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Trade Liberalization and Income Inequality Among Automotive Manufacturing Workers in the Automotive Industry

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Abstract

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Dissertation Submitted in Fulfillment

of the Requirements for the Degree of

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Abstract

Little is known about the impact trade openness has on income inequality in developed nations. Researchers have demonstrated that income inequality and globalization largely benefit underdeveloped nations. However, there is little research that exists on developed countries such as the United States. The purpose of this quantitative study was to compare similarities between trade liberalization and income inequality among manufacturing workers in the automotive industry, specifically in the United States. This study was framed using the Heckscher–Ohlin theory. The study attempted to determine how trade liberalization has affected income inequality among the automotive industry in places such as Detroit, specifically as it has impacted automotive manufacturing workers in the last two decades. Additionally, trade agreements were explored, such as the North American Free Trade Agreement/United States-Mexico-Canada Agreement, which led to increased income inequality among automotive manufacturing workers in the automotive industry. The study used secondary data publicly available and considered national- and state-level census data over a period of time to compose the sample. Correlational methods were used to measure more than two variables to determine if there was any relationship. Results demonstrated that both total import consumption values and NAFTA import consumption values increased over the sample period of 21 years, there was a negative correlation between mean weekly wages and imports for consumption, and increasing NAFTA imports did have a negative impact on the wages of automotive manufacturing workers. These results may effect positive social change and offer solutions that minimize income disparities across a formerly bustling Rust Belt.

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Dedication

This dissertation is dedicated to my Great Grandmother Doris L. Smith. Her constant love, support, and encouragement in life, will forever be my driving force.

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I would like to acknowledge and give thanks to my committee for their expert guidance through each stage of my writing. Dr. Christopher Atkinson and Dr. Douglas MacKinnon provided sage advice and were critical in the completion of my research. In addition, I would like to thank Dr. Kristin Dailey for her contributions and reviews; each member of my committee has been an integral part of me completing my research. Dr. Atkinson, your commitment to your students, your passion for research, and your words of encouragement did not go unnoticed. Thank you, Mom, for believing in me and instilling in me that hard work always pays off. Today, tomorrow, and forever “anything in the whole wide world.” To my first Walden friend, Dr. Christina Martin, thank you for the pep talks, the impromptu information sessions, comradery, and support.

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Chapter 1: Introduction to the Study

In this study, I sought to examine trade liberalization and both the inner and outer workings of the concept. The research specifically addressed the automotive labor market in the Detroit metro area, income inequality, and trade liberalization policies. Trade agreements can offer a lot to a developing nation or underdeveloped nation; typically, the impacts of trade agreements increase economic well-being overall. However, there is rarely consideration for those that "lose" in globalization and trade in developed nations, and specifically in the United States. Through this study, I investigated those most negatively impacted by trade liberalization policies and more importantly how much they have lost. This research can be a useful tool to both quantify the impact of trade agreements and make recommendations, creating real-life solutions that minimize the impact and do not displace complete industries of workers.

Background References

In this section, I discuss selected articles about trade liberalization and income inequality as it relates to developed nations. First, Arabiyat et al. (2020) discussed the impact of trade openness, poverty, and inequality on inclusive growth. More specifically, the focus was on developing countries, and Jordan in particular. Arabiyat et al.'s research was relevant to this dissertation study as the authors analyzed specifically whether trade openness policies enhanced income inequality or reduced poverty. In addition, the authors went on to make recommendations for sustainable and inclusive growth.

Next, Boudreaux (2020) explained that in international trade, there are clear winners, but the losers are not always as obvious. The author pointed out that there are in

fact losers, and they often disproportionately come for the lower end of the income distribution ranks. This article had relevance for this dissertation research as it addressed specific characteristics of jobs and industries destroyed by trade.

In Burfisher et al.'s (2001) article, the authors went to great lengths to explore the political debate that surrounded the creation of the North American Free Trade Agreement (NAFTA). The authors detailed the arguments raised by NAFTA proponents and those opposed to NAFTA. The overall sentiment was that in the long run, NAFTA would create a greater demand for U.S. exports and have a relatively small impact on the U.S. economy. The authors, however, pointed out that no one considered that demand for goods produced in Mexico would also increase.

Similarly, Elliott (2000) discussed the role of domestic politics in the ongoing debate surrounding trade policy. The article addressed the role of labor issues in trade negotiations. The author detailed the history of negotiations and the debate over creating a fast-track negotiating authority for such matters. The article further suggested worker rights and domestic politics could affect negotiations in the World Trade Organization.

Gledhill (2018) presented the history of neoliberalism in addition to detailing advanced capitalism. The author detailed neoliberalism as a starkly utopian intellectual movement that turned into a Washington Consensus. The author mentioned that around the 1990s, the relationship between neoliberalism and capitalism were center stage. Not coincidentally, this period was around the time some of the larger trade agreements emerged.

McCulloch et al. (2002) linked trade liberalization and poverty. The authors pointed out that though trade liberalization and poverty matter individually, poverty is the greatest challenge to public policy. The authors questioned whether trade liberalization and poverty complement or hinder each other. Lastly, the authors argued poverty and trade policy are of critical importance.

Stephens (2002) claimed that trade liberalization and its many layers means workers are oftentimes the losers. One of the key points this article addressed was the displacement effects job loss has on people. The article detailed the negative earnings effects of job displacement and the life-cycle labor supply adjustments.

According to Torres and Miller (2017), Texas, a well-known distribution hub for goods coming out of Mexico, benefits greatly from free trade. Texas currently accounts for nearly 20% of total U.S. exports and is home to many manufacturing jobs. Even though Texas is home to many manufacturing jobs, industries have experienced harm. Torres and Miller detailed how leaders in Texas shifted employment and production to high-skill industries.

Finally, according to Weisbrot and Baker (2003), one of the many arguments surrounding trade liberalization is that developed rich countries have an obligation to expand trade to futher develop poor countries. This article explored costs associated with liberalizing trade in developing countries. Overall, these pieces of scholarship set the foundation for the present study as they provided different perspectives on trade liberalization and income inequality as it relates to developed nations.

Background

In wealthy countries, there are significant correlations between income inequality and social problems. The strength of these correlations is sensitive to factors such as different measures of income inequality, different measures of social stratification, variations in the countries selected, and other factors. Researchers have even suggested that the loss of life from income inequality in the United States in 1990 is the equivalent of the combined loss of life due to lung cancer, diabetes, motor vehicle accidents, suicide, and homicide (Rowlingson, 2011).

Studies examining the impact of trade openness have tended to focus on lesser developed and developing countries, and, therefore, researchers have had to consider factors such as foreign direct investment. Research on trade openness similar to Arabiyat et al.'s (2020) study has highlighted the fact that trade openness typically has a positive effect on income inequality in countries such as Jordan. Though trade openness has a positive impact in lesser developed nations, people know little about the impact in developed nations. Arabiyat et al.'s work was relevant as I sought to determine the impact trade openness has on countries such as the United States, and, in particular, for those employees who are often the most marginalized.

The impact of trade liberalization is often viewed through the lens of underdeveloped and developing nations, but rarely has it been examined in the context of developed countries. In addition, there has been no exploration into the various occupations and skill levels at the employee level. This study was needed because there is

no current research focused on automotive manufacturing workers in the Detroit metropolitan area.

Problem Statement

According to Arabiyat et al. (2020), existing research has emphasized foreign direct investment and trade openness in underdeveloped countries. However, there is little research that has addressed the impact trade openness has on income inequality in developed nations. More specifically, there is little research on countries such as the United States that explores inequality at an industry level.

Unlike political events and conflicts, trade liberalization polices and international trade are often seen as a direct result of globalization. Due to this connection, they have rarely been examined independently. Trade liberalization is often only viewed from a lens of global cooperation and peacekeeping rather than understanding the unintended consequences. Thus, there is a need to examine the implications of trade liberalization policies independently of globalization or international political economy.

The benefits of trade liberalization policies are often considered in terms of developing and underdeveloped nations. Existing literature has focused heavily on globalization, gross domestic product (GDP), and the development of nations. However, there is little background that has addressed developed and industrialized nations and the benefits or downsides of increased trade in those nations. In countries such as the United States that are considered postindustrial, I found no existing research that sought to examine a correlation.

When exploring existing trade liberalization studies, I found a gap in knowledge surrounding income inequality among workers in the automotive manufacturing sector. More importantly, how income is impacted by trade liberalization in this demographic. Using trade theory and a quantitative methodology that measures productivity, I sought to fill this gap in knowledge by focusing specifically on comparing income inequality across two of the more developed nations in the world. This information could be useful to policymakers as they move forward in developing policies to minimize inequalities as a result of trade liberalization.

Purpose

The purpose of this quantitative study was to examine correlations between trade liberalization and income inequality among automotive manufacturing employees in the automotive industry, specifically in the United States. In this study, I examined income inequality and trade liberalization as key independent variables.

Research Questions and Hypothesis

The first research question I sought to answer was as follows: How has trade liberalization affected income inequality in the automotive industry in places such as Detroit among automotive manufacturing workers in the last 2 decades? In addition, I set out to answer the following question: How have trade agreements such as NAFTA/United States-Mexico-Canada Agreement led to increased income inequality in cities such as Detroit among automotive manufacturing employees in the automotive industry?

As it related to the first research question, my hypothesis was that trade liberalization has negatively affected automotive workers in the Detroit metro area. Through this study, I sought to show correlation between trade liberalization policies and income inequality to indicate that since the inception of NAFTA specifically, income inequality in the Detroit metro area has increased.

Theoretical Framework

The Heckscher–Ohlin theory relates bilateral trade flows between two countries to differentials in their capabilities (Baskaran et al., 2011). In other words, the model predicts countries will specialize in the production of such goods that necessitate capabilities with which they are abundantly endowed. As a result, these countries tend to export these goods and import those that contain capabilities with which they are poorly endowed.

Traditional trade theories fall between two approaches: Ricardian and Heckscher–Ohlin (Ince et al., 2011). In the Ricardian approach, relative labor productivity differentials alone generate a basis for trade across countries. Conversely, the Heckscher–Ohlin approach assumes that identical production functions for the same commodities over the world and the possibility of technological differences in terms of differences in relative capabilities. The Heckscher–Ohlin theory again indicates that trade increases the demand for goods produced by a country's abundant resource. In most developing countries, the abundant resource is labor. The theory thus predicts an increase in demand for labor-intensive goods. A caveat is that facilitating trade provides a developing country

the opportunity to learn from and imitate more advanced technologies of the developed world.

Conceptual Framework

Scholars have frequently described comparative research as the contrast between different macrolevel units at any one or more point in time (Esser & Vliegenthart, 2017). These macrolevel units include world regions, countries, subregions, social classes, or cultures. Those using the comparative research method seek to make a conclusion that explains both differences and similarities between objects of analysis and relations between contextual conditions. This type of research design proves useful at helping to enhance the understanding of political, economic, and other systems.

Trade policy is a form of policy study. In particular, policy studies from all viewpoints are naturally limited in number (Rihoux & Grimm, 2006). For instance, there are only so many nation states, regions, sectors, or population groups to study from a relevancy standpoint. Those using a comparative research design seek to compare material in a more formalized manner and provide useful applied tools for policy analysis. Therefore, a comparative research design proved to be beneficial in the context of this study.

The use of comparison in studies of society and culture has a long history (Azarian, 2011). There is a link between comparative study in the field of social theory and Greek antiquity. In more recent times, due to certain historical developments such as technological advances and globalization tendencies, individuals have paid much

attention to comparative research, especially as it relates to cross-national comparison. As a result, many social sciences studies use comparative approaches.

In this study, I employed Heckscher–Ohlin theory, an economic theory of comparative advantage in international trade that seeks to explain trade behavior (The Editors of Encyclopedia Britannica, n.d.). Countries that have an abundance of capital but are limited in labor tend to export. On the other end of this spectrum, countries that have an abundance of labor seek to export labor-intensive products and import capital-intensive products.

In this study, I also addressed concepts of income inequality and trade liberalization. Income inequality is an economic term that refers to the extreme disparity in the distribution of income across individuals, groups, and social classes. Income inequality is a critical element of social class structures in most societies (Howard & Carter, 2020). Trade liberalization is not a single concept; rather, it comes as the result of various economic forces. Trade liberalization is the continued growth in trade that is a result of technology developments and reduction of trade barriers (IMF Staff, 2008).

Nature of Study

Quantitative methods place a great deal of emphasis on objective measurements and the statistical, mathematical, or numerical analysis of data (University of Southern California Libraries, 2021). This fact is important to mention in this case that people can collect data by manipulating preexisting statistical data using computational techniques. This method focuses on gathering numerical data and generalizing them across groups of people or to explain a particular phenomenon. The ultimate goal in conducting a

quantitative research study is to determine the relationship between one component (i.e., the independent variable) and another (i.e., a dependent variable) in a population.

A comparative study of public policies relies heavily on assigning numbers to social, economic, and political phenomena with the underlying goal of examining their relationships (Breunig & Ahlquist, 2014). Quantitative analysis allows for understanding policy variations and their political causes. A comparative study of public policies also relies on assigning numbers to social, economic, and political phenomena with the goal of examining their relationships.

Quantitative analyses have informed some key debates in the field of international relations (Mansfield & Pevehouse, 2008). Quantitative analyses are now increasingly common in this particular field. Additionally, associated with this rise of statistical approaches, researchers have become increasingly interested in the role domestic politics and international institutions play in shaping global outcomes. Lastly, and most importantly, although some have criticized quantitative approaches as lacking theory, statistical work in the field of international relations has advanced an overall empirical understanding that has pushed theoretical boundaries.

Definitions

Automotive industry: Includes industries associated with the production, retailing, and maintenance of automobiles. Although the North American Industry Classification System (NAICS) does not formally define this industry, the U.S. Bureau of Labor Statistics (2022) has referred to this group as the automotive industry for analysis

purposes. In addition, the industry consists of other industries that changes in the production or sale of motor vehicles may impact.

Developed country or *industrialized country*: These countries often possess sophisticated economies far more mature than those of less developed nations (Business Development Bank of Canada, n.d.). On average, residents tend to have higher average incomes. In addition, these nations have better education, health care, and technological infrastructure.

Globalization: Can be the act of globalizing or simply refer to a state of being globalized. By definition, it is the development of an ever-growing and integrated global economy (Merriam-Webster, n.d.-a).

Manufacturing labor or *blue-collar labor*: Refers to the type of labor that I focused on in this study. Oftentimes, these workers do work that requires strength, physical skills, or trades (Cambridge Dictionary, n.d.). This type of labor is less likely to be done in an office or cubicle.

The Rust Belt: Refers to states in both the northeastern and midwestern portion of the United States (Merriam-Webster, n.d.-b). Heavy industry and manufacturing typically sustain these states, but these industries have seen sharp declines.

Trade policy: In the United States, trade policy is enacted through Congress by laws authorizing trade programs (Cimino-Isaacs, 2021). These programs seek to address unfair trade and provide oversight. Trade policy takes place in the form of programs agreements, trade remedies, and sanctions.

Assumptions

In this study, I assumed the opinion of workers and those negatively impacted by globalization and reduced trade barriers. Indeed, groups of people like farmers, academics, economists, and ecologists are skeptical of globalization. Most opposed to trade liberalization are those not convinced of the gains, but more importantly, they have great concern about the risks associated. The one commonality these groups of individuals have is they fear trade liberalization widens the gap between the poor and the rich (Tang & Kets, 2003). It was these perspectives that I brought with me to this study.

Scope and Delimitations

Research surrounding the impact of trade liberalization policies and income inequality in developed nations is scarce. Specifically, there is little research that has addressed the effect that trade agreements have had on income inequality in a developed nation such as the United States. Through this study, I sought to address the correlation between income inequality among manufacturing workers and trade liberalization policies.

Individuals specifically know Detroit as the automotive hub in the United States. Because of this, I primarily focused on this city's location and population in this study. The study pointed to concepts such as neoliberalism. Neoliberalism is steeped in policies that are market oriented, often including policies that lower trade barriers. Though previous polices have focused heavily on the benefits and developing countries being the "winners" of trade liberalization, there is very little discovery as it relates to the losers of reducing trade barriers.

Limitations

As with any study, there were strengths and limitations in this research. Quantitative studies of this nature are no different. One of the larger limitations this research had is that using a correlational study did not provide a conclusive reason for the existence of a correlation. When considering other methods of analysis, the limitations still remained as sometimes in quantitative studies, the techniques a researcher uses might add unnecessary complexity. Though a researcher cannot fully eliminate limitations and challenges completely, there are a few actions they can perform to minimize limitations. Choosing the most appropriate methodology that suits the study and considering the specificities of the study are widely adopted methods of minimizing limitations (Queirós et al., 2017). Therefore, in this study, I reduced potential limitations by selecting the most appropriate methodology and using correlational methods.

Another limitation of this study was the demographic. The NAICS is self-assigned and declared by companies. In this study, the automotive manufacturing NAICS code was used as the primary method of identifying employees for the purpose of this study. A limitation is that the NAICS code is not further split by specific job skill or type. All employees considered in this study did in fact work for companies that identified as automotive manufacturers. However, there was no distinguishing between those employees who worked on the manufacturing floor or those who were in executive roles.

Significance

Most trade policy research has led to welfare analysis in the Ricardian, Heckscher–Ohlin, and specific factor models and has placed significant emphasis on the

redistributive effects of free trade by calculating changes in real incomes. As it relates to the United States, most authors have sought to explain why protectionism can improve national welfare, rather than explaining how to evade protectionist matters (Suranovic, 2010).

In recent years, the capital-to-labor income ratio has increased disproportionately among high-earning individuals, further contributing to income inequality (Hoffmann et al., 2020). However, the predominant driver of increased income inequality in recent decades has been the growth in labor earnings. Most notably, educational factors have accounted for widening gaps among different education groups; individuals have largely linked these gaps to a growing fraction of highly educated workers.

There is a strong correlation between the importance of the relative development of the trading partner, with more developed countries experiencing higher upskilling and less developed countries experiencing deskilling (Sun et al., 2019). Research has also found factors such as technology, geography, sector, and gender to be important influences on human capital acquisition associated with international trade. Evidence has revealed that trade with developing countries places pressure on low-skill jobs in developed countries but increases demand for educated workers. The implications of these patterns include a shift in skills, creating a new crisis for public policymaking.

Research exists on income inequality and trade liberalization independently. However, scholarship on trade liberalization policy has focused largely on the benefits, or lack thereof, gained by less developed countries. Through this research, I sought to examine the impact of trade liberalization on income inequality in the United States.

Summary

The purpose of this study was to examine the impact of trade liberalization policies on income inequality. As previously mentioned, winners in reduced trade barriers are clear, but individuals often do not engage the losers of reduced trade barriers in their analysis. In this study, I examined theoretical frameworks and key concepts that focused largely on the losers in developed countries of global trade and trade policy. The next chapter addresses the existing literature and ideas surrounding global trade, policy, income inequality, and the automotive industry in greater detail.

Chapter 2: Literature Review

In this chapter, I discuss published literature and research that related to this study. The purpose of this study was to examine the correlation between trade liberalization policies and income inequality among workers in the automotive industry. The literature I examined in this chapter gave insight on issues, studies, and concepts relevant to this dissertation research. In this chapter, the consistent theme is that by and large, the issues are not industry specific, nor do they focus on developed nations.

This study focused on the impact trade liberalization has on income inequality, particularly among automotive manufacturing employees in the automotive industry. The purpose of this study was to address the gap in the literature that exists on the impact for workers in the automotive industry in developed nations like the United States.

The social problem I addressed in this research was that there is an association between income inequality and other social problems. The literature has focused largely on underdeveloped nations (Arabiyat et al., 2020). However, there is a gap in the literature related to developed nations. The keywords I used in search of articles in journals and various publications for this literature review were *trade policy, trade liberalization, income inequality, foreign direct investment, free trade agreements,* and *labor force displacement*.

Trade liberalization remains an important yet controversial component of the globalization process as it relates to economies (Kaltenthaler et al., 2004). The consequences of trade liberalization have generated a contentious political debate. World Trade Organization meetings continue to be met with large public demonstrations and

strikes, as protestors of trade liberalization have taken to the streets worldwide in places like Seattle, Washington D.C., Prague, Quebec City, and Genoa. Even with the presence of protests, many government leaders have remained convinced that trade liberalization, as well as the increased flow of international goods, services, and capital across countries, yields positive long-term economic results. Meanwhile, leaders in the World Bank have taken the position that abolishing all trade barriers could increase global income and lift millions of people out of poverty (Kaltenthaler et al., 2004). What is evident from these perspectives is the complicated relationship that various constituents have to trade liberalization.

Global inequality is a fairly recent topic. Initial discussions surrounding inequality globally emerged in the early 1980s. It is important for individuals to keep in mind that to calculate global inequality, one needs to have data on national income distributions for many countries in the world, or at least those countries people consider heavily populated and developed. These data became available only around the mid 1980s for the following nations: China, the Soviet Union and its constituent republics, and large parts of Africa (Milanovic, 2006). Therefore, discussions of global inequality are still in their infancy.

Expanded trade is a key driver of prosperity for developing countries (Weisbrot & Baker, 2003). For years, people's views on this issue were that if industrialized countries eliminated trade barriers in apparel and agriculture, it would provide a foundation for growth in developing nations, allowing many to be removed from poverty. Though this view is partly true, many other factors contribute to growth.

In developed countries in the last 2 decades, there has been a shift in demand away from unskilled labor in favor of skilled workers; researchers have proposed two explanations that seek to explain this shift in the relative demand for skilled labor: the impact of trade on low-wage (i.e., developing) countries and skill-based technological change (see Berman et al., 1994; Berman et al., 1998; Gosling & Machin, 1994; Wood, 1995). Most results in research areas have suggested that people often think the latter explanation to be more important in explaining the relative shift in labor demand. The chief argument is that skill-based technological change must be present because both employment of skilled workers and relative wages trend in the same direction across industries (Galiani & Sanguinetti, 2003).

Economic growth is an essential part of poverty reduction for developing countries. International trade can be a major contributor to economic growth, thus helping poor countries escape poverty (Mitra, 2016). China and India are great examples of the positive effects that trade can have on poverty. Both countries have seen poverty reduction because of trade reforms. Again, a 2-step solution in this situation includes economic growth that spurs the reduction of poverty. International trade leads to gains through production specialization and exchange of goods/services due to the availability of a larger variety of intermediate goods. Consequently, this form of trade can be part of the solution to addressing poverty.

Poverty itself is one of the greatest challenges in public policy. For many government leaders, reducing poverty is a key objective (McCulloch et al., 2002). Trade liberalization is a key part of the process in doing so. Public policy leaders know that

poverty and income inequality are often a result of a myriad of issues that include lack of assets, lack of access to resources, poor health and education, and geography/location. The link between income inequality/poverty and trade liberalization policies is not an actual link; rather, one is a strategy to alleviate the other in developing nations.

I considered three aspects in this study. The first was trade liberalization and its impact on underdeveloped or lesser developed countries (LDCs). The second was trade liberalization and income inequality in developed countries, and more specifically, those considered NAFTA or United States–Mexico–Canada Agreement (USMCA) territories, including the United States, Canada, and Mexico. The focus of this study was specifically on the automotive manufacturing industry. The third was the overall impact of NAFTA and USMCA both in general and on the automotive sector.

Literature Search Strategy

The search strategy for this literature review focused largely on the topics most relevant to this study. The keyworks I searched for included *trade policy, trade liberalization, income inequality, developed nations, foreign direct investment, free trade agreements,* and *labor force displacement*. Research exists in the academic community, but it also exists at the federal level. Databases that contained a wealth of information included Political Science Complete and Business Source Complete Combined Search, Political Science Complete, SAGE Journals, and the World Bank Open Knowledge Repository.

Possible Types and Sources of Data

The data collection types included publicly available data published by both local and federal governments. The types of sources and data included the following:

- Census Bureau reporting on income inequality,
- Census Bureau international trade data,
- Economic Policy Institute, inequality by metro areas in the United States,
- and Detroit Metropolitan Statistical Area (MSA) Statistics.

Theoretical Framework

As a great economic historian, Heckscher had an idea his student Ohlin popularized. Heckscher's most lasting contribution was to emphasize that trade in goods was merely a veil or for physical appearance; at its core, the Heckscher–Ohlin (H–O) theory is about trade in the underlying factor services (Fisher, 2011).

According to H–O theory, market integration and globalization are beneficial to growth, but there is still an open question as to whether opening trade has stabilizing or destabilizing effects on the world trade market (Iwasa & Nishimura, 2014). In a perfect foresight model with numerous consumers, a competitive equilibrium often acts similarly to an optimal growth path. Adding to that, a country's business cycles (e.g., 2-period cycles) can spread throughout economies when trade opens.

An attractive feature of H–O theory is that it requires minimal assumptions about both preferences and technology (Ruiz Nápoles, 2020). The sole sufficient condition is that the economy experiences gain from trade. The autarky factor price formulation of H–O theory benefits from the classic insight about the critical role of prices in a market

economy. Neoclassical trade has stemmed largely from the H–O theory, a theory that has survived criticism for many decades and remains the basis for conventional free market trade policies.

When observed, autarky factor prices represent all the relevant information about an economy's intrinsic factor supply and demand conditions. The H–O theory is cast in a Walrasian framework (Bernhofen & Brown, 2016). Due to their relative product homogeneity and atomistic competition, most economies of the 19th century were much closer to the Walrasian economy assumptions than contemporary economies. The autarky price formulation of the H–O theory provided in Deardorff (1982) requires compatible data from a market economy. The standard H–O formulation assumes technologies remain the same across countries (Bernhofen & Brown, 2016). A key advantage of testing the H–O theory as it relates to one single economy setting is that there is no need to assume identical technologies. An additional assumption is required unless a person measures the factor content of trade with technologies at the location of production.

Trade policy is a form of policy study. Policy studies from all viewpoints are naturally limited in number. For instance, there are only so many nation states, regions, sectors, or population groups to study from a relevancy standpoint. Those using a comparative research design seek to compare material in a more formalized manner and provide useful applied tools for policy analysis (Rihoux & Grimm, 2006).

The use of comparison in studies of society and culture has a long history. People have linked comparative study in the field of social to Greek antiquity (Azarian, 2011). In more recent times, due to certain historical developments such as technological advances

and globalization tendencies, individuals have paid much attention to comparative research, especially as it relates to cross-national comparison. As a result, many social sciences studies include comparative approaches.

The comparative study of public policies relies heavily on assigning numbers to social, economic, and political phenomena, with the underlying goal of examining their relationships (Breunig & Ahlquist, 2014). Quantitative analysis allows for understanding policy variations and their political causes. The comparative study of public policies also relies on assigning numbers to social, economic, and political phenomena with the goal of examining their relationships.

Another theory referred to frequently when discussing H–O theory is Ricardian theory. Similar to H–O theory, Ricardian theory uses comparative advantage assumptions to prove that international trade takes place because of the efficiency in production of the exported product (Yap & Selvarantnam, 2021). A country will export products that use its abundant and cheap resources and import products that use its scarce resources. It is important to note that the Ricardian model could be misleading due to having several limitations that restrict its usefulness.

Policy Framework

The two-level game metaphor, originally developed by Putnam (1988, 1993), places emphasis on the collaborative process that occurs when a national leader finds themselves negotiating international agreements simultaneously at home and abroad. The focus is on how preferences and influence of domestic groups often define the size of a country's outcome in international negotiations. A positive outcome is an acceptable term

negotiated by a country. The overlap of two or more country's acceptable outcomes is where they likely find agreement. In policy and negotiations, the size of each respective country's gain affects the likelihood they might reach an agreement (Elliott, 2000).

Throughout global history, governments have used various policy instruments to enforce import protection (Brown, 2015). Prior to the use of multilateral trading system that people know of today, tariff and nontariff barriers were very high. In addition, there were a number of political–economic situations that led to the creation of the General Agreement on Tariffs and Trade (GATT), which 23 parties signed. The purpose of the GATT was twofold. First, the hope was that the GATT would encourage countries to reconsider quantitative restrictions along with other nontariff barriers. Second, the aim was to encourage collaboration among its participants in the form of periodic negotiations, with the goal of exchanging concessions that lowered barriers to trade.

Early trade policy in the United States used trade policy to earn sufficient revenue for the startup government (Meissner, 2019). Post-Civil War through the early 1930s, manufacturers and the Republican Party actively advocated for and attained high tariffs. Confronted with a global economy and foreign tariffs that had increased at record rates, the Roosevelt administration pursued a policy of reducing U.S. tariffs in exchange for better access to foreign markets for U.S. producers. This policy idea was the driving force for most of the rest of the 20th century and into the pre-Trump 21st century.

Regional tensions have and will continue to play an important role in shaping trade policy (Kucik, 2018). Prior to the Civil War, those in agriculture lobbied for liberalization in hopes of competing in the global market. In the North, emerging

industries (e.g., automotive) sought insulation from more established competitors abroad. Even in fast forwarding to current day, U.S. farming still heavily favors trade liberalization, and the manufacturing sector favors protectionist measures. Current industrial decline mirrors the preindustrial vulnerability of the Antebellum United States. These competing interests and finding creative and fair ways to manage them has always been a big hurdle of trade policy.

It is important to consider economic order and events when looking at free trade agreement (FTA) policy in the United States, and particularly, the dynamics of the international economic order. Intense competition for bilateral trade agreements often leaves the United States in situations it cannot easily lead. Constraints of the international system have limited the degree to which FTAs can serve the interests of U.S. foreign economic policy.

Key Concepts

Multinational and transnational corporations shape global governance; however, there are some limits of corporate power. Corporations in any given situation can be sponsors, inhibitors, and direct participants of global governance (Bartley, 2018). Historically, corporations have played roles in sponsoring neoliberal trade rules; constraining labor and environmental systems; and serving as private backers for finance, safety, sustainability, and human rights. Transnational corporations are the pillars of a cohesive class of investors. These investors are capable of and very often demand forms of global governance that facilitate the accumulation of wealth and facilitate capitalism.

Multinational corporations are a prime indicator of globalization, this section details the key concepts of this study.

Another consideration outside of ordinary policy is the concept of institutionalism (Dür, 2009). Multinational corporations help to shape institutional rules that guide U.S. trade policy. The constant struggle that is a result of political disagreement between liberal and conservative policymakers shifts trade influence from political to more technocratic actors and impedes protectionist interests and access to decision makers. This outcome has had a profound impact on policy outcomes and is ultimately what led to the liberalization of U.S. trade policies and became the central element of globalization. Historically, Congress enforced just enough protectionist policies to satisfy the calls of declining sectors and used the authority granted to it to move U.S. trade policy toward trade liberalization. Corporations managed to change the institutional structure that shaped U.S. trade policy in a way that put protectionist interests at a long-term disadvantage.

People often view a multinational corporation (MNC) as a progression of a national corporation that has "gone global" (Anguelov, 2014). This process happens by building subsidiaries abroad that become more valuable than home-country operations. Going global leads to more acquisition and mergers over time. These outsourced locations are typically characterized by high-knowledge intensive components that have a great deal of added value. In most cases, the nationality of a company does not matter. A justification for this process is often that benefits accrue to the host nation rather than the home nation. For years, corporations have pushed liberalization policies through

reinvestment taxes. In addition, MNCs often beholden to shareholders are evaluated by total profits from global operations. Trade liberalization helps MNCs operate with ease globally and achieve greater profits for shareholders.

The economic process of liberalization, privatization, and globalization is reflected in the rapid growth in international trade and the surge of foreign direct investment. A large contributing factor is the investment from MNCs (Kumaran, 2008). The automotive industry is no exception to this. MNCs seek to exploit precarious market potentials in developing economies. Foreign investors and MNCs search for locations that have abundant resources, infrastructure, and quality institutions.

Theorists explore neoliberalism in terms of both political economy and the development of new techniques for governing people (Gledhill, 2018). In many cases, those seeking to understand political economy and development examine the intersection of both. Neoliberalism is relevant in most advanced capitalist societies and heavily influenced by local historical factors and postcolonial settings. It is useful to frame neoliberalism as a global process.

The dominant ideology of neoliberalism is prevalent and visible in the public policies of many governments in developed countries (Navarro, 2007). The logics of neoliberalism are also present in large international agencies such as the World Bank, International Monetary Fund, and World Trade Organization. Neoliberal ideology suggests the reduction of state interventions in economic activities and the deregulation of labor and financial markets have contributed to capitalism, thus creating an unparalleled era of social well-being in the world's population. In addition, neoliberal

policies have been responsible for the advancement of social inequality in the countries where leaders have applied such policies. Those that benefit from these policies are often in the upper classes of developed countries and have well-known global connections that are the primary drivers of neoliberalism.

Protectionism

Protectionism is an economic policy that seeks to restrain trade between nations (Ngono Fouda, 2012). This policy happens in most cases by implementing restrictive government regulations designed to discourage imports and ultimately prevent foreign influence over domestic markets and companies. Protectionism is a term synonymous with economics and refers to policies that protect businesses and living wages in a country. The concept dates to Adam Smith who famously warned against the globalization of industry, and specifically, industry seeking to gain advantage at the cost of the consumers. Most economists understand at a fundamental level that protectionism is harmful because the costs outweigh the benefits, and by and large, it hinders economic growth.

The financial crisis that came to a head in September 2008 came on the heels of the credit crunch that started a year earlier (Erixon & Sally, 2010). The financial crisis and credit crunch ended up being events that transformed a benign global political and economic environment into something more malign. This same global economic crisis triggered a big shift in ideology and policies. Ideology transitioned from acceptance and free markets toward a demand for government interventionism.

In more recent years, the U.S. presidential administration has emphasized three recurring themes regarding trade policy: (a) trade balances, (b) currency manipulation, and (c) trade agreements (Noland, 2018). In some cases, a strategy has been to withdraw the United States from agreements as a method of demanding renegotiation. In more recent years, leaders in the United States have implied that unfair trade agreements and trade balances provide the explanation for the deficit problem and act as the starting points for a solution. With arguments surrounding unfair trade balances and the deficit problem, much of modern-day U.S. policy focus has been on China.

The China–United States trade war has been ongoing since 2017 and has contributed to economic backlash and geopolitical competition (Sheng, 2019). The present-day trade war is merely a continuation of more conservative U.S. trade policies rather than a spontaneous new development. The desired outcome is to stabilize the economic power of the United States. It is important to note that the trade war not only targets China but similarly sized and capable Western allies. In a nutshell, trade wars are instruments to facilitate trade policy adjustments

Globalization

The term globalization recently emerged with people starting to use it in a widespread manner in the early 1990s (Eriksen, 2014). Globalization is actually linked to an earlier phenomenon, because transnational connections existed long before people used the term globalization. Globalization points to transnational connectedness and consists of economic, political, cultural, and environmental aspects. Though globalization facilitates the creation of new opportunities, constraints, and possibilities, it also leads to

several vulnerabilities. Globally, there is a constant debate surrounding the decision to globalize or localize.

The worldwide process of social change is globalization. Globalization became the most widely talked-about issue during the tail end of the 20th century (Hsu, 2021). The widespread nature of discussions regarding globalization was especially true for the Western world. It is a triggering word for politicians, journalists, and social scientists. Individuals consider globalization to be a key driver of many social transformations such as the following concepts: (a) spread of new information and communication technologies; (b) rise of new forms of social identity; (c) acceleration of certain types of economic, cultural, and political activity; and (d) development of new environmental hazards such as climate change.

Politicians and economists alike rallied for globalization via trade agreements based on the promise of job creation (Stiglitz, 2017). They overestimated the gains, and the costs included unfavorable distributional effects. Many politicians and economists ignored the distributional consequences because they believed they would lead to growth. Instead of asking the right questions, politicians asked: What is the comparative advantage and strength of the economy today? The answer (i.e., cheap labor in China) meant a comparative advantage in labor-intensive manufacturing. This cheap labor led firms to shift their production from the United States to China.

This shift in labor intensive manufacturing leads to the obvious relationship between globalization and inequality throughout history (Khondker, 2017). In the last century, globalization reduced international inequality and drastically increased

intranational inequality. The two processes are interrelated. Ever-present globalization leads to growing intranational inequality, which threatens economic, political, and social stability.

Trade Liberalization

Outside of NAFTA, another significant trade development for the United States and Mexico was the introduction of its maquiladora program, which facilitated the establishment of export assembly plants in labor-intensive industries such as auto parts (Blair, 2016). Many of these plants have U.S. parent companies and are in some cases based along the U.S. border. Currently, much of the trade between the United States and Mexico is based on a vertical supply chain relationship with intermediate goods produced in the United States returning to the United States from Mexico in the form of finished products. U.S. official data for manufacturing exports and imports to and from Canada and Mexico indicate that for several categories, a pronounced two-way trade pattern has developed, thus suggesting the existence of strong supply chain relationships between the United States and its NAFTA partners.

Industries built maquilas along the Mexico–U.S. border because of the Border Industrialization Program (Tuttle, 2021). Mexico's then minister of industry and commerce, Octaviano Campos Salas, adapted this new development. It initially consisted of a 21-kilometer free trade zone along the entire border. Individuals define a maquila or maquiladora as an entity operating under a special customs regime that enables companies to import duty-free raw materials, equipment, machinery, replacement parts, and other items needed for the assembly or manufacture of finished goods for subsequent

export. The Mexican government began the program as a regional promotion with the intent of spurring industrial growth. According to Tuttle, in 1966, there were 57 maquilas employing 4,257 people, and by 2004, there were 2,800 maquilas employing well over 1 million people. The number of maquilas and employees climbed until 2007 when the number of people employed had nearly doubled to 2 million.

As a result of increasing competition, the government of Mexico applied additional changes with the intent to encourage more maquiladoras to leave low-tech, labor-intensive industries and move toward higher value-added, technology-intensive sectors (Castillo & de Vries, 2018). In early 2000, Mexico's government offered incentives in the form of tax cuts to maquiladora firms that engaged in research and development activities specifically in the software industry. The Mexican government placed its focus on attracting new partners engaged in applied research, product development, product testing, and high-tech manufacturing. The industrial policy in Mexico gradually shifted from viewing maquiladoras as providers of low-cost employment to promoting them as sourcing of intermediates.

FTA

The United States has had an FTA with Israel since 1985, with Canada since 1989, and they then expanded to include Mexico, later becoming NAFTA (Cooper, 2014). During the Bush Administration, the United States' interest in bilateral and regional FTAs surged, which further accelerated the pace of negotiations and led to the enactment of the Trade Promotion Authority in August 2002. In the United States, participation with FTAs can only occur with the consensus of Congress.

NAFTA is one of the most scrutinized trade deals ever implemented (Green & Payan, 2017). The scrutinization is not only because of the size of the North American region NAFTA encompasses but also because it laid the foundation for subsequent trade policies throughout the world. It is important to remember that tariff reductions alone included as part of NAFTA have not been the main cause of major changes to trade. About 25% of current U.S.–Mexico trade is a result of NAFTA tariff reductions. For segments of certain industries—mostly agriculture, electronics, and autos—adjusting NAFTA tariffs could have a substantive impact. More notably, NAFTA boosts U.S. exports more than Mexico's. Hence, as a means for the United States to raise aggregate GDP, boost manufacturing employment, or address the trade deficit, renegotiating NAFTA holds little potential.

NAFTA

For this research, it is important to understand how NAFTA works. NAFTA along with other FTAs use rules of origin (ROOs) to determine product qualification or applicability to a particular FTA. ROOs came about to attract researchers' attention (Yi, 2015). At their core, ROOs serve as a way of checking free riders who want the benefits of participating or using an FTA without paying the costs associated with FTA membership. Due to this concern, customs places scrutiny on origin certification and verification procedures. For exporters or producers to obtain a physical NAFTA, the burden of proof often requires expensive accounting and inventory systems. In practice, validating NAFTA becomes an act of balancing the rights and responsibilities of the producer and the importer. A producer for instance has sufficient knowledge of the origin

of their product, but the importer is responsible for the payment of tariffs. If the producer, through fraud or negligence, provides false origin information about their products, courts can hold the importer liable and often penalize them.

Rules of origin under NAFTA are strict (Freund, 2017). There is a great deal of variation from product to product, and the regional value content (RVC) requirements were higher than in similar agreements. ROOs expand the type of value-added activities that parties must produce regionally; the protection intended for the finished goods also transferred to the parts used in production. This model leads to parties using regionally produced parts even when foreign parts are less costly. The goal is to use more components produced in Canada, Mexico, or the United States, but what tends to happen is that inefficiencies due to application of ROOs raise the price on finished goods. ROOs shift the efficient production of parts to Canada and Mexico, creating a welfare loss for U.S. citizens who face higher prices cuts in domestic jobs.

There is a general tendency to associate FTAs all too closely with free trade. In general, there is a lack of awareness of some of the more problematic beyond-the-border features of current trade agreements (Rodrik, 2018). The evolution of trade agreements has pushed them beyond import tariffs and quotas to regulatory rules and other policies such as intellectual property, health and safety rules, labor standards, investment measures, and investor–state dispute settlement procedures. Trade agreements empower politically motivated firms, international banks, pharmaceutical companies, and multinational firms especially. Trade agreements could still result in freer, mutually beneficial trade through exchange of market access. Instead of resulting in a global

upgrade of regulations and standards, trade agreements continue to redistribute outcomes and incomes under the guise of free trade.

Individuals link trade liberalization to rising wage dispersion in developed countries and to the reverse in developing economies (Robbins, 1996). It is important to note that in LDCs, studying trade impact can be quite difficult to understand. There are two pieces of context to consider. Trade constitutes a far higher GDP in LDCs, and secondly, major trade policy changes occur far more frequently in LDCs. It is also significant to note that when looking at LDCs in Latin America, their primary supply consists of unskilled labor. The only exception to LDCs not having a primary source of unskilled labor would be China, Taipei, and Malaysia, which are the largest producers of manufactured exports.

NAFTA itself was controversial when initially proposed (Villarreal & Fergusson, 2014). This reaction occurred mostly because it was the first FTA involving two wealthy, developed countries and a developing country. The ongoing political debate was divisive with some proponents arguing that the agreement would help generate thousands of jobs and reduce income disparity in the region. However, opponents largely warned that the agreement would cause huge job losses in the United States due to companies moving production to Mexico in favor of lower costs.

Before the introduction of NAFTA, the United States maintained relatively low restrictions on Mexican manufacturing, and specifically on imports (Torres & Miller, 2017). Around 1965, Mexican export assembly and processing plants along the U.S–Mexico border started to see benefits from advantageous U.S. duty regulations. Prior to

the signing of NAFTA, the average U.S. tariff on imports from Mexico was 2.07% and 10% was the tariff Mexico applied to U.S. exports. Under NAFTA, the exchange of manufactured goods flourished between the United States and Mexico, but its impact on employment was less homogeneous.

USMCA

Twenty-five years later, NAFTA's renegotiation was rife with drama. Canadian Minister of Foreign Affairs Chrystia Freeland predicted as much (Condon, 2018). The negotiations took place alongside a slew of unilateral trade measures due to Trump's mercantilist approach to trade policy. It is important to note that NAFTA countries are largely bilateral in nature when it comes to economic, political, and cultural relations. However, in the automotive sector, the nature of the relationship is trilateral. Outside of trilateral sectors, the relationship between Canada and Mexico is a minor factor. In the case of renegotiations, replacing NAFTA with a bilateral agreement would have been a disadvantage for Canada and Mexico in comparison to the United States, especially as it relates to attracting foreign direct investment.

The USMCA was the first opportunity for the Trump administration to showcase their America First trade policy (Alschner & Panford-Walsh, 2019). When comparing the USMCA to its predecessors, it copied 57% of its text from the Transpacific Partnership, which Trump backed out of upon taking office. It is also necessary to note that the USCMA is more of a continuation rather than a withdrawal from prior versions. Notable remnants of NAFTA are present, such as multinational panels to review trade remedies, but there are also new considerations that include: (a) modernizations such as digital

trade, (b) a focus on U.S. domestic policy priorities (e.g., gender rights), and finally, (c) technical changes.

USMCA modifies the NAFTA ROOs and increases the RVC specifically for vehicles and vehicle parts origination in North America (Burfisher et al., 2019). Initially at 62.5%, the RVC was 75% at the time of this study. There are also new requirements related to where industries source their steel from, as well as aluminum and core parts such as engines and transmissions. Though Canada and the United States have the capacity to meet these rules, only 70% of Mexico's vehicle production will meet this requirement. Mexico has chosen instead to pay relatively low tariffs in the United States and make more economical sourcing decisions.

Income Inequality

Income inequality often stems from a combination of fewer jobs and increased competition (Lewis-Bynoe et al., 2002). Decreasing import barriers has several main effects on domestic companies; it increases import competition and reduces domestic market share. To then remain competitive, domestic companies must reduce costs that decrease their revenues. Inefficient companies/producers specifically face a challenge when import barriers are decreased.

It is important to note that there is no equivalent to GDP—a government-run standardized, documented, continually updated, and broadly recognized methodology—for the measuring of income inequality. The research community has instead worked to develop distributional national accounts that provide consistent estimates of inequality capturing 100% of the amount of national income and household wealth recorded in the

official national accounts (Saez & Zucman, 2020). It is also imperative to note that there is a gap between income recorded in data used to record traditionally to study inequality and household surveys for income and tax returns. The portion of national income reported in individual income tax data has declined from 70% to about 60% over the last 40 years. Additionally, the gap is even larger in the current population survey, which does not capture top incomes well.

High income inequality that originates from prevalent inequality of opportunities in a society is an unwelcome benefit as it relates to social justice (Lee & Lee, 2018). Higher inequality provides fewer educational opportunities for talented yet underprivileged individuals and discourages investment due to instability. Often, there is a greater emphasis on human capital as one of the major factors affecting the degree of income inequality. Human capital, which one measures by the educational attainment of a worker, is a major determinant of a worker's lifetime earnings. As such, the government encourages higher spending on education as a tool for reducing educational inequality, and thus, income inequality. Despite this general perception of and interest in the importance of education for income distribution among the public and policymakers, the relationship between educational attainment and its distribution in populations is not always cut and dry.

Income inequality varies greatly depending on location, including between rural and urban areas. For nearly 40 years, nonmetropolitan counties have seen much higher average levels of income inequality than metropolitan counties (Butler et al., 2020). Though growth in metropolitan inequality has led to significant rural–urban convergence

in county-level income inequality in recent years, disproportionally high levels of local income inequality have been rural issues for nearly 50 years. These income disparities pose a great challenge for rural populations and communities given that researchers associate high levels of local income inequality with a range of adverse social and health outcomes, the concentration of economic and political power, and corresponding challenges to community development.

There is a distinct nonlinear relationship between initial income inequality and economic growth (van der Hoeven, 2010). One can say that too low a level of inequality is bad for growth (i.e., high supervision costs), but also that too high levels of inequality can have serious negative consequences. Income inequality in developed and developing countries is currently in the high range. By and large, the last 2 decades have spurred a rise in within-country inequality in developed countries. There are several potential explanations, including: (a) limited migration to advanced nations that does not help to equalize the distribution of income in the countries of origin, (b) international financial flows that are less stable and more unequalizing, and (c) domestic policy and institutional reforms (i.e., labor market, financial sector, tax reform) that, though initially introduced to facilitate the international integration of poor countries, have had adverse effects on labor income compared with profit income and wage differentials.

As it relates to neoliberalism in North America, neoliberalism has been present in Mexico for nearly 3 decades (Laurell, 2015). Mexico's neoliberal journey has resulted in political, economic, and social changes. In Mexico, the privatization of social benefits and services necessitates state subsidies and permits privatization of profits and

socialization of losses. Socially, neoliberalism for Mexico has been devastating, with a divided income distribution, falling wages, an increase in hazardous jobs, rising inequality, and extreme violence.

Income Inequality and Workforce Displacement

In recent decades, forces reshaping the workplace have been especially felt in manufacturing, and they have influenced both organizational strategies and employment levels (Moore, 1996). Large corporations are welcoming strategies that facilitate their options to expand, contract, and relocate employment at will. The flexibility to relocate imposes global market prices upon skilled and unskilled workers. Corporations are cutting labor costs by relocating production facilities abroad. Starting around the late 1970s, U.S. computer companies set up production facilities in India. The objective was not to employ unskilled workers but rather to take advantage of a well-trained and inexpensive corps of engineers. In the present day, the city of Bangalore is the hub of India's Silicon Valley and is home to over 100 software and hardware companies. According to Moore, the typical engineer in their plants earns about $800 a month, a fraction of what a similarly skilled employee would make in the United States.

People define a displaced worker as an individual with established work histories that is involuntarily separated from their job by mass layoff or plant closure (Kletzer, 1998). These individuals have little chance of their former employers recalling them to jobs. For the purposes of displacement in most studies, the job loss must be permanent, not temporary. Women account for a smaller share of the displaced, and Black and Hispanic people are overrepresented among the displaced group. In most instances,

displaced workers are less educated than the employed workforce. A larger number of the displaced have a high school diploma or less and are far more likely to be blue-collar laborers. Though there is a slight change as it relates to displacement toward white-collar jobs, it is still an experience that overwhelmingly affects blue-collar, goods-producing workers.

In the year of displacement, displaced workers suffer annual earnings losses that can be as high as 40% (Stephens, 2002). Hourly and weekly wage losses are much less in comparison, averaging around 15%. Much of the initial lost earnings is due to unemployment. Oftentimes, displaced workers face substantial long-term and even permanent earnings losses. In many cases, hourly wages are still 10% below expected levels 6 years after the initial job loss. The earning effects and effects of unemployment due to job loss at the individual level are not the only impact. Displacement also has known effects at the household level.

Income Inequality in the Rust Belt

Manufacturing firms located in the Rust Belt had a productivity advantage of roughly 13% in 1960 compared to the rest of the United States (Yoon, 2013). This advantage shrank to approximately 3% by the end of 2010. In fact, individuals attribute the decline of the Rust Belt to the decrease of its advantage primarily as it relates to manufacturing. The differences in welfare between individuals residing in the Rust Belt in comparison to those residing in other areas was a consequence of the decline of the Rust Belt. The differences are especially true for the less educated.

Urban poverty studies in the United States have often focused on metropolitan areas rather than on central cities themselves (Hegerty, 2019). As a city, Detroit has concentrated poverty but shares a region with wealthy suburbs. The city itself is uniformly poor and has few pockets of wealth. When people calculate poverty concentration, poor Rust Belt cities such as Detroit tend to have condensed poverty. In most instances, the poverty rate itself provides an explanation of most of the variation in poverty concentration. Type of employment also plays a potential role.

Income Inequality and Neoliberalism

Neoliberalism in the United States has led to a shift in power relations between capital and labor (Stockhammer, 2011). As a result, income distribution shifted sharply in favor of capital. This shift ultimately reduces domestic demand as wages determine demand. However, increased profits have not translated directly to an investment boom; rather, the change in income distribution coupled with changes caused by financial deregulation have caused a financialization. Deregulation of international capital has allowed countries to maintain account deficits if financial markets were willing to provide the necessary capital inflows. In most instances, capital flows and trade flows have become the prime determinant of exchange rate movements.

Trade and Manufacturing

There is a great deal of interest surrounding the decline of manufacturing in the United States. Though the share in real output has remained nearly constant since 1960, the share in aggregate employment has decreased steadily over time (Dauth et al., 2017). In 2014, the United States had around 5 million fewer manufacturing jobs than it did in

2000. A prevalent justification for this pattern is labor-saving technological progress. Theories of structural change explicate this pattern and predict a secular decline of manufacturing employment in rich countries.

At the end of World War II, manufacturing jobs boasted high incomes and good employment benefits in the United States (Dinh, 2017). Those high incomes allowed workers to rise to the middle-class ranks and came with substantial purchasing power. Because manufacturing boasted such high incomes, the loss of manufacturing jobs in the United States has had a profound impact across the board. The loss of manufacturing jobs is a result of several factors: foreign competition, automation, and other technological changes. Competition has been more pronounced since China joined the World Trade Organization in December 2001 and as globalization has intensified over time. In the United States, globalization has generated unintended adverse effects that include: (a) high cost of adjustment borne more by disadvantaged groups, (b) increase in production efficiency associated with widening inequality, and (c) weak labor mobility causing certain geographical areas to experience high unemployment and rising social discontent.

The forces associated with innovation and globalization cause opposing inclinations (Baldwin & Evenett, 2015). On one hand, less barriers to trade allow for greater relocation of production and technology transfer. Individuals can view relocation of production and technology transfer in negative terms in the form of declining numbers of jobs and fewer protections of intellectual property. It is important for people to know that jobs requiring specialization advantages and innovation resulting from an accumulation of skills and tasks pose a much lower risk of relocation across borders.

Firms no longer view goods and services as amalgams of distinct stages or tasks conducted under one roof, but rather, they outsource some tasks and managers focus their attention on tasks in which they and their employees presumably have an edge. In addition, the replacement of low-skilled labor in manufacturing by robots is generating productivity increases at the same time as it limits one well-established route to gainful employment for those neither educated at university nor trained vocationally. Falling tariffs and low transportation costs have indicated that many tasks that do remain in high-wage economies are supported by dynamics that provide strong individual disincentives to relocate abroad.

International trade promotes inequality in one channel; this channel is the alleged creation of winners and losers (Boudreaux, 2020). At the most fundamental level, individuals proclaim the fact that trade destroys some jobs as proof that trade has "losers." If by chance, those who lose come disproportionately from the lower end of the income distribution, then people view trade as fueling inequality. A more sophisticated version of this argument identifies trade's impact on factor prices as a source of greater inequality.

Another consequence of modern-day protectionist trade policies in the United States is the impact these policies have on the workforce (Schultz et al., 2019). The decision to specifically impose tariffs on U.S. imports of autos and auto parts under Section 232 of the Trade Expansion Act of 1962 as amended has far outweighed the impact of any previous trade action on the U.S. automotive industry. The impact is noticeable on U.S. consumer prices, sales, and employment. Going forward, current and

future U.S. trade actions will impact the U.S. automotive industry. The newly implemented USMCA contains (a) current tariffs on imports from China, (b) tariffs on imported steel and aluminum products from various countries, and (c) new tariffs on imported automobiles and auto parts. No matter how these countries combine these policies, they operate to raise consumer prices for new vehicles and lower U.S. light vehicle sales, U.S. GDP, and total and new vehicle dealership and manufacturing employment.

Trade and the Auto Industry in North America

The automotive industry has been a cornerstone of Canadian manufacturing for generations (Yates et al., 2017). The government has supported the industry with a variety of industrial policy tools, including tools such as the 1965 Canada–United States Automotive Products Trade Agreement (better known as the Auto Pact), duty remission schemes beginning in the 1970s, and voluntary export restraints in the 1980s. In more recent years, policymakers have focused on providing financial incentives for investment, innovation, and research and development to support automotive manufacturing in Canada.

The global value chains in automobiles are producer driven, involving medium-high tech and a capital-intensive industry (Dowlah, 2018). The automotive industry also has various connections related to investment, production, trade, and employment. The automotive industry is one of the world's largest manufacturing activities. The industry directly employs millions of people and tens of millions indirectly. It is an industry that signals the economic progress of nations and encourages national flags at the center of

the greatest brands. It combines a wide range of parts and technologies ranging from rubber to steel and includes chemicals and electronics. Due to these facts, the automotive industry has not only revolutionized manufacturing processes, but it has drastically impacted the way people live and work.

The United States' largest containerized import by volume is auto parts (Leach, 2014). Increased imports for instance from the European Union stem from the expansion of European automobile plants in the U.S. Southeast over the last decade. In 2013, there were record luxury car sales in the United States, leading both Audi and Mercedes-Benz to experience a sales growth of 14% the prior year. U.S. auto sales have grown in double digits. A contributing factor is that the United States has become a major exporter of autos, which happens to be its largest containerized export commodity by volume. Production is strong because foreign automakers actively sourcing more from the U.S. luxury car manufacturers (e.g., BMW, Audi, and Mercedes) are expanding their plants in the south.

Summary

The major themes in the existing literature are somewhat repetitive. Though income inequality and globalization largely benefit underdeveloped nations, there is little existing research surrounding the impacts in a developed country such as the United States. More importantly, with the automotive sector being a significant commodity in trade, there is little known about how it impacts workers in that industry. Through this research, I sought to fill the gap that existed by exploring the correlation between reduced trade barriers and income inequality in a major manufacturing sector.

Chapter 3: Research Method

Income inequality is an expansive subject that touches a multitude of policies and has an even greater number of policy implications. In this study, I sought to examine the effects that trade liberalization has on automotive manufacturing employees in the automotive sector specifically.

This research addressed the issue of the association between income inequality and other social problems. Underdeveloped nations have been the primary focus of scholarship; however, there was a gap in the literature related to developed nations. In searching for resources and existing scholarship, I reviewed and read various publications for this literature review. The keywords I used to approach this literature review were *trade policy, trade liberalization, income inequality, foreign direct investment, free trade agreements*, and *labor force displacement.*

In this chapter, I discuss the use of comparative research design and the rationale surrounding the decision to use this method. I also provide a justification for the selected methodology and identify the sample size. The data collection process, data analysis plan, and ethical procedures are also covered. I conclude the chapter with a summary and preview of Chapter 4.

Research Design

A research design is the plan for answering research questions. In addition, a research design outlines how a researcher gathers accurate and objective information. The design in this case was comparative. The purpose of a comparative research design is to determine the correlation among variables (Cantrell, 2011).

Scholars often understand comparative research to be the contrast among different macrolevel units (Esser & Vliegenthart, 2017). In this case, those macrolevel units were regions and countries. It is important to note that the contrast examines one point or more in time. In social sciences, comparative research methods make comparisons between a minimum of two macrolevel cases in which at least one object of investigation is relevant to the subject field. Comparative research stands out in that its purpose is to reach conclusions beyond single cases and moreover explain differences and similarities between concepts and relationships against the backdrop of their contextual conditions. The goal of the research was to answer the research questions by comparing data surrounding trade liberalization to the phenomenon of income inequality among automotive manufacturing employees. Quantitative methods are discussed moving forward as a way to analyze these secondary data sources.

Variables

Independent variables are variables that influence dependent variables. In this study, there were several independent variables. Income inequality was the main independent variable in addition to trade liberalization. Dependent variables are variables that a researcher measures in a study. The dependent variables included automotive manufacturing employees and automotive manufacturing.

Comparative Research Methods in Policy Studies

The application of comparative research methods in policy analysis is common. Those using comparative analyses seek to further the understanding of societal issues by placing familiar systems against other systems or patterns (Esser & Vliegenthart, 2017).

The outcome of this comparison or analysis is to contrast ideas and cast a fresh light on policies. The goal of comparative research method in policy is to test theories across diverse concepts and to evaluate the scope of significance as it relates to a given phenomenon.

In this study, a comparative research design allowed me to further explain trade liberalization and its many moving parts. In addition, employing this design shed light on how these policies over time compared to prefree-trade time periods and the overall impact trade liberalization has had on income inequality in automotive manufacturing.

Methodology

Research addressing the impact that trade openness has on income inequality in developed nations is sparse. More specifically, there is little research that exists on developed countries such as the United States and Canada. Using trade theory and a quantitative methodology that measures productivity, I sought to fill this gap in knowledge by focusing specifically on comparing income inequality across two of the more developed nations in the world. This information could be useful to policymakers as they move forward in developing policies to minimize inequalities that arise as a consequence of trade liberalization.

Policy study is a rapidly changing and vigorous academic subject in the current social sciences field. The study of policy has produced a series of research results invaluable for the purposes of guiding future policies and constructing new theories (Yang & Su, 2017). However, policy research, similar to other research subjects in the social sciences, faces a number of challenges. One way around these challenges is for

researchers to use policy literature. Policy study is the physical embodiment of public policy measures and offers researchers a visible path for analysis outside of the use of firsthand data. Increased use of quantitative research in policy literature can provide a new paradigm for public policy analysis.

Advances in technology have allowed individuals to collect, compile, and archive large amounts of data, all of which people can access easily for research. The use of existing data for research is more prevalent, as researchers are increasingly engaging secondary data analysis (Johnston, 2014). The benefits of secondary data are that data are flexible and people use them in numerous ways; in addition, secondary data analysis is an empirical exercise and a very systematic method with procedural and evaluative steps. This last benefit is similar to the reasons researchers collect and evaluate primary data; secondary data analysis offers methodological benefits and can contribute to scientific knowledge through offering an alternate perspective.

The use of quantitative methods has proved to be rewarding on occasion. However, the effect of quantitative methodology on government policymaking and policy is complex. Therefore, people can see the use of quantitative methods as a natural progression of the scientific method to the process of governing. Quantitative methodology is made up of mathematical methods, computational techniques and software, and supporting theory. Mathematical analysis is the logical inference resulting from exploration of structure and behavior (Strauch, 1976).

Methodology Justification

Researchers deploying quantitative methods seek to discover answers to research questions through the application of scientific procedures. Scholars using quantitative methods employ a specific scientific principle and offer more definitive findings. Oftentimes, the outcomes of quantitative research make it possible for people to draw conclusions to a specifiable level of probability. The particular study drives how researchers decide on a research method. It is ultimately a decision based on what kind of knowledge a researcher seeks to make, uncover, or construct (Davies & Hughes, 2014).

One of the main reasons a researcher may use quantitative research is to generate knowledge and create understanding about the social world. Social scientists and researchers in general use quantitative research to observe phenomena or occurrences affecting individuals (Allen, 2017). In particular, social scientists are interested in the effects that a phenomenon has on individuals. Quantitative research offers a way for researchers to explore a sample population as scholars rely on data measured to examine questions about said specific sample population. In addition, this method of study provides answers surrounding the magnitude to which the phenomenon affects the sample.

Population and Sample for the Study

The target population in this study were automotive manufacturing workers in the Detroit metropolitan area. As a city in the Rust Belt and particularly the automotive manufacturing hub of the United States, the Detroit metropolitan area has witnessed manufacturing workers experiencing great disparities. I included both national- and state-

level census data over a period of 21 years for this study. Specifically in the city of Detroit proper, there are Department of Housing and Urban Development data, census data, and state reports from the Bureau of Labor Market Information and Strategic Initiatives.

Instrumentation

My primary objective for this research was to understand and relate the outcome of automotive workers' income to the actual performance and policymaking of both state and federal legislators on issues related to trade. I categorized the type of information necessary for this research as historical and factual accounts on income data, policy recommendations and changes, and data on income and salary indicators.

Validity and Reliability of Instrumentation

Quantitative studies are valid only to the extent to which a researcher adequately measures a concept. One measure of quality is content validity. This type of validity determines whether the instrument adequately covers all the content that it should with respect to the variable. In this particular study, I focused more on criterion validity, which involves correlations that researchers conduct to determine the extent to which different instruments measure the same variable. A scholar measures criterion validity in three ways: (a) convergent validity, which shows that an instrument is highly correlated with instruments measuring similar variables; (b) divergent validity, which shows that an instrument is poorly correlated to instruments that measure different variables; and lastly, (c) predictive validity, which means the instrument should have high correlations with future criterions (Heale & Twycross, 2015).

Theoretical Framework for the Study

There are many considerations a researcher makes as it relates to choosing a theoretical framework for policy considerations. In this case, I used comparative research methods to compare effects across developed nations. In addition, I used the H–O theory as part of the explanation for the phenomenon of income inequality.

Comparative research involves comparisons between a minimum of two macrolevel cases in which at least one object of exploration is relevant to the chosen field of study (Esser & Vliegenthart, 2017). Scholars typically understand comparative research as a method that displays the contrast between different macrolevel units (e.g., world regions, countries, regions, social class, and cultures) at one point or multiple points in time. A unique aspect of comparative research is that against the backdrop of contextual conditions, scholars seek to explain differences and similarities between objects of analysis.

Comparative research methods are central to the development of political theory. In most cases, experimentation is the primary way scholars test theory. However, in political science, comparison remains the main way for researchers to test theory (Peters, 2013). Very rarely do scholars explore political science using experimental science. Politics are far too important to allow for manipulation of institutions and law. The field of comparative methods thus allows researchers to determine what works and what does not, together with helping them demonstrate important theoretical relationships among variables.

In this study, I used the H–O theory. In its most basic version, this model relates bilateral trade flows between two countries to differentials in their factor endowments (Baskaran et al., 2011). Those using H–O theory make the assumption that countries tend to export goods that require factors with which they are abundantly endowed and import those that contain resources with which they are poorly endowed. The H–O theory continues to be one of the more prominent models of international trade.

The H–O theory is at the core of modern international trade theory. The theory helps to explain why large capital-intensive rich countries experience periods of booms in consumption (Caliendo, 2010). For example, if a large capital-intensive country suffers a productivity slowdown and starts decumulating capital while a large labor-intensive country simultaneously starts supplying to the world cheaper labor-intensive goods, the end result is often that the capital-intensive country will consume more.

Research Questions

The first research question I sought to answer was as follows: How has trade liberalization affected income inequality in the automotive industry in places such as Detroit among automotive manufacturing employees in the last 2 decades? In addition, I set out to answer the following question: How have trade agreements such as NAFTA/United States-Mexico-Canada Agreement led to increased income inequality in cities such as Detroit among automotive manufacturing employees in the automotive industry?

Data Sources

Acquiring secondary data sources is not unique to statistical analysis. There is a certain multidisciplinary appeal that makes acquiring secondary data sources an attractive option for numerous academics. Secondary research involves the use of preexisting data for a purpose different than for which individuals originally collected them (Daas & Arends-Tóth, 2012). There are a variety of secondary research strategies that scholars can use, such as content analysis, secondary analysis, and systematic review. Those employing secondary analysis use quantitative data previously collected and recorded by other researchers for an alternative purpose.

The primary sources of secondary data are official statistics, administrative records, or other accounts maintained by organizations (Hox & Boeije, 2005). By virtue of being archived and publicly available, any type of primary data can also serve as secondary data. An important quality of the data is that they should meet the requirements of the current study.

Most developed countries track both trade and income inequality. Country leaders want to trace and track inflows and outflows of trade for a variety of reasons. In addition, as it relates to GDP, it is important for a nation's leaders to understand income and phenomena that impact income. Therefore, in the United States, for instance, census data track imports and exports globally. In addition, census data track income nationwide to include states and individual cities.

The Census Bureau's Current Population Survey (CPS) and the Internal Revenue Service's Statistics of Income data are the most widely used sources of data and statistics

on household income and its distribution (Stone et al., 2020). The CPS survey is made up of a large sample of individual income tax returns. The Census Bureau itself publishes annual reports on income and poverty in the United States based on CPS data. In addition, the Federal Reserve collects income data in its triennial Survey of Consumer Finances. However, the survey of consumer finances is more valuable as it relates to survey data on wealth than the CPS.

The primary purpose of a census is to provide accurate estimates and data surrounding the population in a country (Baffour & Valente, 2012). The results of census surveys influence a myriad of key planning decisions at both the local and national level. More importantly, countries greatly need reliable census data at an international level. For instance, the United Nations require member states to take a census every 10 years at a minimum. Due to the need for reliable census data, census data play a crucial role in official statistics. Because the role the data play is so critical, there is a need to measure the quality of the data that the census produces. It is important to note there is currently no standard method of quality assessment that applies to all census methodologies.

Efficient and successful collection produces high-quality data in the census. The collection of data for the census is a large logistical exercise that involves planning, identifying, and getting access to dwellings, locating respondents, and making sure respondents complete the census (Statistics New Zealand, 2013). There are three main elements to successful data collection: (a) delivery of census forms and an internet access code for completion online to every person and occupied dwelling, (b) a high response rate from those present, and (c) efficient collection of census forms from every person

and occupied dwelling that has not completed forms online. Another factor is a dedicated team of census collectors before each census.

Census Bureau statistics on income shed light on income inequality in the United States. To produce these statistics, researchers use data from three surveys: (a) the CPS Annual Social and Economic Supplement, (b) the American Community Survey, and (c) the Survey of Income and Program Participation. The distribution of income and wealth are distributed across the population ports, tables, graphs, and maps to summarize this. For over 50 years, individuals have used the CPS annual social and economic supplement to examine national trends in income inequality and changes in income inequality (U.S. Census Bureau, 2021b).

Access to Data

Accessing U.S. Census data and state-based data is free and available to the public. The Census Bureau uses administrative data to produce statistics about both the U.S. population and the economy. The data the Census Bureau uses heavily depend upon linkages and the ability to integrate across multiple sources. The available Census Bureau data allow researchers to evaluate existing policies and changing social conditions (U.S. Census Bureau, 2021a).

Government agencies throughout history have made available the results of income distributions in grouped form (Cowell & Flachaire, 2015). At one point, data shared in this way were of similar size to sample surveys. However, lately, income distribution data have entailed a very large data set, which agencies have opened to

researchers. These data effectively end up being a complete collection of administrative data rather than a sample.

Data Analysis Plan

One of the primary measures of income inequality is the Gini index. This index incorporates detailed shares of data into a single statistic. Those using the index then summarize the distribution of income. In addition, the Gini is based on the difference between the Lorenz curve and the notion of a perfectly equal income distribution (U.S. Census Bureau, 2021c).

Statistical Package for the Social Sciences, or SPSS, is a software package that researchers use for statistical analysis. Scholars analyze data collected as a result of research to test the hypothesis assumed. Analysis of data assumes the researcher collects the maximum amount of data, allowing them to draw a concrete conclusion (Bala, 2016).

Researchers need to be able to implement ranking tools that provide intuitively appealing methods of making distributional comparisons (Cowell & Flachaire, 2015). Furthermore, scholars associate ranking tools with important results in the welfare economics of distributional analysis. Take for instance the Lorenz curve, an empirical curve with confidence intervals that allow one to make individual comparisons. It is possible for a researcher to test whether a particular Lorenz curve is significantly different between two curves. Scholars still need to use appropriate test statistics to make multiple comparisons and to test simultaneously that several inequalities hold.

The analysis of income distribution is a critical part in understanding the structure of inequality and social transformations (Cowell & Flachaire, 2015). Lorenz curves can

be very useful as a tool of comparison because they often lie above another one, implying that any comparisons of relative inequality measures lead to similar conclusions. To draw conclusions on dominance or nondominance, there is a necessity for scholars to simultaneously test that all ordinate differences are statistically greater than 0 or not less than 0. Researchers need to use appropriate test statistics to make such multiple comparisons.

Correlational research is a type of nonexperimental research that helps scholars to predict and explain the relationship among variables. As it relates to this study, I used correlational methods to measure greater than two variables to determine if there was any correlation or relationship. In the case of this study, I used a correlational statistical test to determine the relationship between variables objectively (Seeram, 2019).

In a correlational analysis, scholars need to test direction of linear relationships between variables and statistical significance. In this study, the null hypothesis was that there is no relationship between globalization, income inequality, and the automotive industry. The alternative hypothesis, however, was that a relationship does in fact exist. If I established there was a relationship using correlational analysis, I could then produce a model that allowed me to use a variable to predict an outcome. In this study, I used a multiple correlation method to measure the relationship between the outcome variable and the combined effect of other predictors (Prematunga, 2012).

Threats to Validity

Scholars declare research as valid when a researcher establishes a cause–effect relationship (Onwuegbuzie, 2000). When the outcome is a result of manipulation, for

instance, to an independent variable, people consider the study to have internal validity. It is also the case where the opposite occurs, and the result is external validity. Scholars describe internal validity as the condition that observed differences on the dependent variable are a direct result of the independent variable and not some other variable. A threat to internal validity occurs when scholars cannot eliminate other feasible explanations.

In the case of this study, there was in fact a threat to validity. The industry code for automotive manufacturing includes workers that work in the industry or for automotive manufacturers in general. There is a population of employees in manufacturing that may be working in administrative capacities. The Bureau of Labor does not separate manufacturing jobs by classification; rather, it is solely by industry. As such, in this study, population validity was a threat to external validity.

Ethical Procedures

The Association of Internet Researchers makes available ethical guidelines for doing internet research (Stommel & de Rijk, 2021). However, by and large, ethical procedures tend to be general and vague as oftentimes scholars do not consider online data when discussing ethics. One challenge to ethical research is that even precollected data may involve sensitive data.

In this study, I used publicly available federal, state, and local data. Because these datasets contained masked identities and the tables included only figures, there was minimal ethical concern. Though it is true that sensitive data could show up in publicly

available data, the census information does not detail personal information. My IRB approval number was 08-30-22-0484078.

Summary

I designed this research to answer for the assumed relationship between international trade liberalization policies and income inequality in the United States. In large, this research stemmed from growing levels of income inequality in the Rust Belt and other related systemic issues. I composed the sampling technique by methods typical for public policy analysis with the sample consisting of blue-collar, working-class citizens of the Detroit metro area. Through this research, I sought to show correlations and causality in trade flows in the automotive industry in countries such as Mexico and Canada. In answering the research questions posed, I used distributional analysis, which showed income distributions among the automotive industry over time. I also used correlational analysis, which displayed the correlation rather than the causality of income inequality and trade liberalization policies on the target demographic.

This research addressed a social issue that continues to plague developing countries but especially the United States. Of interest to me were income inequality, the automotive manufacturing industry, and the formation of liberal trade policies that both create and can offer solutions to this complex issue. I intend for people to use the results to effect positive social change, and I offer solutions that minimize income disparities across what was formerly a bustling Rust Belt.

Chapter 4: Results

The purpose of this quantitative study was to examine the impacts of trade liberalization polices on income inequality, among automotive manufacturing employees. The first research question I sought to answer was as follows: How has trade liberalization affected income inequality in the automotive industry in places such as Detroit among automotive manufacturing employees in the last 2 decades? In addition, I set out to answer the following question: How have trade agreements such as NAFTA/United States-Mexico-Canada Agreement led to increased income inequality in cities such as Detroit among automotive manufacturing employees in the automotive industry?

As it relates to the first research question, my hypothesis was that trade liberalization has negatively affected automotive workers in the Detroit metro area. Through this study, I sought to show correlation between trade liberalization policies and income inequality, examining the impact of the complete elimination of tariffs between the United States, Canada, and Mexico on income inequality in the Detroit metro area. The null hypothesis was that there had been no impact to income inequality among automotive manufacturing workers as a result of trade liberalization policies.

The specifics of data collection to include sources and interpretation are included in this chapter. Additionally, results to include tables and figures are displayed. This chapter concludes with a summary and my findings.

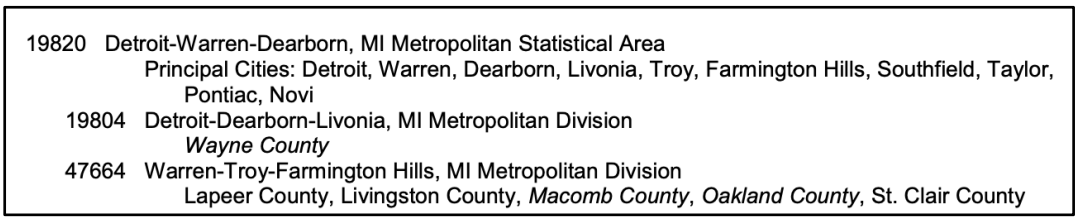
Data Collection

The time frame for data in this study was a period of 21 years, from 2001 through 2021. The U.S. Census Bureau, Bureau of Labor Statistics, Department of Commerce, and the International Trade Commission all maintain public data on the following components: (a) income (to include wages) and (b) trade inputs. Reliable data at the county level date back to 2001. I also retrieved data at the state and local level for employment figures. An important part of selecting the time frame for data collection was the availability of NAICS data at the county level. This research focused on manufacturing laborers in the automotive sector, and to ensure I was considering the appropriate population, I pulled wage and income data specifically for that demographic.

The 3-digit NAICS code for automotive or transportation manufacturing workers is 336. It is important to note that NAICS codes have changed over time. Consequently, it was critical for this research to have consistency. Data for this NAICS group excluded manufacturing employees in other industries. For the purpose of remaining consistent, I considered data collection in the Detroit MSA. Lastly, in this study, I used the 3-digit code 336. Figure 1 references the counties included in the Detroit MSA (see Office of Management and Budget, 2015).

Figure 1

Counties Included in the Detroit MSA



Note. From *OMB Bulletin No. 15-01*, by Office of Management and Budget, 2015 (https://www.whitehouse.gov/wp-content/uploads/legacy_drupal_files/omb/bulletins/2015/15-01.pdf). CC BY 3.0.

The transportation equipment manufacturing subsector is part of the manufacturing sector. Industries in the transportation equipment manufacturing subsector manufacture equipment for the purpose of transporting people and goods. Due to the significance of the transportation equipment manufacturing subsectors' economic size in all three North American countries, an entire subsector exists for this activity. According to the U.S. Bureau of Labor Statistics (2022), the transportation equipment manufacturing subsector features these industry groups:

- Motor Vehicle Manufacturing: NAICS 3361
- Motor Vehicle Body and Trailer Manufacturing: NAICS 3362
- Motor Vehicle Parts Manufacturing: NAICS 3363
- Aerospace Product and Parts Manufacturing: NAICS 3364
- Railroad Rolling Stock Manufacturing: NAICS 3365
- Ship and Boat Building: NAICS 3366

- Other Transportation Equipment Manufacturing: NAICS 3369. (para. 3)

In this case, quantitative data played a fundamental role in addressing the research questions and hypotheses. I completed data interpretation and analysis in two ways: (a) by writing about the data in a discussion wherein I describe the results of quantitative analysis, and (b) by presenting the data in the form of a table or figure, a display, that shows quantitative results. Tables and figures seek to bring data together through a visual means to draw out new insights (Guetterman et al., 2015).

This study focused on automotive manufacturing workers wages as a primary indicator of income inequality. In addition, I focused heavily on the time period surrounding the gradual phase out of the remainder of tariffs on NAFTA-originating goods. NAFTA was enacted in 1994 and similar to all FTAs, it had a tariff phase-out period of 10 years. In addition, it is important to note that NAFTA was revised and reintroduced in January of 2019 as USMCA.

Labor income is market income; labor income is always inclusive of wages and salaries. The annual household survey conducted as part of the Census Bureau's Current Population Survey and the Internal Revenue Service's Statistics of Income are the most widely used sources of data on household income and its distribution. I compiled these data from a large sample of individual income tax returns. According to data from the Bureau of Economic Analysis (as cited in Stone et al., 2020), wages and salaries now provide about 81% of employee compensation.

The most-cited measures of inequality involved income. In the richest countries, including the United States, the richest 10% of the population earned 9.6 times the

income than the poorest 10%. In 2015, the bottom 60% of households received just 27.1% of the equivalence-adjusted aggregate income (Desilver, 2015). Equivalence-adjusted income factors in different household sizes and compositions.

Income inequality in this context refers to the extent to which income is unevenly distributed across people or across households (Trapeznikova, 2019). Income encompasses labor earnings such as wages, salaries, and bonuses. In examining disparities in income among individuals, it is necessary to distinguish between income, wealth, and pay inequality. Pay inequality refers to differences in wages paid to different people. This inequality can reflect differences in productivity of workers (e.g., between low- or high-skilled workers). Pay inequality can also reflect differences in the nature of the job.

Results

The first research question I sought to answer was as follows: How has trade liberalization affected income inequality in the automotive industry in places such as Detroit among automotive manufacturing employees in the last 2 decades? To answer this question, I looked at wages specifically for the Detroit MSA and total imports for consumption values. I adjusted wages for inflation by using wage data and the consumer price index for escalation. In addition, the import values in this instance considered all imports worldwide entered the United States for consumption.

I conducted Pearson product-moment correlation coefficient to evaluate the null hypothesis that there was no relationship between import values and weekly wages in the automotive manufacturing industry ($N = 21$; see Table 1); 21 referenced the number of

years I considered in the analysis. The analysis showed there were no violations in the assumption of normality, linearity, or homoscedasticity. There was significant evidence to reject the null hypothesis and conclude there was a strong negative association between weekly wages. Lower wages were associated with increased import values (M = 681.7919, SD = 58.65844), r = -.727, p < .001. There was a 52.85% shared variance. This result meant that increased import values represented 52.85% of the variance in weekly wages.

Table 1

Correlation Output of Average Weekly Wage and All Imports for Consumption

Variable	Avg weekly wage (Inflation-adjusted)	All imports for consumption
Avg weekly wage (Inflation-adjusted)	1	-.727**
All imports for consumption	-.727**	1

Note. * p < .05; ** p < .01

In addition to running correlation analysis, I found it important to look at wages and overall consumption imports over the 21-year sample time period. As it relates to wages of automotive workers in the Detroit MSA over the 21-year period, Figure 2 presents that mean wages steadily declined. Figure 3 also demonstrates that outside of a brief period between 2008–2009, total consumption imports have steadily increased.

Figure 2

Simple Line Mean of Average Weekly Wage by Year

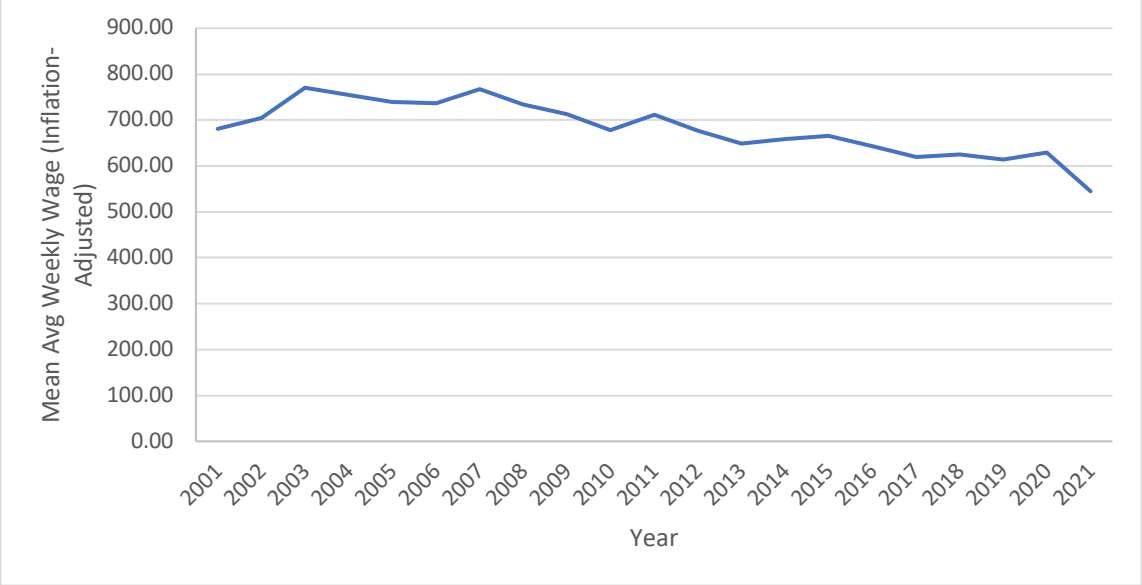
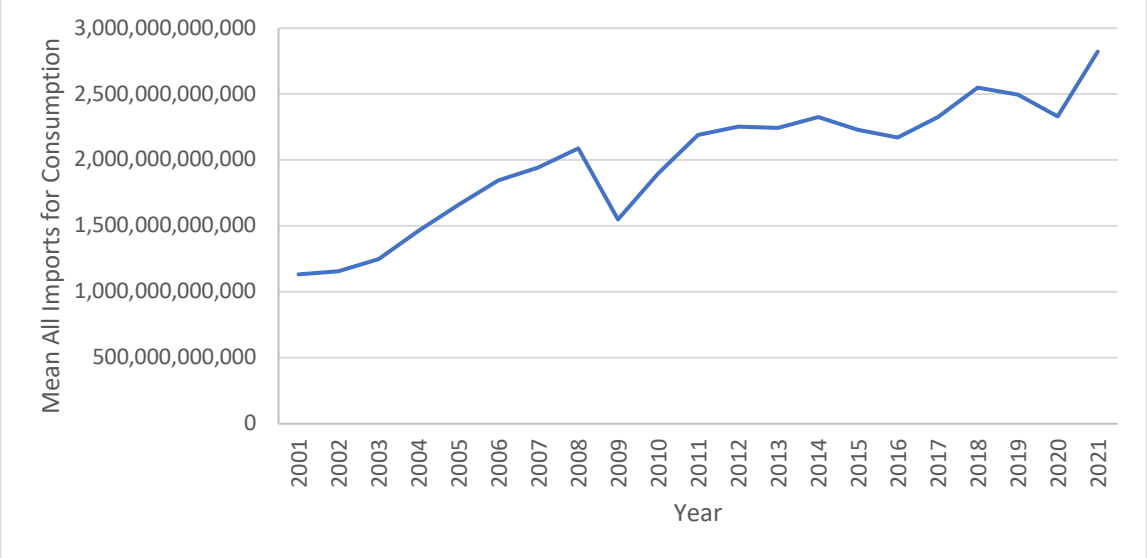


Figure 3

Simple Line Mean of All Imports for Consumption by Year



To determine whether these trends were specific to the automotive industry, I saw it important to examine other industries. Using data related to the same MSA, I examined wages in all other industries in the Detroit MSA. This analysis specifically excluded the 336 NAICS code; however, it did use the NAFTA import and trade data. Table 2 shows that for all other industries, the correlation was not statistically significant ($p > .05$). There was no correlation between increased NAFTA-program import values and weekly wages. Thus, for all other industries, I was unable to reject the null hypothesis.

Table 2

Correlations Between NAFTA Program Import Values and Weekly Wages

Variable	Avg weekly wage (Inflation-adjusted)	NAFTA program import values
Avg weekly wage (Inflation-adjusted)	1	.224
NAFTA program import values	.224	1

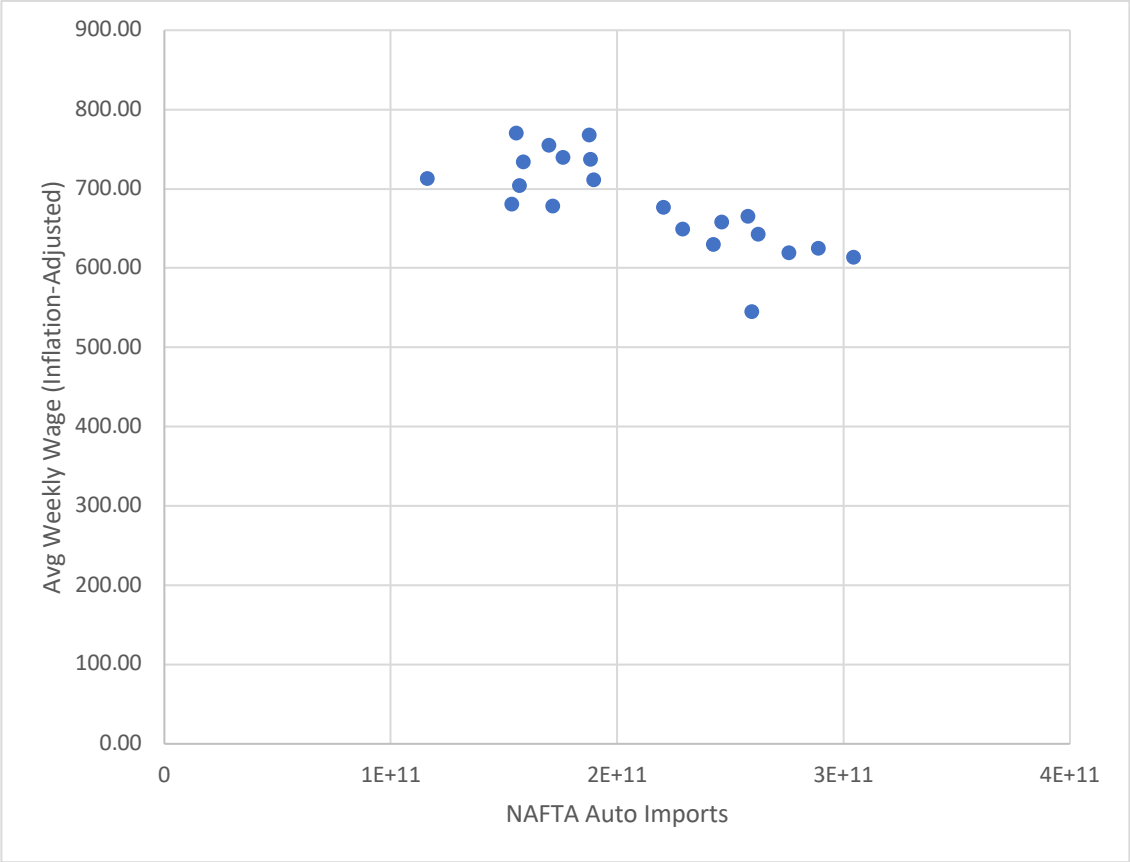
Note. * $p < .05$; ** $p < .01$

The second research question I asked was as follows: How have trade agreements such as NAFTA/United States-Mexico-Canada Agreement led to increased income inequality in cities such as Detroit among automotive manufacturing employees in the automotive industry? To answer this question, I retrieved data at the Detroit MSA level on wages in the automotive sector, correlating to the 3-digit NAICS code. In addition, I specifically accounted for imports for consumption at the trade agreement level. The imports in this instance were specific to NAFTA only.

To answer the second question, I conducted a separate product-moment correlation coefficient to evaluate the null hypothesis that there was no relationship between NAFTA-specific import values and weekly wages in the automotive manufacturing industry ($N = 21$). The analysis showed there were no violations in the assumption of normality, linearity, or homoscedasticity (see Figure 4). There was significant evidence to reject the null hypothesis and conclude there was a strong negative association between weekly wages ($M = 681.7919$, $SD = 58.65844$), $r = -.773$, $p < .001$. Lower wages were also associated with increased NAFTA-specific import values.

Figure 4

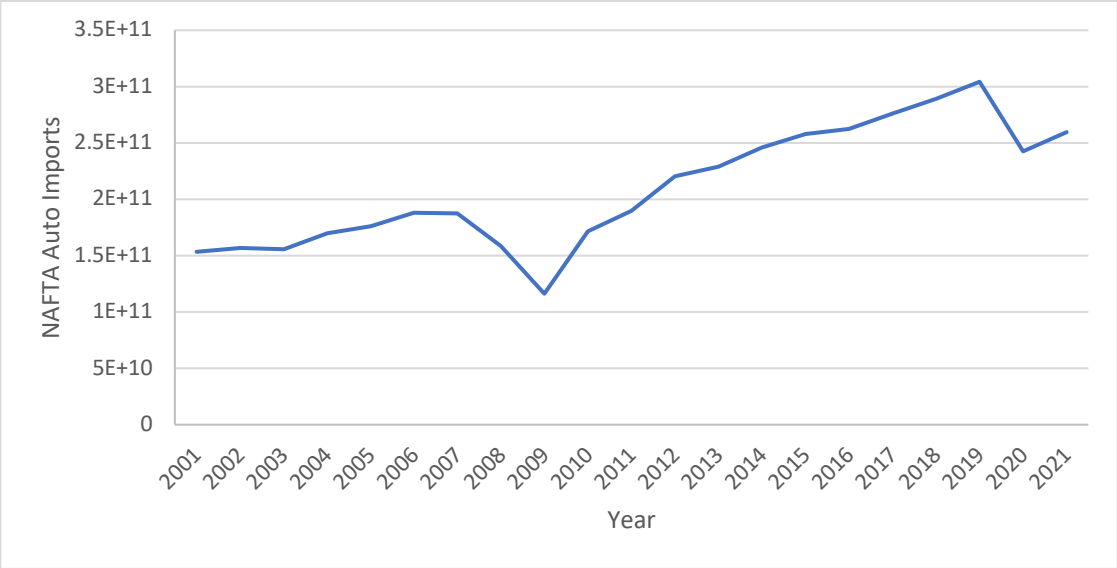
Scatterplot of Average Weekly Wage by NAFTA Auto Imports



As it relates to the NAFTA imports for consumption, I saw it important to also examine the trajectory of values over the 21-year sample period. Figure 5 displays an output similar to total consumption imports, a steady upward trajectory between 2004 and 2018, with the exception of 2009 and 2020.

Figure 5

Simple Line of NAFTA Auto Imports by Year



Income in particular wages is often ill distributed; and thus, programs such as NAFTA impact certain demographics more negatively than others. Wayne County, the county in which the City of Detroit sits, and Macomb County, which houses most of the automotive manufacturers, have seen the brunt of income inequality in the form of declining wages. In examining data at the individual county level, Oakland County in comparison saw wages increase over this same time period.

Figure 6 shows an increase in wages as NAFTA-program import values increase. In examining both Wayne County and Macomb County, Figure 7 and Figure 8 show negative trajectories for wages as NAFTA-program import values increase. In addition, Figure 9 displays a side-by-side comparison of the three counties and makes visible the significantly higher mean wages in Oakland County.

Figure 6

Scatterplot of Average Weekly Wage in Oakland County by NAFTA Imports

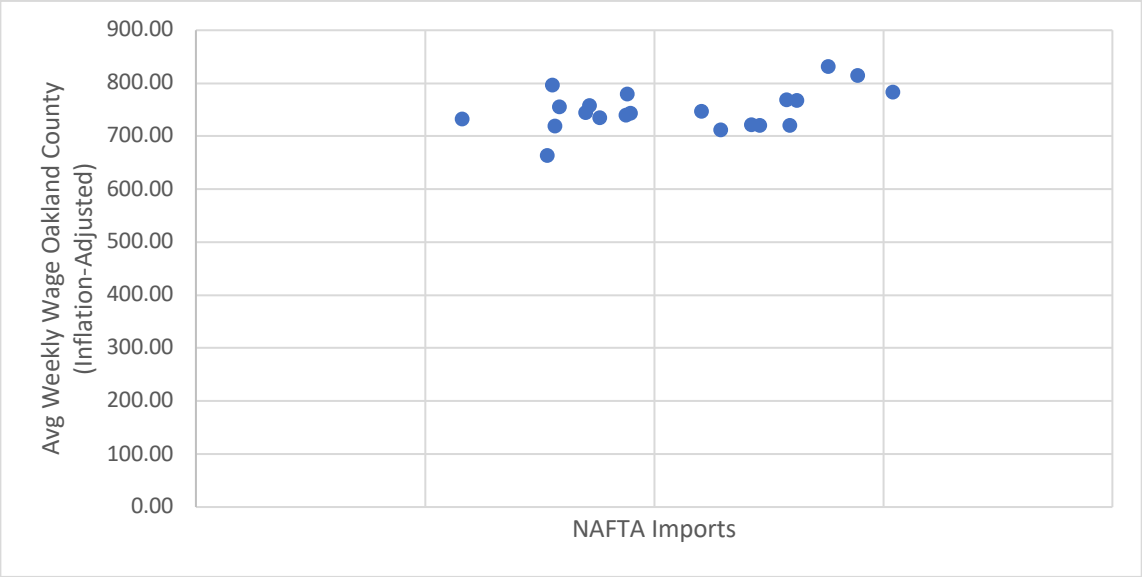


Figure 7

Scatterplot of Average Weekly Wage in Wayne County by NAFTA Imports

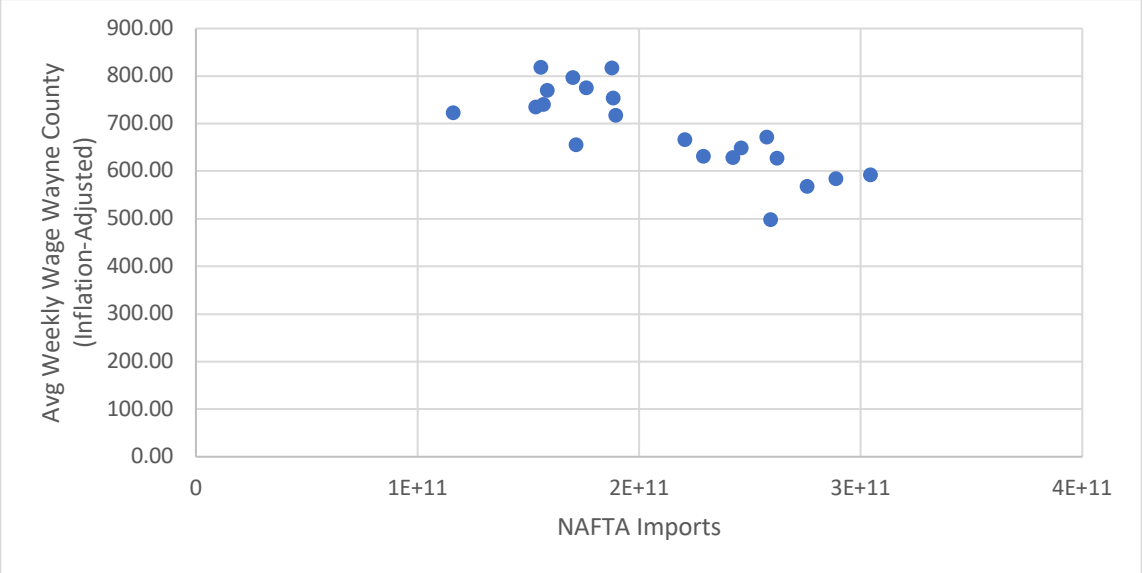


Figure 8

Scatterplot of Average Weekly Wage in Macomb County by NAFTA Imports

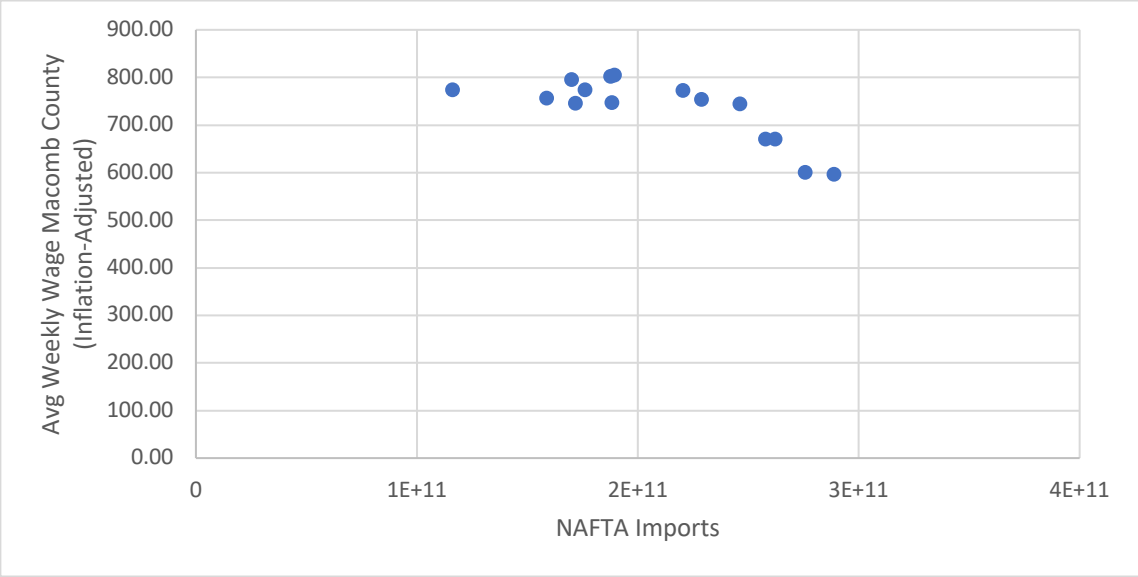
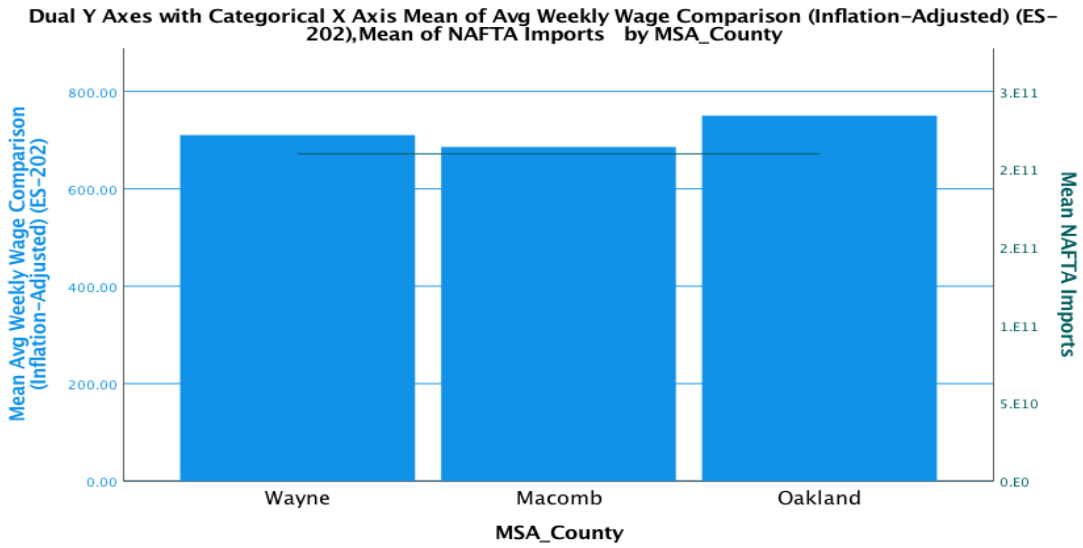


Figure 9

Mean of Average Wages Compared to Mean of NAFTA Imports



Summary

The answer to the first research question of whether there was an impact on income inequality among automotive manufacturing workers was yes. As total import values increased over time, in both the time analysis graph and the correlation analysis, wages in fact did decrease. I could reject the null hypothesis and accept the alternative hypothesis.

As it relates to the second research question, I was also able to determine that there was, in fact, a correlation between increased NAFTA-program specific imports and lower wages among automotive manufacturing workers. I confirmed this relationship by conducting a correlation analysis and making this result visible in associated figures. I could reject the null hypothesis and accept the alternative hypothesis.

In the same MSA, the increase in NAFTA import values did not impact other industries. The findings were actually reverse; the higher NAFTA values resulted in no change to workers' wages. This relationship was evident in contrast to data outputs that showed a clear correlation between the full phase out of tariffs between NAFTA countries. The other industries' outputs demonstrated that automotive manufacturing workers in fact did see lower wages as a result of increased trade liberalization, and in particular, NAFTA.

Beyond answering the research questions, when I examined data at the county level, some findings were unexplained by data alone. When viewed individually, Oakland County had not seen wages decline due to the NAFTA program. In addition, in 2009 and

2016, import values decreased. As I continue to interpret findings on the effect of trade liberalization, I would like to extend knowledge as it relates to the additional findings.

Chapter 5: Discussion, Conclusion, and Recommendations

The purpose of the study was to determine whether trade agreements such as the NAFTA negatively affected automotive manufacturing employees throughout the MSA of Detroit. In addition, I sought to conduct research and analysis on the specific impact of NAFTA on income inequality in this population based on wages.

There were several key findings in examining the analysis. The first finding was that both total import consumption values and NAFTA import consumption values increased over the sample period of 21 years. There was a negative correlation between mean weekly wages and imports for consumption. This result confirms that general import value increases negatively impacted wages. Another finding showed that increasing NAFTA imports did have a negative impact on the wages of automotive manufacturing workers. These findings reveal that the subset of workers in the 336 NAICS code in the Detroit MSA had their wages negatively impacted as NAFTA-program imports rose. The impact was noticeable and consistent in all counties except for one, Oakland County.

The analysis focused on the 336 NAICS code in each county. When comparing Oakland County to Wayne and Macomb Counties, Oakland County showed consistent and rising wages in some cases as NAFTA import values increased. There was a difference in these counties between low-skill labor and high-skill labor. There was a similar finding for other industries outside of automotive manufacturing in the MSA. Other industries outside of the automotive manufacturing NAICS differed in labor type and worker qualifications.

This result was further explained by the fact that Oakland County, Michigan (a suburb of Detroit) is an innovation center home to prominent companies in the following areas: (a) mobility, automotive, and advanced manufacturing; (b) information technology; and (c) aerospace/defense. Not only is Oakland the most populous county in Michigan, it also accounts for 20% of the state's GDP. Oakland County hosts 64 global automotive original equipment manufacturers and critical suppliers, and it boasts one of the highest concentrations of commercial designers and industrial engineers in the United States (Oakland County Michigan, n.d.).

The Bureau of Economic Analysis (BEA), an agency of the Department of Commerce, promotes a better understanding of the U.S. economy through providing timely, relevant, and accurate economic accounts. In addition to offering relevant accounts, BEA provides data in an objective manner. The Department of Commerce recognizes GDP as a great achievement of the 20th century, ranking it as one of the three most influential measures that affect U.S. financial markets (BEA, 2022). BEA's (2021) news release of GDP by county points to Oakland County's ranking as first in the state as it relates to GDP (see Table 3). The BEA news release lists Wayne County as second ranked for highest GDP.

Table 3

Real Gross Domestic Product Ranked by County, 2017–2020

County	Real gross domestic product				Rank in state
	2017	2018	2019	2020	2020
Lapeer	2,031,645	2,094,823	2,074,540	2,012,718	27
Livingston	6,496,436	6,654,894	6,505,086	630,355	12
Macomb	36,064,804	36,708,450	35,914,052	33,850,873	4
Oakland	93,976,069	96,474,755	97,010,130	91,328,190	1
St. Clair	4,794,437	4,959,313	4,830,186	4,680,402	17
Wayne	87,092,716	88,263,167	88,105,701	82,616,072	2

Note. Adapted from *Gross Domestic Product by County, 2020*, by Bureau of Economic Analysis, 2021 (https://www.bea.gov/sites/default/files/2021-12/lagdp1221.pdf). In the public domain.

The innovation center, aptly named Automation Alley, is located in Troy, MI, a city in Oakland County. Automation Alley is a nonprofit industry 4.0 knowledge center. Troy, MI is home to the World Economic Forum's U.S. Centre for Advanced Manufacturing. The Centre has a global outlook and a regional focus, facilitating public–private partnerships through the connection of industry, education, and government to help businesses stay in business. Automation Alley (2022) offers knowledge and support to manufacturers in all industries to achieve change.

In examining wages and NAFTA-program imports across counties, other consistent patterns to note were sharp declines in import values in 2008 and 2020. Coincidentally, these were both presidential election years. The same pattern existed for consumption imports outside of the NAFTA program as well.

Public policy leaders know that trade and the viability of the world economy took center stage during the 2008 and 2020 elections (Council on Foreign Relations, 2022). Laissez-faire approaches in the United States have historically meant open markets and prosperity, along with the expansion of U.S. influence. However, during these years, skepticism increased. Between the 2008 and 2020 elections, the United States saw increased enforcement of trade rules and imposed tariffs on China, thereby disrupting the global trade system.

In addition, there was a recession in 2008, which brought about the biggest economic downturn in decades. Export volume was down, and people saw the biggest downward turn in trade since World War II in 2008 (World Trade Organization, 2009). The collapse in global demand took place in most of the industrial economies and led to a very bleak 2009 trade assessment. Signs of the deterioration in trade were evident in the second half of 2008 as demand sagged and production slowed significantly. As a result of the recession, people projected that trade would fall and remain weak for a period of time before resuming its upward trajectory.

International trade collapsed during the global recession of 2008–2009 (Bems et al., 2012). Between Quarter 1 of 2008 and Quarter 1 of 2009, trade fell significantly. The fall in trade surpassed the fall in real-world GDP. The trade collapse during this particular recession mirrored that of the collapse during the Great Depression. During the recession, extremely large declines in spending on final goods occurred, and durable goods more specifically, which happen to be the largest traded sectors. The decrease in demand and spending on durable goods was present at the U.S. border in both imports and exports.

Interpretation of Findings

In areas such as international trade, there is a notion that once a developed nation becomes industrialized and facilitates free trade, it spurs overall economic growth. The findings in this study did not confirm this notion. Through this study I conducted in the greater Detroit MSA, I concluded that even when an area is fully industrialized, factors of income inequality in the form of wages do not grow.

I analyzed the MSA of greater Detroit over a 21-year period between 2001 and 2021, and the findings showed a divide in who international trade impacts. During the 21-year period, it was evident that automotive manufacturing workers saw declines in weekly wages as NAFTA imports increased. During this same period, NAFTA reached its full implementation, and weekly wages of workers decreased steadily. The same pattern was present for general imports for consumption and automotive manufacturing workers' weekly wages.

Between 1995 and 2014, world agricultural trade doubled in real terms when adjusted for inflation (Zahniser et al., 2018). This expansion was driven by a more than 25% increase in the world's population and about a 75% increase in the real size of the world's economy. Additional factors that have increased agricultural trade are falling trade barriers and technological advances in agricultural production. Developing nations as both buyers and sellers of agricultural products have larger roles in global agricultural trade. Over the past 2 decades, the regional composition of agricultural trade has shifted to regions of the world where middle- and low-income countries dominate. Between

2010–2014, in middle- and low-income countries, their share of world agricultural exports rose from 37% to 46%.

Historically, developing nations that have an abundance of unskilled workers and resource-rich lands use people to provide agricultural products (Sun et al., 2019). These nations are also able to use ready workers to produce high-demand goods for a fraction of the cost. However, over time, leaders of developing nations have realized that growth stagnates and the way to create high-paying jobs and raise GDP is through industrialization (Elfaki et al., 2021). Leaders of developed countries left behind the notion of structural transformation and jumped right into a win–win solution. The production of automobiles requires many raw materials and simple manufacturing. Therefore, participation in the automotive manufacturing industry or supply chain has allowed developing and underdeveloped nations to skip agricultural production and move right into industrialization.

Leaders of developing economies have learned that the key to sustainable, long-term economic growth includes expanding economic activities (Elfaki et al., 2021). Industrialization contributes to economic growth through enhancing productive capacity, job creation, innovation, and optimal resource use (e.g., labor). In addition, industrialization contributes to economic growth by increasing industrial output and using resources for optimal production. For developing countries, industrialization has become an easier task due to the introduction of value chains. Developing countries now have the ability to enhance their production capabilities by participating in value chains, as knowledge intensive jobs continue to flourish domestically.

The purpose of the research was to determine whether increased trade and NAFTA, in particular, had a direct impact on income inequality (i.e., in the form of wages) as it relates to workers in automotive manufacturing industries. Through the analysis I conducted, I confirmed that NAFTA had a negative impact on wages of these workers. As NAFTA imports and general consumption imports alike rose in value, wages declined. Highly skilled laborers were the exception to this rule; those workers with specialized skills, experience, or education allowed them to perform more complex activities and use technology.

In general, the findings suggested there was a strong correlation between increased imports of any kind and the lowering of wages for automotive manufacturing workers in the Detroit MSA. The findings also indicated that the same was not true of workers' wages in other industries in the same geographic location. Overall, increases in overall imports of any type impact automotive manufacturing workers' wages.

The United States, one of the most developed nations in the world, has moved beyond industrialization to the development of a knowledge economy (Hope & Martelli, 2019). This transition emerged from the revolution in information and communications technology, which increased demand for complementary skills in college-educated workers. This demand led to a rise in wages for more-educated workers.

Labor force trends have changed dramatically over recent decades (Blank, 2021). The need for highly skilled and innovative workers has grown in addition to the need for workers with strong technical skills. The workforce has also grown over the last 50 years. Increases in both the share of women working for pay and immigrant workers in the

United States have been contributing factors. Though a larger workforce on its own can drive economic growth, an increase in hours worked, largely due to workforce group, has driven 25% of economic growth in the United States. The remaining 75% of economic growth has stemmed from a rise in productivity that occurred as a result of rising skills among workers. New developments and shifts in technology have also been contributing factors. However, the changes have been mostly fundamentally related to the workforce, as productivity improvements typically require higher levels of education and training, research and innovation, and capital investments.

Based on their NAICS code, the workers in Oakland County MSA are automotive manufacturing workers as well. The automotive industry in Oakland County consists particularly of innovation and technology centers that contain engineers and programmers alike. These high-skilled workers saw wages increase as NAFTA-program imports and general consumption imports increased as well.

For over 2 centuries, the manufacturing industry has adopted new and emerging technologies and has provided new jobs for workers (Giffi et al., 2018). The industry currently continues to experience exciting and exponential change, as technologies are rapidly changing the workplace to include technologies such as artificial intelligence, robotics, and Internet of Things. The new jobs emerging require a greater level of skill than the jobs that previously existed. The result has been a widening gap between jobs that need to be filled and the skilled talent pool available to fill them.

Through 2026, the United States will have a substantial need for automotive service technicians and mechanics to fill roles (Rogers, 2019). Currently, the United

States is experiencing a skills gap and worker shortage specifically for blue-collar jobs. Economic growth is expected to continue, so too is a labor shortage for both blue-collar and low-paying services occupations.

The H–O trade theory states that trade between the United States and a developing nation such as Mexico would participate in interindustry trade, trade based on the differences these nations have in abundant resources. However, trade between the United States and Canada (i.e., an equally developed nation) would be more interindustry trade. Interindustry trade focuses on product differentiation.

H–O theory addresses relative factor price equalization. As it relates to this study, this concept means the price of identical factors of production (i.e., wages) of two countries equalize over time. In this study, relative factor price equalization would suggest that as low-skilled laborers in Mexico see increased wages, and higher-skilled laborers in the United States see wages increase as well.

In this study, I examined the findings using the H–O theory that states countries export commodities that require relatively intensive use of productive factors found locally in relative abundance (Jones, 2008). NAFTA as it relates to the automotive industry in the last 2 decades, all of the parties (i.e., United States, Canada, and Mexico) have relatively developed capital. H–O theory focuses on the composition of the countries' factor endowments (i.e., land, capital, and labor), trade patterns, and consequences of free trade. The assumption those using the theory interrogate is that regardless of factor endowments, one country always employs a higher ratio of labor to capital than the other country.

In comparing automotive manufacturing in the sense of NAFTA, the assessment of H–O theory is applicable. Production of automobiles is labor intensive. Over time, the United States has shifted labor-intensive components of automotive manufacturing to Mexico and kept more capital-intensive portions in the United States. The increase in wages for higher-skilled labor in the automotive manufacturing industry is a direct result of both the transition to a knowledge-based economy and maintaining capital-intensive functions in the United States.

Limitations

This study focused solely on the automotive industry, which in the United States has historically been based in the Detroit MSA. The automotive industry is highly susceptible to income inequality in the form of wage loss as a result of increased trade. In this study, I discussed protectionist measures briefly, but a topic that scholars have not interrogated is the implementation of protectionist measures for corporations in the form of job loss and wage loss in particular. An area of opportunity for future study is for individuals to examine industries that are highly susceptible to trade policies and examine protectionist measures that could potentially mitigate increased inequality.

Additionally, something that was unknown prior to conducting the analysis of the data was the limitations in classifying employees. NAICS codes are determined by the company rather than assigned at the federal or state level. There is no separation between the type of employee in an organization based on the NAICS code. What was discovered in this research was that there are high skilled employees that wouldn't otherwise be classified as manufacturing workers. In this instance, they work for a company that

identifies as an automotive manufacturing company and there is no distinction between those facilitating assembly and those in administrative or technology functions.

Recommendations

With USMCA's implementation in 2020, one of the provisions included a high-wage component (High-Wage Components of the Labor Value Content Requirements Under the United States-Mexico-Canada Agreement Implementation Act, 2020). For a vehicle to be duty free or reduced duty as part of the NAFTA/USMCA program, it had to meet the rules of this high-wage component. The component indicates that a minimum percentage of the cost of the car (e.g., labor, parts, or materials) produced in a plant in a NAFTA country had to be produced at a rate of at least $16 per hour.

Trade agreements often involve rolling out tariffs on commodities over time, usually a period of 10 years. There is an opportunity for continued research on provisions (e.g., the high-wage component) that seek to protect wages and mitigate impacts on income inequality. There is also an opportunity over time to study whether the high-wage component actually makes a difference for workers in the automotive industry.

Implications

This study has policy impacts, and the findings suggest a need for additional support in the form of policy reform and creation. Individuals largely see trade policy and increased trade in general as a win for corporations and for the overall economy. The workers are often the losers. Through this study, I offer insight on the detrimental effects of increased trade on income inequality or wages.

As protectionist measures continue to control the unauthorized use of intellectual property, leaders can use this study to justify similar measures for protecting workers' wages. The visible decline in wages over a 20-year period is a valid justification for further investigation into policy creation that advocates for the workers eft out of the workforce. This advocacy may come in the form of taxes on corporations for job losses or a cap on the number of jobs that a corporation or employer may eliminate in a given year.

It is important for leaders of corporations to take ownership and be accountable as well. Corporations are involved in programs that hold them accountable if they do business with countries or organizations known for forced labor. Corporations even experience accountability for their carbon footprint. As part of a corporation's social responsibility efforts, there should be some measure in which they are accountable to be good stewards in their community. In this case, being a good steward means not contributing to income inequality or wage loss.

Historically, in international trade, there have been counter tariffs that serve to dissuade use of imports in particular industries. In some cases, counter tariffs simply seek to limit the amount and set quotas on specific imported commodities. These measures arise as a result of careful investigations done in the United States of customers and industry competitors alike. In trade, people should also consider counter job loss policies. These policies could be similar to other counter actions that limit the number of imports corporations have. There is also an opportunity for policymakers to create a balance between wages and imports.

Conclusion

I conducted research in this study to determine if there was an impact on income inequality in the form of wages due to trade liberalization among automotive manufacturing workers in Detroit. Prior to this study, the existing literature focused on underdeveloped and developing nations and was heavily tied to exports. In this study, I examined an urban hub in the most developed economy in the world.

I found there was in fact an impact on income inequality measured by wages as a result of trade liberalization policies, and specifically, NAFTA. Over the last 20 years, imports of all types have increased. In the Detroit MSA, wages have continued to decline among automotive manufacturing workers. The exception for import growth was due to an economic recession and a highly politicized presidential election.

However, the findings suggested that trade liberalization policies more heavily impacted the automotive manufacturing industry overall. In all other industries, there was no correlation in the increase of trade and increase of income inequality or lower wages. In addition, this phenomenon did not apply to higher-skilled labor in the automotive industry. These findings suggested there is an extremely vulnerable population among lower-skilled automotive manufacturing workers. More importantly, there are not enough protections in trade policy to protect them.

In 2020, NAFTA became USMCA. In USMCA, there are provisions to increase wages for laborers from Mexico in automotive production. However, there are no provisions to mitigate or minimize the damaging effects on wages in the United States as a result of continued increased trade. Corporations have continued to be the winners of

globalization as it relates to free trade and have not had tremendous oversight as it relates to those benefits. This study indicated that there are in fact some industries that NAFTA and other free trade policies disproportionately affect. This research lays the foundation for further investigation into ways to mitigate income inequality in the form of wages. There is no single solution. Rather, there are several courses of action to include, corporate responsibility efforts that emerge in the form of upskilling and reskilling. In addition, this research makes a valid case for policymakers to put in place policies that seek to limit job displacement and wage loss that increase income inequality.

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