 | 904 | 0.6696 | 28,164 | -0.0215* |
| Zacatecas | 0.749 | 43,956 | 725 | 0.7798 | 24,359 | -0.0308* |
| | | | | | | |
| Mexico Country | 0.6595 | 2,312,035 | 1,235 | 0.7044 | 1,648,280 | -0.0449* |

**Mexico 1990** shows the rounded Gini coefficient distribution across Mexico in 1990.

**Mexico 2000** shows the rounded Gini coefficient distribution across Mexico in 2000.

Mexico takes variability in inequality to an extreme level. The Gini coefficient of Mexico is 0.7044 in 1990 and 0.6595 in 2000, but the range of the Gini coefficients at the state level is dramatic. Unlike Brazil, there is no way to accurately predict inequality levels from state to state. From the Baja Peninsula to the Yucatan Peninsula, inequality levels and income levels rise and fall. Take the two bordering states of Aguascalientes and Zacatecas as an example. In the 1991 the Gini coefficient of Aguascalientes was 0.6556 and the Gini coefficient of Zacatecas was 0.7798. This is a difference of 0.12. Then, in the 2000 census the variation increased dramatically. While inequality decreased in both cases, in Aguascalientes it lessened by 0.914 and in Zacatecas it lessened by 0.0308. The difference is now at 0.1848, almost 20% of the entire range of

the Gini statistic. So, although both of these states are becoming less polarized within, the difference in inequality between the two states is actually increasing.

As mentioned in the introduction of the cases, dramatic neoliberal reforms were implemented in Mexico during this period. Statistical results confirm both sides of what prior research had suggested about the impacts of neoliberal policy on inequality. After embracing neoliberalism and signing NAFTA, much of the Southern Part of Mexico was economically devastated. The average monthly earned income available per person per household in Oaxaca is 538 pesos, where as in other parts of the country the mean income levels are in the thousands. Even though inequality is decreasing in places like Oaxaca it still remains at extremely high levels. It could also mean that more people are simply becoming poorer.

One of the things at the core of these results is the fact that neoliberalism has affected different areas of Mexico in different ways. Inequality is decreasing at varying levels throughout the country. For example, in Queretaro the Gini coefficient has decreased by .0188, but in Durango it has decreased by 0.0838. This variation in difference is missed entirely by the nation level Gini coefficient, which decreased by 0.0449.

These results should offer encouraging news for the states of Mexico. In the nine year span between the two censuses, earned income inequality decreased in 31 of 32 Mexican states. In all cases there was a statistically significant change in the Gini coefficient. Thus, even if the average earned income in the rural areas is dramatically

lower than other areas of the country, these areas are not as polarized as they were prior

to the signing of NAFTA in 1994.

## South Africa

The inequality distribution across South Africa has similarities to both Brazil and Mexico. It has areas where inequality levels are close to one another, but there are still parts of the country where there is significant variation from one province to another.

**South Africa Data** shows the results of the calculations for each South African province. The first column is the name of the province, the second column is the Gini coefficient of that province in the year 2001, the third column is the number of households in the sample of that province in the year 2001, the fourth column is mean annual income per person per household of that province in the year 2001, the fifth column is the Gini coefficient of that province in the year 1996, the sixth column is the number of households in the sample of that province in the year 1996, and the seventh column is the change in the Gini coefficient between 1996 and 2001.
In cases where a * is next to the change in the Gini coefficient $p < 0.000$.
** In 1996 19 Magisterial districts were not aggregated to the household level in the Eastern Cape Province.

| Province | Gini 2001 | n 2001 | Mean 2001 | Gini 1996 | n 1996 | Change Gini |
|---|---|---|---|---|---|---|
| Western Cape | 0.7454 | 108,699 | 27,299 | 0.6353 | 104,994 | 0.1101* |
| Eastern Cape** | 0.8426 | 135,902 | 9,390 | 0.7925 | 168,915 | 0.0501* |
| Northern Cape | 0.7813 | 19,685 | 14,569 | 0.7001 | 19,710 | 0.0812* |
| Free State | 0.8168 | 65,292 | 11,055 | 0.7337 | 72,145 | 0.0831* |
| KwaZulu-Natal | 0.8166 | 171,307 | 12,816 | 0.7478 | 174,576 | 0.0688* |
| North West | 0.7816 | 84,027 | 11,316 | 0.7149 | 80,060 | 0.0667* |
| Gauteng | 0.7725 | 231,181 | 28,492 | 0.6617 | 217,519 | 0.1108* |
| Mpumalanga | 0.8008 | 67,271 | 11,237 | 0.7429 | 56,842 | 0.0579* |
| Limpopo | 0.8211 | 107,915 | 7,286 | 0.7958 | 99,090 | 0.0253* |
| | | | | | | |
| South Africa | 0.8103 | 991,543 | 16,753 | 0.7355 | 993801 | 0.0748* |
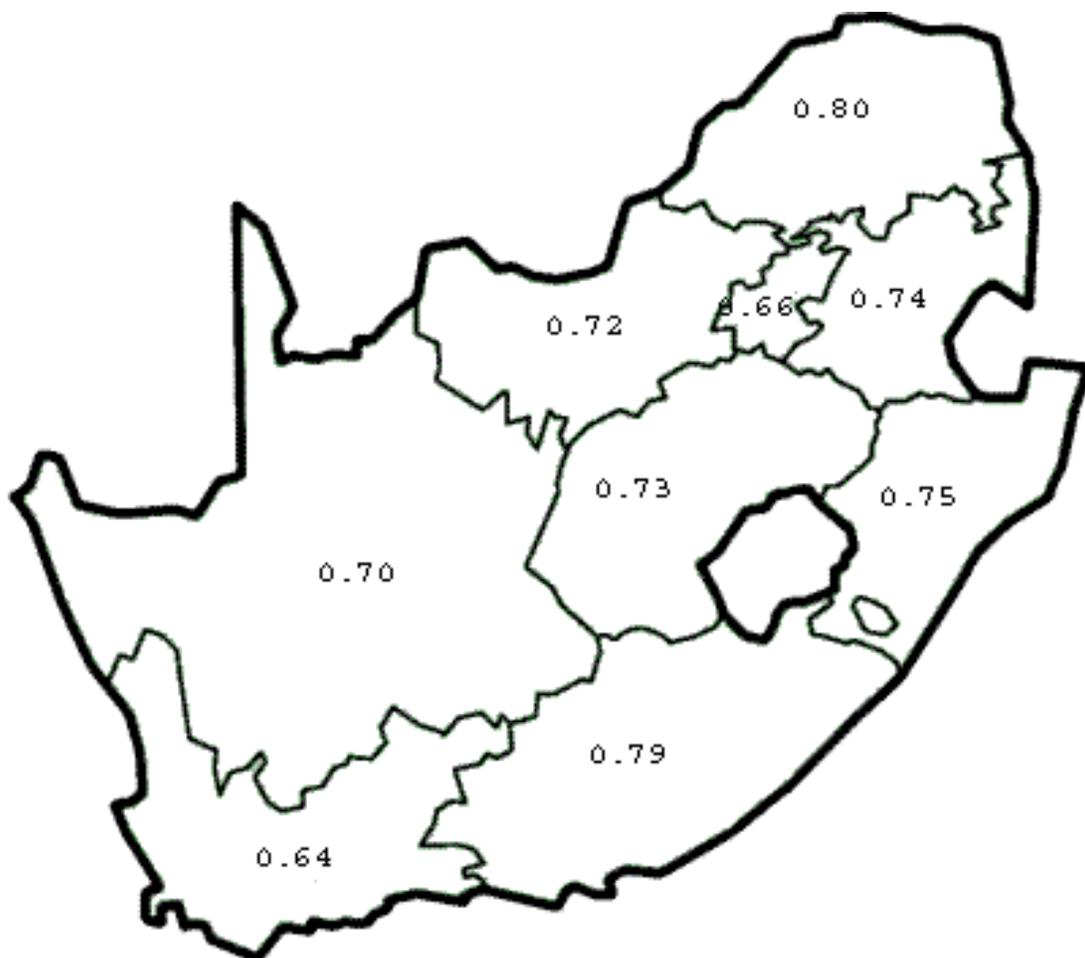
**South Africa 1996** shows the rounded Gini coefficient distribution across South Africa in 1996.
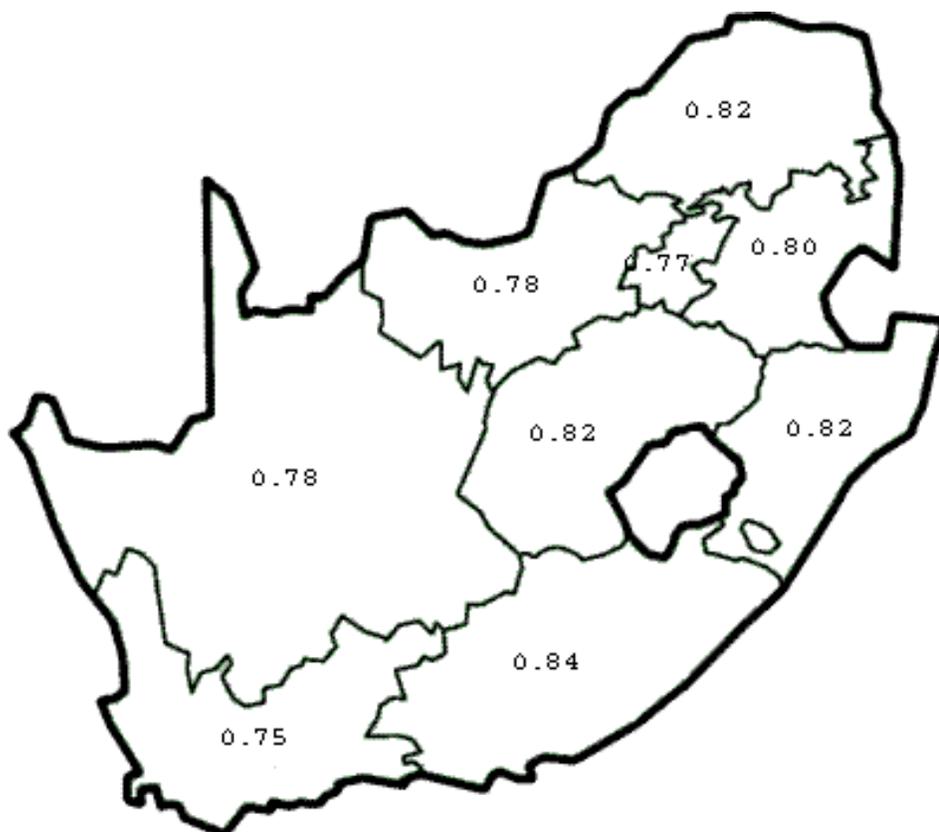
**South Africa 2001** shows the rounded Gini coefficient distribution across South Africa in 2001.

In both censuses, the inequality levels generally increase as one heads from west to east in South Africa. The Gini coefficient of South Africa was 0.7355 in 1996 and 0.8103 in 2001, but this does not capture the variability of inequality within the country in both years. In 1996 there was significant variation in the northeastern part of South Africa, particularly between Gauteng Province and Limpopo Province, whose Gini coefficients were 0.6617 and 0.7958 respectively, a difference of 0.1341. In the 2001 census Gini coefficients range from 0.7454 to 0.8426, and the two provinces at the extremes of the range, the Western Cape and the Eastern Cape, are geographically adjacent to one another.

One can also see the gap in the mean incomes of the provinces as well. The mean income of the richest province is almost four times the mean income of the poorest province. The use of a single statistic for an entire country blinds one from truly seeing the variability of inequality over a given space.

Total income inequality levels increased throughout South Africa between 1996 and 2001. In some cases, like in the provinces of the Western Cape and Gauteng, total income inequality increased by 0.11. The country became increasingly polarized during this era and, as it was mentioned in the introduction, it now ranks among the most unequal countries in the world. A similarity between South Africa and the other two cases is that the changes in inequality were not consistent across the entire national space. In the case of Limpopo the Gini coefficient only increased 0.0253, but in the case of the Western Cape inequality increased 0.1101. This is missed in the national level Gini coefficient, which increased by 0.0748.

**Data Summary** shows the mean, standard deviation, and range of all of the states' and provinces' Gini coefficients in the six years analyzed.

| Sample | Mean | Standard Deviation | Range |
|---|---|---|---|
| Brazil 1991 | 0.6252 | 0.0257 | 0.1101 |
| Brazil 2000 | 0.6434 | 0.029 | 0.1168 |
| Mexico 1990 | 0.6943 | 0.0468 | 0.1617 |
| Mexico 2000 | 0.6433 | 0.0515 | 0.1875 |
| South Africa 1996 | 0.725 | 0.0539 | 0.1605 |
| South Africa 2001 | 0.7976 | 0.03 | 0.0972 |

This table highlights the variation in the states and provinces of Brazil, Mexico, and South Africa. There is significant deviation from the mean in many cases,

particularly in both Mexican censuses and South Africa's 1996 census. The range in all of these cases is also dramatic. In all but one case, the range of the Gini coefficients are more than 10% of the entire range of the Gini statistic. In the case of Mexico in 2000 the range is 0.1875, which is 18.75% of the range of the entire Gini statistic. This range in total and earned income inequality levels is hidden by a simple national statistic, and this micro-level approach sheds much more light on the differentials of inequality within each country's borders.

6.  Discussion


The results of these three cases are significant for a number of reasons.  First, they illustrate the dangers of national statistics.  Second, they offer significant evidence that has bearing on much of literature reviewed on the relationship between neoliberalism and inequality and the use national statistics in social science.  Third, they directly impact current and future social science and development policy.  Finally, they open up the door for a new arena of research.

These three cases show the danger of using statistics based upon highly aggregated data.  The Gini coefficients of the countries are 0.6490, 0.6424, 0.6595, 0.7044, 0.7355, and 0.8103.   These aggregated statistics lead to an oversimplification of the state of inequality that ignores the variation of inequality levels within the country.  This variability is shown in the results, particularly in Mexico.  These results show that viewing income inequality through the lens of the state is poor methodology that does not capture the reality of the complexities and realities of income inequality.  To associate entire regions of a country with an inequality statistic that does not accurately capture the reality of inequality in that subnational regions is bad social science.

The national approach also lumps people together under one umbrella statistic as if they all should be grouped together.  Although one citizen may feel some sort of cultural connection to another citizen because they are from the same country, it is not

appropriate to compare them to one another when they live on opposite ends of the country.  One is more concerned with his or her immediate surroundings as opposed to the surroundings in a place somewhere else in the country that he or she may or may not have been to over the years.  It also does not account for the diversity of regional economies.

The cost of living also varies from place to place in a country, but this is also missed with the national statistic.  Here is an example to illustrate this second point.  An "average" Brazilian working in Brasilia makes a monthly salary of 737 Reals, but another "average" Brazilian working in Maranhao makes about 126 Reals.  One may automatically assume that the Brazilian in Brasilia is better off than the Brazilian in Maranhao, but these two Brazilians are not comparable to one another.  If the Brazilian living in Brasilia made 737 Reals in Maranhao, then their income may actually be in the upper classes, instead of being just "average."  To turn this around, if the Brazilian living in Maranhao made 126 Reals in Brasilia, then he or she may not be able to survive more than a few days or weeks.  Thus, the value of income is not constant across a national space, even if it may seem that way.  One Real somewhere will get you something in one place, and nothing in another. The Gini coefficient is straightforward and simply measures inequality by assuming that all income is worth the same amount everywhere.  When one aggregates income inequality measurements to a national level, then this whole aspect of reality is missed.  This aggregation skews the national statistic and leaves an extremely important local aspect of income inequality out of the equation.  There are two ways to correct this problem.  First, one could move to a more micro-level for

calculations where the cost of living is more uniform across a given population.  The

other option is to come up with "cost of living" weights that can be applied to all incomes

in the country so that they are representative of what those incomes are actually worth.

The results of this study also have a number of implications on the literature

reviewed in the first section.  The results seem to support Michael Mann's argument that

business and economics no longer revolve around the state, and the variation of

inequality across these national spaces should offer evidence to support the claims of

William Sites that the state is losing control over development.  Income levels are so

uneven across the country that it is obvious that the national level is not the appropriate

lens through which to view economic issues, and that the state seems to have lost

influence over the economy in many areas of these countries.

The results of this study offer mixed conclusions for the supporters and the

opponents of neoliberalism.  As mentioned in the literature review, the World Bank,

Dollar, and Kraay argue that neoliberal policies decrease inequality.  Alternatively,

Corina and Court argue that inequality has risen since the 1980's because of neoliberal

policies.  Harrison and McMillan argue that neoliberal approaches to development

oversimplify complexities of society, and that their implementation may lead to

unexpected results.  Thus, social safety nets are needed.  These three cases show the

contrasting results of neoliberal policies.  Total income inequality increased in most parts

of both Brazil and South Africa, but in contrast earned income inequality decreased in

almost every state in Mexico.  In some of these cases inequality rates changed

dramatically.  Although one cannot attribute all of the increases and decreases of

inequality in these countries to neoliberalism, it is hard to imagine that these broad

policies do not have a significant impact on income inequality.  This is especially true

because one can see a change in inequality at the state/province level across an entire

national space.

The results also offer significant evidence to support the conclusions reached by

Jenkins and Van Kern that positive impacts are uneven across a space, as well as the

conclusions reached by Kacowicz that economic globalization has multiple effects on

developing nations.  They also are similar to the results of Branko Milanovic's work that

shows inconsistent directional changes in international inequality when it is analyzed at

the household level.  These results show dramatic decreases in inequality across the states

of Mexico, and dramatic increases across the provinces of South Africa and some of the

states of Brazil.  There were also states and provinces in these three cases where

inequality changed ever so slightly after the implementations of neoliberal policies.

These contradictions may help explain the amount of conflict in the economic

globalization literature.  Social scientists often expect relationships to be consistent and

generalizable.  This is an instance in which economic globalization seems to have helped

some and hurt others, thus making it difficult for academics to discern a clear positive or

negative relationship between neoliberal economic policies and inequality fluctuations.

Finally, the results also have significant implications for future social science and

public policy.  One of the best ways to move forward may be for social science to adopt

an alternative multiperspective approach theorized by Beck.  This process considers the

influences of the global, the local, and the national.  For quantitative based social science

this transition will of course be especially difficult.

Even though this study has shown the severe weaknesses of national level

measurements, policy makers will almost certainly continue to use them either to offer

evidence to support the need for new policy or to show that existing policy is works.  One

of the reasons for this is the ease of calculating a national measurement.  It is clear cut,

simple, and straightforward.  People can grasp the power of the nation state because the

nation centered perspective is what most people have learned in their studies.  Also, many

times, micro-level data is not available for analysis.

However, the results of this study do have broad implications for policy going

forward.  Undoubtedly Wade would argue that these results add one more problem to the

World Bank's methodological approaches to poverty and inequality.  There is already

uncertainty surrounding the validity of World Bank statistics, and the fact that the nation

state does not appear to be the appropriate context for analyzing inequality adds further

questions.  If the national assumption cannot be taken for granted, then this challenges the

logic behind much of the macro-level based policy being advocated by the World Bank,

IMF, and Washington Consensus in general.  These policies may not have their intended

effects because the statistics used to justify and evaluate the policy are too aggregated and

oversimplified.   Developing countries may also want to consider examining the impacts

of macro-level policy on micro-levels before subscribing to a macro-level approach of

development.  For example, why did inequality decrease in Rondonia, Brazil while

inequality increased in Maranhao, Brazil?  By moving to a more micro-level countries'

policy makers will better be able to understand the effects economic globalization has on regions, and then customize national policy to local needs so that development can be more progressive and beneficial for more people.  This is also consistent with Branko Milanovic's third approach to income inequality that moves to the household level so that inequality and problems associated with it can be analyzed and solved more constructively.

The implications of these results can also be generalized to include other indices developed by global institutions.  Such indices include the United Nations's Poverty Index, the United Nation Development Programme's Human Development Index, and Foreign Policy's Globalization Index.  In these indices data is also analyzed at the aggregated national level.  These national level indices may be misleading policy makers and maybe also obscure the results of bad policy.

7.  Future Research


The purpose of this paper is to analyze the impacts neoliberal policy on inequality

levels in three countries, and to test the assumption that nation states are the proper lens

through which to view income inequality.  The results give conflicting results about the

impacts of neoliberalism on income inequality levels, and problematize the nation state

assumption.

This study must go farther in the future.  Surely there is also significant variation

of inequality within these countries' states and provinces.  The cost of living within each

state or province probably also varies.  There may be a large city in one area where cost

of living is high, but then the rest of the state or province may be rural farmlands where

the cost of living is low.  Thus, this research is still vulnerable to the problems of

oversimplification connected to national level statistics.  Research must dig down deeper

into the state.

Future research can go in a number of other directions.  Branko Milanovic lays

out three possible avenues of analysis of global income inequality.  One of these is a

global census.  The reality is that to truly understand global income inequality, there must

be micro-level data available to be able to make calculations.  An ideal global census

would be modeled after the United States' census, which has public income data

available down to the census tract level (the second lowest level possible in the census).

This census groups people together with one another as little as possible, making improper borders less of a problem.

It is difficult to imagine such a census occurring at the global level, but is something that social scientists should strive for in the future. In the mean time, techniques of micro-level sampling should be emphasized, so that local conditions can be at least approximated. A representative sample of small level populations is almost as good as a census.

A key point raised in this study is that people concentrate more on their immediate surroundings on issues of inequality, as opposed to areas that are far away. This micro-level data would allow researchers to analyze issues like inequality in people's communities, where inequality most impacts people's everyday lives. Communities are not necessarily divided up neatly by political borders, like states, cities, towns, or counties. The microdata would allow research to begin to define a new space in which to view inequality and more properly understand it. It would also allow researchers to make their research more accurate by solving the problem of significant variation in the cost of living by moving further down to a micro-level. Research will finally be able to draw the "proper" borders.

So, for example, pretend there is a village in rural Brazil that has a medium sized population. There is a strong sense of community in the village and surrounding areas. Political borders around the "proper" village may exclude many people who are members of the community but happen to live outside of the political boundaries of the town. This inhibits empirical social science because many times political borders do not correspond

with social borders even though political borders are usually used to define social science's analytical spaces. With the appropriate microdata one would be able to move to the next level where the reality of these spaces are captured, and new borders are drawn around them. So, instead of continually dividing people up via invisible political borders, research would be better able to group people together into the communities in which they live.

This study also is a step towards truly understanding the impacts of economic globalization on communities. While macro-level measurements tell researchers one thing, the micro-level may tell them something entirely different. Research should investigate why there are fluctuations in the change of inequality levels in these countries. Why did inequality decrease in Rondonia, Brazil and increase in Sao Paulo, Brazil? Why did inequality only increase slightly in Limpopo, South Africa when it increased dramatically in Gauteng, South Africa? Answering these questions could help developmental policy in the future. If Rondonia's local policies are unique and also beneficial, then maybe they could be replicated in other parts of the world.

8.  Conclusion


The current literature on the relationship between neoliberalism and income inequality is conflicted.  Scholars have firmly entrenched themselves on opposing sides of the dialogue, and argue that neoliberalism has a single relationship with income inequality.  These analyses center on the state, with the assumption that the state is the proper context through which to view income inequality.  The results of this study help explain why there is so much conflict exists, and also weaken the national level studies conducted in the literature.

In Brazil and South Africa total income inequality increased in the time between their two censuses; however, in Mexico earned income inequality decreased in most parts of the country.  Within these countries inequality did not increase or decrease constantly across national space and changes in inequality levels varied after neoliberal policies were implemented.  National level Gini coefficients oversimplify the complexity of the relationship between neoliberalism and globalization.  For example, if a person looked at Brazil's national Gini coefficient between 1990 and 2000 he or she would only see and increase of 0.007.  Looking beneath the nation state, however, it is clear that inequality has increased much more in many areas of the country.  The implications of these results can be generalized to other areas of social science that rely on the state as a lens for conceptualizing research.  They also impact public policy that centers on macro-level

state measurements.  Subnational differentials in inequality undermine key assumptions behind these analyses and measurements.

This study opens the door for new social science research that moves beyond the state assumption.  One of the keys for future research is the availability of valid, reliable micro-level data.  A certain logic lies behind political borders that does not necessary correspond to social borders.  These social borders need to be defined so that inequality as a subject can be better understood and thus solved in a constructive manner.  Micro-level data is necessary for this progress.  Moving to a more focused level of analysis will also allow social science to better understand how neoliberalism is constructive and destructive to societies, thus contributing better policy in the future.

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