Trade Liberalization and Economic Performance: An Empirical Analysis

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Abstract:

Trade liberalization has long been a debated topic; free traders will argue it makes all involved parties more prosperous while protectionists say that it costs jobs and hurts countries' economies. This paper will study the relationship between a country's trade freedom, as measured by the Heritage Foundations trade openness metrics, and the nation's economic performance. This study will incorporate indicators such as gross domestic product, unemployment, and investment flows across 56 countries of different income levels to determine whether free trade policies lead to greater economic performance. The three income levels analyzed will be high-income, medium-income, and low-income. The empirical analysis portion of this report shows there are statistically significant relationships between trade and key economic variables including GDP, gross domestic savings, inflation, unemployment, and broad money.

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1.0 INTRODUCTION

Trade and the growth of the global economy are synonymous; as trade increases, so does the size and reach of the global economy. As a result, people globally have divergent views on trade virtues and vices. Some will argue that trade drains a nation of its jobs and replaces well paying jobs with cheap products. Others would argue that consumers made the choice to purchase cheaper products, and trade enhances a nation's wealth and opportunities within the nation. This paper aims to look at trade from a global angle, to attempt to discern whether its impacts on a country's economy are what it is chalked up to be. The dependent variable in this study is the Heritage Foundations trade openness ratings, which measures a nations openness to global trade. Through a fixed effect panel data model, the relationship between the ratings and key economic indicators will be explored. The economic indicators, or independent variables, that will be analyzed are the current GDP, gross domestic savings, inflation, trade as a percent of GDP, unemployment rate, FDI net inflows, and broad money.

This study will look to increase our knowledge on the relationship between trade openness and key measures of economic performance. The results of this study are of deep importance to policymakers worldwide, as if there is a positive relationship between a countries openness to trade and its economic performance then policymakers would likely seek to implement policies that increase the amount of trade a nation is doing. On the other side, should trade prove to have a negative effect on a nation's economy and truly be responsible for increases in unemployment and decreases in key economic indicators, then policymakers would be wise to limit the amount of trade in which their country partakes. This study is economically relevant due to the sheer amount of international trade that occurs globally. According to the United Nations Conference on Trade and Development's (UNCTAD) 2019 Trade and

Development report, global trade expanded by 7.7% to $ 5.8 trillion. This is an increase from $5 trillion in 2016 and $5.4 trillion in 2017. It is abundantly clear that as globalization increases, so does trade. This makes a comprehensive understanding of the effects of trade absolutely relevant to today's policymakers.

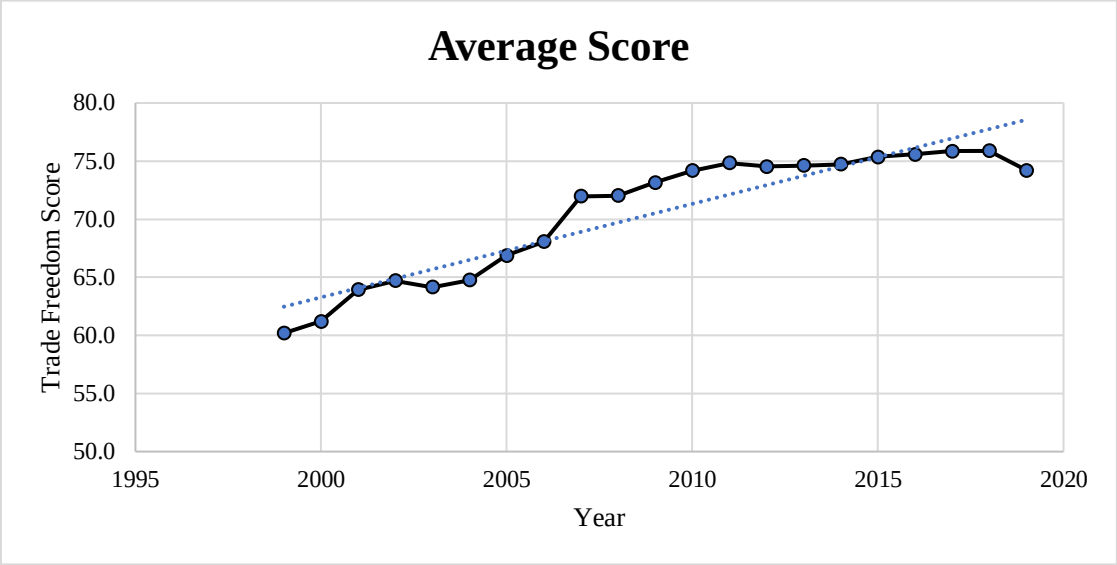
2.0 TRENDS IN GLOBAL TRADE LIBERALIZATION

In this section, there will be a heavy focus on four key trends globally in trade that have occurred over the past 20 years. The first of the trends that will be discussed is how the Heritage Foundations Average Trade Freedom Score, the dependent variable in this paper's model, has evolved over the past 20 years. Secondly, we will look at the 20-year evolution of trade as a percentage of global GDP. Thirdly, this paper will discuss how tariff lines have changed globally, which measures what portion of product lines had tariffs in excess of 15%. Lastly, this paper will examine the trends in the average weighted mean tariffs to see how tariffs on goods have evolved over this timetable. Examining trends in these four variables will provide us with insight into how liberalization has evolved globally since 1999.

Figure 1 shows the trend in the global averages of the Heritage Foundation Trade Freedom Scores. According to the Heritage Foundation, this metric "is a composite measure of the absence of tariff and non-tariff barriers that affect imports and exports of goods and services. The trade freedom score is based on two inputs: The trade-weighted average tariff rate and non-tariff barriers" (Heritage Foundation). This is used to show the trend in trade liberalization because it shows how freely a country can trade and, from the global average scores, we can determine whether the global community is moving more towards trade liberalization. In the numbers, we see that for most of the past twenty years, the world, as a whole, has moved more towards liberalization. In 1999, the average Trade Freedom Score was 60.2, and the global

average peaked in 2018 at 75.9. By 2019, the global average had fallen to 74.2, a product of the United States increasing barriers to trade with many nations and nations responding with retaliatory tariffs of their own. While the 2019 showed a slight decrease in Trade Freedom globally, the trend line in figure 1 clearly shows a positive trend towards trade liberalization over the past twenty years in terms of the Trade Freedom Score global average.

Figure 1: Trade Freedom Global Average

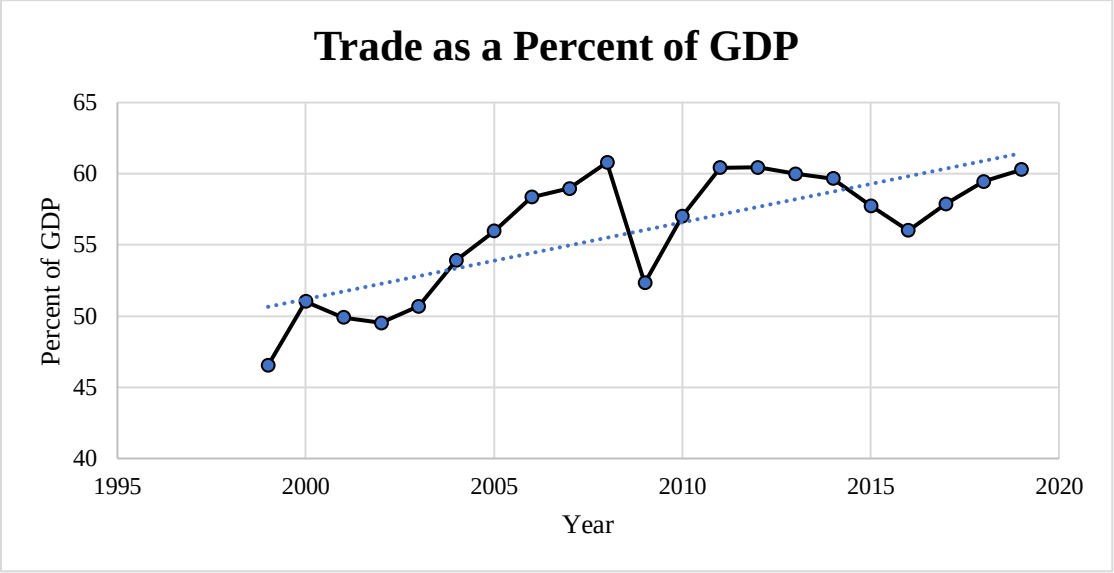


Source: Heritage Foundation

Figure 2 examines the global trend in trade as a percent of worldwide GDP. This is important because if global trade was becoming increasingly liberalized, then the data should show that trade as a percent of a nation's GDP has increased over this period. The data does, in fact, show that from 1999 forward, trade as a percent of global GDP increased. In the first year analyzed, 1999, trade made up 46.5% of GDP. This number peaked at 60.7% in 2008, in the midst of the global financial crisis. This can likely be attributed to increasing consumer favorability globally towards lower cost of overseas goods. This is supported by the fact that in 2009 trade as a percent of global GDP fell to 52.3%. By 2019, this number had rebounded back to 60.2%, which

is still lower than the peak during the 2008 financial crisis, but is an astounding figure considering the global economy was still in an expansionary period. This figure marked a significant 20-year growth. Moreover, this occurred in spite of the slight decrease in global Trade Freedom that the Heritage Foundation marked in 2019. This backs up the previous data that suggests that global trade liberalization has increased over the past 20 years. The positive trend in this data is enhanced by the positively sloping trendline.

Figure 2: Trade as a Percent of GDP

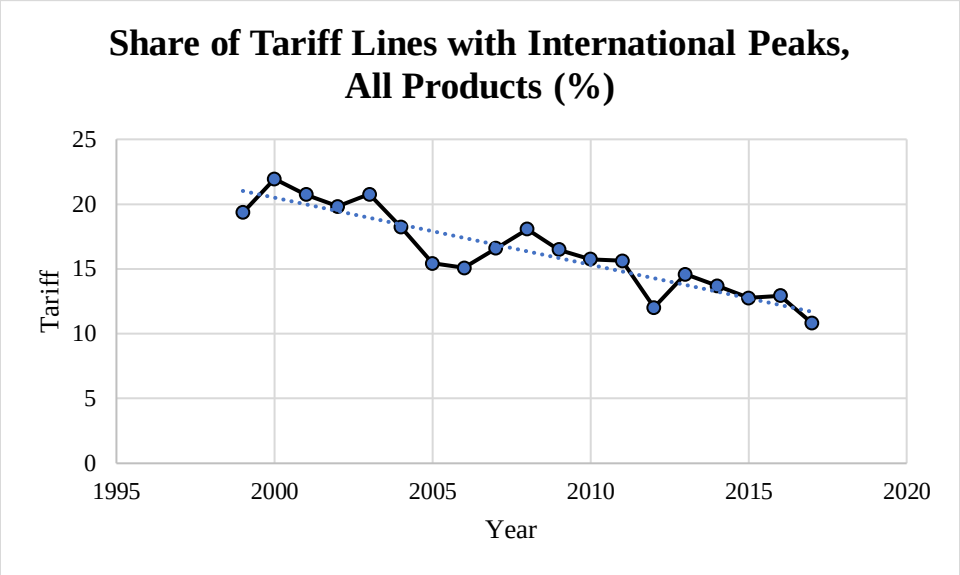


Source: World Bank Database

Figure 3 examines the indicator titled “share of tariff lines with international peaks, all products (%)”. This indicator, from the World Bank, shows that the “share of tariff lines with international peaks is the share of lines in the tariff schedule with tariff rates that exceed 15 percent. It provides an indication of how selectively tariffs are applied” (World Bank). In essence, this is important because it shows whether nations are issuing tariffs on a per product basis. For example, if a nation perceives the trade imbalance is more product specific rather than indicative of a widespread government policy change, they would be less likely to respond with a national

tariff policy change. In 1999, the first year used in this dataset, the share of tariffs was 19.4%. It reached its peak in 2000 at 21.9% and as of 2017, the last year in which data was available, the figure was 10.8%. This shows that tariffs are being applied on a selective basis rather than nations of the world pursuing largely protectionist policies. This supports the previous data in figures 1 and 2 that showed global trade liberalization was increasing. Additionally, the trend line in figure 3 clearly shows the downward trend of these tariffs.

Figure 3: Share of Tariff Lines with International Peaks, All Products (%)

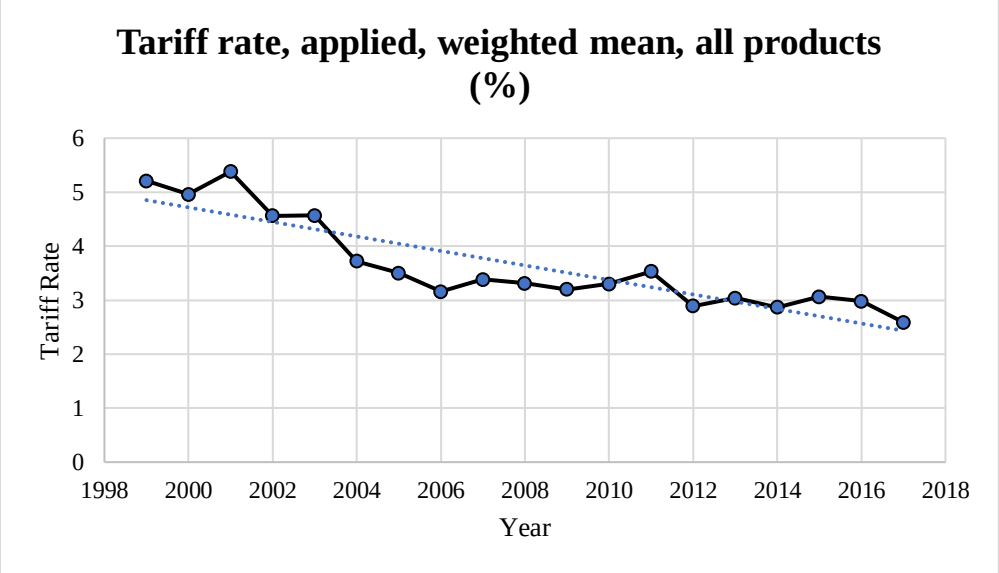


Source: World Bank Database

Figure 4 analyzes the indicator titled “tariff rate, applied, weighted mean, on all products.” This indicator examines the “Weighted mean applied tariff is the average of effectively applied rates weighted by the product import shares corresponding to each partner country” (World Bank). This is important because it shows the trend in global tariff rates over the past 20 years, which if trade liberalization were in fact increasing, then we would expect to see the mean decreasing. In 1999 the mean rate was 5.21%. This peaked two years later at 5.38% and reached its low in the last year the data was available at 2.59%. The data shows that there

has been an increase in liberalization over these past twenty years, as the tariff means have declined substantially. This conclusion is supported by the trend line in figure 4, which shows that there is a downward sloping trend in the tariff rate on all products.

Figure 4: Tariff Rate, Applied, Weighted Mean, All Products



Source: World Bank Database

The trends section discussed four key pieces of data with the goal of examining a trends in global trade liberalization over the duration of years in which this study is analyzing data. The trends shown in figures 1-4 show that globally trade liberalization has increased between 1999 and 2019. This conclusion is supported by the positive trends in both global average Trade Freedom Score and the significant increase in trade as a percent of GDP, globally. This is backed up by the negative trends in tariffs on economies as a whole, rather than specific goods, and the decrease in the mean of tariffs on all products globally. The data makes it clear that over the period examined in this study, the world observed significant increases in trade liberalization.

This is important to the study because it is imperative to understand how the global economy changed during the period in which data will be analyzed.

3.0 LITERATURE REVIEW

The History of Tariffs

Dating back well over one hundred years, tariffs have been used by states in an attempt to protect jobs within their borders. Despite a general consensus among economists that tariffs have negative effects on a nation's economy, there has long been a narrative pursued by policy makers that they are a tool for saving jobs. The underlying logic to these arguments is that if states prevent low-cost goods from entering their country, then those same goods are no longer produced overseas and will be produced internally. This in theory will lead to increases in national employment and a stronger economy. What protectionists wrongly assume is that the surplus goods produced within the country constructing barriers to trade will simply be sold in other nations. This has been proven wrong as when a country institutes tariffs, other countries whose industry have now been harmed will implement retaliatory measures. These retaliatory measures often hurt the producers within the country that originally implemented tariffs. This creates a situation in which both nations are worse off. Additionally, by implementing these barriers, the government is saying that the consumer does not get to decide which products they purchase. They do not get to choose whether they derive greater utility from a lower cost good plus fiscal savings, or from a more expensive good, but the pride of supporting a business within their country.

The first instance this was observed was when the United States implemented the Smoot-Hawley tariffs during the Great Depression. In order to combat the Great Depression, U.S. policymakers believed that implementing significant barriers would help their struggling

economy. Irwin (2001) conducted a quantitative analysis on these tariffs. In this analysis he found that the tariffs imposed ended up functionally being significantly higher than intended. His research concluded that the average tariff from 1930-1932, following the implementation of the bill, increased to 61.6%. Irwin (2001) also observed that imports fell 40% from 1930-1932. This study also found that 22% of the resulting fall in imports can be attributed directly to the implementation of the tariffs. The remainder of the drop can reasonably be attributed to other macroeconomic factors, including the Great Depression. Lastly, Irwin (2001) concluded that the indirect consequences of the tariffs increased the size and scale of the Great Depression. This conclusion is important because following the implementation of these tariffs, the economy did not improve, and the US remained in the great depression for years following this.

Following the increase in tariffs that occurred during the great depression and continued through the end of World War II, the global economy has observed a consistent trend towards liberalization. This trend usually commences with nations in a similar geographical region engaging in trade liberalization through reducing barriers to trade and implementing free trade agreements. After the war ended, the US and other nations, specifically European nations, recognized that the barriers to trade previously implemented were unsustainable if all the states wanted to be economically prosperous. This started with The General Agreement on Tariffs and Trade (GATT) in 1947. This was an agreement between 23 nations from every single continent and it held that all nations would be treated equally on matters of trade. GATT also included measures on how tariffs could or could not be implemented, and what sort of trade practices nations could take part in. This included a ban on dumping of goods and different forms of currency manipulation. While GATT did not bring trade liberalization to the levels that we see it today, it marked a substantial policy shift from where the international community was 15-17

years prior. It also demonstrated the beginning of a growing consensus within the international community that nations would be better off cooperating than having an adversarial relationship. That being said, to add an empirical number to how tariffs fell following the first GATT agreement, Irwin (2001), estimated that US tariffs fell from the 61.6% level that they were at following the implantation of the Smoot-Hawley tariffs to roughly 20%, meaning a reduction of 40% from 17 years prior.

Baldwin (2006) discusses this post war trade liberalization through the trade data and discusses the evolution of trade from in what he refers to as phases. These phases are juggernauts and spaghetti bowl. Baldwin (2006) posits that there are four domino phases, Europe Phase one from 1948-1957, Europe Phase 2 in 1973, Europe Phase 3 in 1986, and America Phase 1 in 1991. Europe phase includes the creation of GATT through the Treaty of Rome. This was a major era of liberalization throughout portions of Europe that were not under Soviet control. European Dominos phase 2 occurred in 1973, this phase is marked by the entrance of Britain into the EEC and completed the transition of Europe into a free trade zone. The third European phase occurred in 1986 and is marked by the reduction of tariffs between the U.S. and the EU, with rates falling from 6% to 4%. This phase is also notable because these nations removed barriers to trade following an economic downturn, a far cry from the significant tariff increases by the U.S. in the midst of the Great Depression. The last dominos phase, America phase 1, occurred in 1991. While America had previously been involved in international trade and were a proponent of low barriers to trade, there was previously trade tension with their neighbors, specifically Mexico. 1991 was marked by Mexico approaching the US about participation in a free trade agreement. This approach would eventually trigger NAFTA, a free trade agreement between the U.S., Canada, and Mexico, which was in place for over twenty years before President Trump

transitioned the three nations to the USMCA. The USMCA is a reworked version of NAFTA that brought it up to date with the macroeconomic states of the involved parties.

The second category of trade advancement that Baldwin (2001) discusses is juggernauts. He divides them into categories, cycle 2 (1962-1967), cycle 3 (1973-1979), and cycle 4 (1986). Cycle 2, which transpired from 1962-1967, was prompted by President Kennedy's decision to liberalize trade with Europe and negotiate the EEC's tariffs down through GATT. This helped to cement the global movement towards liberalization. Cycle 3 is marked by the Tokyo Round and the implementation of the enabling clause. The enabling clause allowed for non-reciprocal trade policies between developed and developing nations. This was beneficial for developing nations and tilted the playing field slightly towards them, which was supposed to result in more equitable trade between developing and less developed nations. Cycle 4 was previously discussed as it was simultaneously classified as European Dominos phase three. The last category that is discussed by Baldwin (2001) is the spaghetti bowl model. This uses trade following the collapse of the USSR as the model for a scenario in which rapid trade liberalization occurs between developed countries and less developed countries. In this example, the breakdown was between the wealthier and previously free Western Europe and newly free Eastern Europe. Western Europe was quick to bring the newly freed nations into the fold and help them become liberalized nations. While Europe and the US were not the only nations engaging in international trade between the end of World War II and the implementation of NAFTA, they were the global leaders. Additionally, following the collapse of the Soviet Union it was evident that the economic liberalism and global cooperation through international institutions lead the world to its current state. This makes Baldwins (2001) paper the perfect model to bridge the gap between the Smoot-Hawley tariffs and the trade policies of today.

It is clear that there has been a significant evolution in the way the world views tariffs and trade liberalization over the past 100 years. In the 1920's and early 1930's, tariffs were viewed as an effective fix for an ailing economy, however, they quickly became a pariah among policymakers. Within two years of their implementation, the U.S. had begun to walk back portions of the Smoot-Hawley Tariffs. By 1947, nations formed GATT to pursue free and fair trade globally. Over the next 50 years, countries engaged in a steady reduction of trade duties that would eventually result in low barriers to trade between the largest and most prosperous nations as well as a separate set of policies that allowed for trade leniency with developing nations.

Openness and Developing Nations

There are what could be described as two main perspectives on trade between developed developing nations, those are the cynical perspective and the pro liberalization perspective. The cynical perspective can be divided into two camps, one that posits trade between wealthier and developing nations is akin to colonialism due to cheaper labor and production costs and the other who postulates that developing nations are stealing jobs and livelihoods from more developed nations by using an unfair advantage of cheap labor. Both groups inherently believe there are deeply rooted flaws in this arena, they just maintain different outlooks. This contrasts to the pro liberalization crowd which believes that trade will help less developed nations grow by providing economic opportunities, and also will provide benefits to wealthier nations in the form of cheaper goods, which results in more capital to spend elsewhere. The main driver behind trade and developing nations is the flow of Foreign Direct Investment, or FDI, therefore the determinants of FDI will also be discussed.

Trade would not be possible without an international community of nations and investors who are willing to put capital into developing nations for financial gain in the long run. This makes FDI an incredibly important factor in trade on the global stage. There are a plethora of factors that determine what makes a nation an attractive destination for investment, many of them economic and institutional. Arbatli (2011) studies the effects of economic policies, as well as macroeconomic factors as a whole, on emerging market economies. He found that a nations regulatory climate, specifically tax and tariff rates, had a sizeable impact on foreign direct investment. On top of this, Arbatli (2001) found that institutional quality and national stability were key determinants in the amount of FDI. Lastly, during times of global economic downturn, FDI flows decrease across the board. These contributing factors to FDI flows tend to contradict the previous mentioned assessments that trade is unfair or exploitative, as it is evident that the primary factors involved are the regulatory environment, macroeconomic factors, or institutional efficacy. They primary factors are not wage rates, working population, or the ability to produce at the lowest possible cost.

Openness theory posits that the opening up of a nation's economy will help to increase its financial development. This largely falls in line with liberal thinking that nations are better off and more prosperous when engaged in trade. That being said, when attempting to determine the accuracy of what is asserted by those opposed liberalization between developed and less developed nations, we can examine empirical studies to evaluate their claims. Ashraf (2018) explores the effect that different measures of financial openness have on international trade flows. The results of his study suggest that liberalization helps to create a stronger financial system by adding to the flow of capital. In turn, this helps benefit nations economic development by allowing for more lending, which facilitates the creation of a solid economic foundation that

developing nations will need to ascend past the point developing and into a developed nation. Nguyen, et al. (2018) found in their research on emerging market economies, trade openness, and FDI that there were multiple benefits of trade on emerging market economies. These included boosted credit levels and what the authors described as a "booming" effect on the national economy.

It is clear that there are significant positive benefits for both sides in trade between developing nations and developed nations. Developed nations receive goods at a cheaper price, while developing nations receive benefits ranging from increased credit levels to the foundation for a robust national business infrastructure. Additionally, it is clear that the gripes of those opposed to increasing trade liberalization do not hold any water, as stability and policy, not cheap labor, is the primary determinant of the FDI flows that power trade and developing nations.

The Impact of Tariffs

Lastly, I would like to review literature surrounding the impact of tariffs. Throughout economic history, tariffs have been used as a punishment and as a way to attempt to improve a countries economy. Tariffs have been implemented on goods from other nations as a whole or on a specific product or sector for reasons ranging from disagreements to a trade imbalance. A plethora of research has been conducted on the various ways that their impact can be felt. This can range from showing the loss in trade or GDP that results from a significant implementation of a tariff or research showing how a sector specific tariff caused the prices of a common consumer good to increase. As a result, it is important to understand the negative externalities that arise from the implementation of protectionist policies. This review will look at the

responses to tariffs from the perspective of a national economy as a whole and from the perspective of a specific industry.

On the macro level we see that there are significant negative externalities associated with the implementation of tariffs. The negative impact of tariffs can be seen as far back as the 1930's when the U.S. implemented the Smoot-Hawley tariffs, which had a disastrous effect on the global economy. These tariffs elongated the Great Depression and brought international trade to a grinding halt as other nations enacted retaliatory tariffs in response to the U. Ss' tariffs. Furceri, et al. (2018) found that there are statistically significant declines in both domestic output and productivity that result from the implementation of tariffs. They also point out that tariffs result in deadweight loss, which is the term used for the loss that is incurred from a government implemented economic policy, whether that be a subsidy, tax, or in this case, a tariff. This is because the implementation of tariffs creates a market distortion since the desired output will no longer be occurring at an efficient point. Another avenue in which the authors determined tariffs had an impact was through monetary policy. Furceri, et al. (2018) found that increases in tariffs likely lead to an increase in inflation within two years of their implementation. This is important because should tariffs cause inflation to fall outside of a central banks target range, or cause inflation to significantly exceed its target, it could cause a central bank to have to alter monetary policy. Lastly, their analysis showed that increases in tariffs leads to decreases in consumption. This is logical because tariffs raise the prices of goods, which leaves them with less disposable income to spend in other ways. Ferraro and Van Leemput (2019) looked into the long-run effects of the U.S.-China trade war from the perspective of the U.S. Federal Reserve. The trade war resulted in the US raising $234.6 billion in tariffs against China and China raising $113 billion in retaliatory tariffs on US goods. They estimated that there would noticeable negative effects on

economic activity as a result of the tariffs. The model they used determined that the tariffs would cause a .25% decrease Chinas GDP and that the U.S. demand for goods produced in China would fall by an astounding 33%, or a monetary value of $159 billion. They project that the US GDP would decrease by .19% and Chinese demand for US goods would fall by 43%, or a monetary value of $58 billion.

Tariffs are not always as wide ranging as the Smoot-Hawley tariffs were, preventing trade from multiple nations or as the U.S. tariffs were directed at China as a whole. To protect key industries, nations will impose tariffs on specific sectors or goods. Saunders (1980) discusses how the Canadian government went as far as to establish protective tariffs on industries where U.S. producers were more efficient, to insulate Canadian producers against competition. Carter and Steinbach (2020) examined the effects of retaliatory tariffs on agriculture and food trade. Their research found that following a flurry of tariffs by the Trump Administration, tariffs on U.S. agriculture products increased from 8.3% to 28.6% as retaliation for tariffs implemented by the U.S. There were significant negative externalities as a result of these policies. Carter and Steinbach (2020) estimate that the U.S. lost $15.6 billion worth of trade to various nations because of these policies. This also resulted in greater opportunities for nations who did not implement tariffs, as trade between them and the nations who levied retaliatory tariffs against the U.S. increased by $13.5 billion.

The results of both types of tariffs show that their implementation results in significant losses that can be detrimental for a nation in the long run. History shows that Tariffs such as the Smoot-Hawley tariffs can make economic downturns worse. Empirical analyses from the Federal reserved demonstrate that there are significant losses associated with tariffs. Additionally, implementing tariffs only serve to hurt the issuing nation and provide opportunities for other

nations to take business. This was observed when the U. Ss tariffs lost $15.6 billion worth of trade for the US while providing $13.5 billion worth of new trade opportunities for other nations. This section has served to review literature regarding the history of tariffs, the effects of trade liberalization on developing nations, and the consequences of tariff implementation.

4.0 DATA AND EMPIRICAL METHODOLOGY

4.1 DATA

This section will discuss the data that is being used in this analysis, where it comes from, and key figures that have been drawn from the statistics. There are four tables within this section that contain summary statistics for the four different ways this paper has analyzed data. Table 1 shows all countries summary statistics, meaning this is a summary of the low-, medium-, and high-income nations data. Table 2 provides summary statistics for high-income nations, table 3 offers the summary statistics for medium-income nations, and, lastly, table 4 provides the summary statistics for low-income nations. The data used comes from two different sources. The Trade Freedom Score comes from the Heritage Foundations Index of Economic Freedom rankings. The other variables come from the World Banks World Development Indicators, and the metadata of this data provides us with greater detail on where the data comes from. GDP current U.S., gross domestic savings, inflation, and trade (% of GDP) all come from the World Bank national accounts data. The unemployment rate data's original source was the International Labor Organizations ILOSTAT database. Lastly, FDI net inflows and broad money come from the International Monetary Funds balance of payments database and international financial statistics databases, respectively.

Table 1: All Countries Summary Statistics

All Countries Summary Statistics						
Variable	Observation	Mean	Std. Dev	Min	Max	Years
Trade Freedom Score	1175	71.47	12.11	19.60	92.40	20
GDP Current US	1175	818,139,747,210	2,374,384,240,949	487,038,822	21,433,226,000,000	20
Gross Domestic Savings (% of GDP)	1175	20.20	13.96	(21.46)	75.55	20
Inflation	1175	9.50	78.92	(26.30)	2,630.12	20
Trade (% of GDP)	1175	66.57	35.30	(1.63)	220.41	20
Unemployment Rate	1175	4.68	5.11	0.11	32.31	20
FDI, Net Inflows (% of GDP)	1175	3.37	4.39	(5.06)	68.69	20
Broad Money	1175	62.68	41.85	2.86	255.02	20

Table 1 shows the summary statistics for all countries. This set combines the data for low, middle, and high-income nations. Therefore this set has the most data points, with 1175 places. This chart highlights key points in the data for all of the countries examined over the course of the twenty years analyzed.

Table 2: High-income Countries Summary Statistics

High Income Countries Summary Statistics						
Variable	Observation	Mean	Std. Dev	Min	Max	Years
Trade Freedom Score	420	82.08	5.17	59.00	92.40	20
GDP Current US	420	1,641,823,044,790	3,403,934,041,926	6,621,010,372	21,433,226,000,000	20
Gross Domestic Savings (% of GDP)	420	27.09	14.08	(5.51)	75.55	20
Inflation	420	3.78	7.96	(25.96)	64.86	20
Trade (% of GDP)	420	67.32	29.99	(1.63)	191.87	20
Unemployment Rate	420	4.82	3.92	0.11	27.47	20
FDI, Net Inflows (% of GDP)	420	2.95	4.55	(5.06)	68.69	20
Broad Money	420	100.41	43.53	37.78	255.02	20

Table 2 provides the summary statistics for the high-income nations. The number of observations in this model fell to 420, meaning that this data set contains 20 high-income countries.

Table 3: Medium-income Countries Summary Statistics

Medium Income Countries Summary Statistics						
Variable	Observation	Mean	Std. Dev	Min	Max	Years
Trade Freedom Score	419	69.56	12.27	19.60	88.00	20
GDP Current US	419	632,372,802,504	1,723,117,525,750	732,750,000	14,342,903,006,431	20
Gross Domestic Savings (% of GDP)	419	20.59	11.76	(21.46)	51.09	20
Inflation	419	8.99	20.55	(26.30)	316.79	20
Trade (% of GDP)	419	76.00	42.48	20.98	220.41	20
Unemployment Rate	419	6.89	6.05	1.00	32.31	20
FDI, Net Inflows (% of GDP)	419	3.50	3.18	(2.76)	31.25	20
Broad Money	419	64.35	39.62	11.08	207.67	20

Table 3 shows the summary statistics for the middle-income nations analyzed in this paper. The 419 observations mean that there were 20 medium-income countries in this sample.

Table 4: Low-income Countries Summary Statistics

Low Income Countries Summary Statistics						
Variable	Observation	Mean	Std. Dev	Min	Max	Years
Trade Freedom Score	336	64.67	10.07	25.00	84.60	20
GDP Current US	336	20,191,428,306	36,197,101,051	487,038,822	302,571,254,131	20
Gross Domestic Savings (% of GDP)	336	11.11	10.90	(13.78)	42.32	20
Inflation	336	17.30	145.16	(9.56)	2,630.12	20
Trade (% of GDP)	336	53.88	26.68	0.17	144.61	20
Unemployment Rate	336	2.79	4.03	0.13	16.06	20
FDI, Net Inflows (% of GDP)	336	3.74	5.35	(4.85)	39.46	20
Broad Money	336	28.76	19.79	2.86	109.05	20

Table 4 provides us with the summary statistics for low-income nations. The 336 observations are indicative of a smaller sample size, as there are 16 nations in this data sample.

4.2 EMPIRICAL MODEL

The empirical model in this paper has been adapted from Gnagnon (2018). In the original model, Gnagnon's dependent variable was financial openness. The independent variables that were used in the model were financial development, secondary education, government consumption, gross fixed capital formation, inflation rate, and size of population. This paper has changed both the dependent variable and several of the main independent variables.

The new model can be written as follows:

$$\mathbf{Ytf = = (Ci\ \delta jit)\ X\ E + GDP + GDS + I + T + U + F + BM + \mu it}$$

The variable Ytf is the dependent variable that is representative of trade freedom. Ci is the variable for country and δjit is the representative of dummy variables in the model. That is multiplied by E, which represents the number of nations in the sample. Next, we have the seven dependent variables. GDP is representative of the gross domestic product, GDS represents gross domestic savings, I is representative of the inflation variable, T is representative of trade as a percent of GDP, U represents the unemployment variable, F represents foreign direct investment net inflows and lastly BM is representative of broad money. The last item in the empirical model is μit, or the disturbance term.

5.0 EMPIRICAL RESULTS

This section will discuss empirical results. The results will be broken down starting with the baseline regression, following that the random effect model and its results will be discussed. After those two models, the fixed effect model and its results will be discussed. The Hausman test which showed that the fixed effect model was more effective is shown in the appendix. Regarding statistical significance, * indicates statistical significance at 0.10 <, ** indicates statistical significance at .05<, and *** indicates statistical significance at 0.01<.

Table 5: All Countries Baseline Regression Model

All Countries Baseline Regression Model				
Trade Freedom Score	**Coef.**	**Std. Err**	**P>|t|**	**Significance**
GDPCurrentUS	0.0000000	0.0000000	0.000	***
GrossDomesticSavingsofGDP	0.1241305	0.0268966	0.000	***
InflationGDPDeflatorAnnual	(0.0081802)	0.0040373	0.043	**
TradeofGDP	0.0377462	0.0106085	0.000	***
Unemploymenttotaloftotal	0.3677288	0.0640232	0.000	***
Foreigndirectinvestmenti	0.1421388	0.0748984	0.058	*
BroadMoney	0.0745256	0.0088853	0.000	***
_cons	59.6987300	0.9674809	0.000	

The baseline regression model for all countries showed statistical significances across the board between Trade Freedom and 7/7 independent variables. This model found that a significant relationship was present between Trade Freedom and GDP, gross domestic savings, inflation, trade of GDP, unemployment FDI inflows, and broad money. Despite being the base model for all variables, this is important because it shows us that there is foundation for further and more significant relationships once we break the data down further by national income and model type. In short, in the baseline model we see that there is a strong global relationship between Trade Freedom and economic performance.

Table 6: High-income Countries Baseline Regression Model

High Income Countries Baseline Regression Model				
Trade Freedom Score	**Coef.**	**Std. Err**	**P>|t|**	**Significance**
GDPCurrentUS	2.19-e-13	0.0000000	0.005	***
GrossDomesticSavingsofGDP	(0.1360093)	0.0248397	0.000	***
InflationGDPDeflatorAnnual	(0.1696170)	0.0316466	0.000	***
TradeofGDP	0.0345654	0.0111410	0.002	***
Unemploymenttotaloftotal	(0.0395623)	0.0736357	0.591	
Foreigndirectinvestmenti	(0.0328578)	0.0514195	0.523	
BroadMoney				
_cons	84.2402800	1.1257880	0.000	

Table 6 shows the results for the baseline regression model when it is broken down to data solely for high-income nations. We see that the number of variables where there is significance drops from 7/7 to 4/7. No results are available for broad money because a pair of European Union broad money figures were not available in World Bank data therefore it was not included so the absence did not skew results. That being said, this regression observed statistically significant relationships between Trade Freedom and GDP, gross domestic savings, inflation, and trade. It is notable how there is not a significant relationship between Trade Freedom, unemployment and FDI inflows. However, the more robust models that will be discussed in proceeding paragraphs will be more telling about the relationship between variables than the base regression.

Table 7: Medium-income Countries Baseline Regression Model

Medium Income Countries Baseline Regression Model				
Trade Freedom Score	**Coef.**	**Std. Err**	**P>|t|**	**Significance**
GDPCurrentUS	0.0000000	0.0000000	0.005	***
GrossDomesticSavingsofGDP	0.0113107	0.0642525	0.860	
InflationGDPDeflatorAnnual	(0.0589209)	0.0296350	0.047	**
TradeofGDP	0.0951037	0.0175895	0.000	***
Unemploymenttotaloftotal	0.2915237	0.1044572	0.006	***
Foreigndirectinvestmenti	0.3237695	0.1941067	0.096	*
BroadMoney	(0.0447998)	0.0212480	0.036	**
_cons	61.0023600	2.1214560	0.000	

Table 7 shows the results of the baseline regression model for medium-income nations. These results differ from what we saw when we analyzed the data as a whole and broke it down into high-income country data. In the baseline all countries model, statistical significance was observed between 6/7 categories, in high-income countries the number of variables in which significance was observed was 4/6. In medium-income countries we see significance between 6

variables and these variables are different than in high-income countries. In medium-income countries we observe significance between Trade Freedom and GDP, inflation, trade, unemployment, FDI inflows, and broad money. The variables in which all income levels saw statistical significance where GDP, inflation, and trade.

Figure 8: Low-income Countries Baseline Regression Model

Low Income Countries Baseline Regression Model				
Trade Freedom Score	**Coef.**	**Std. Err**	**P>|t|**	**Significance**
GDPCurrentUS	(14.3620000)	1.761-11	0.057	*
GrossDomesticSavingsofGDP	(0.0059968)	0.0036019	0.097	*
InflationGDPDeflatorAnnual	(0.0219087)	0.0247823	0.377	
TradeofGDP	0.6239843	0.1305901	0.000	***
Unemploymenttotaloftotal	0.4352934	0.1148942	0.000	***
Foreigndirectinvestmenti	0.0355042	0.0293964	0.228	
BroadMoney	0.1101124	0.0562140	0.051	*
_cons	60.0604400	1.4897510	0.000	

Figure 8 shows the results from the last baseline regression mode, which measures the effect of Trade Freedom on economic performance in low-income nations. This model observed statistically significant relationship between 5/7 variables. The significant relationships were found between Trade Freedom and GDP, gross domestic savings, trade, unemployment, and broad money. This is similar to the previous models, however, there are less significant relationships and 3 of the relationships are at a lesser degree of significance. These results show why there cannot be a one size fits all approach to analyzing the data. What the relationships here tell us is that if low-income nations engage in trade liberalization, then they will see increases in GDP, savings, trade, their money supply. They will also see decreases in unemployment. The next section will discuss the results from the random effect regressions, which will provide a more robust analysis of the numbers.

Figure 9: All Countries Random Effect Model

All Countries Random Effect Model				
Trade Freedom Score	**Coef.**	**Std. Err**	**P>|z|**	**Significance**
GDPCurrentUS	0.0000000	0.0000000	0.000	***
GrossDomesticSavingsofGDP	0.0484764	0.0335942	0.149	
InflationGDPDeflatorAnnual	(0.0048655)	0.0024981	0.051	**
TradeofGDP	0.0542589	0.0147500	0.000	***
Unemploymenttotaloftotal	(0.3643521)	0.0940654	0.000	***
Foreigndirectinvestmenti	0.0826048	0.0519666	0.112	
BroadMoney	0.1853141	0.0135291	0.000	***
_cons	57.5979700	1.7269100	0.000	

Figure 9 shows the random effect model conducted for all countries sampled. In the original all countries base regression model statistical significance was observed in 7/7 variables. In this model significance was observed in 5/7 variables. The variables in which relationships with Trade Freedom observed were GDP, inflation, trade, unemployment, and broad money. This tells us that the random effect model shows that Trade Freedom leads to global increases in GDP, inflation, trade, and a country's money supply. The data also shows Trade Freedom leads to decreases in unemployment. While the results of this model were not as wide ranging as the base regression, we can be confident that this model is a better predictor and these results that have been provided are more robust than the results from the initial regression.

Figure 10: High-income Countries Random Effect Model

High Income Countries Random Effect Model				
Trade Freedom Score	**Coef.**	**Std. Err**	**P>|z|**	**Significance**
GDPCurrentUS	0.0000000	0.0000000	0.000	***
GrossDomesticSavingsofGDP	(0.0995105)	0.0336827	0.003	***
InflationGDPDeflatorAnnual	(0.0755679)	0.0292748	0.010	**
TradeofGDP	0.0713049	0.0162582	0.000	***
Unemploymenttotaloftotal	0.0133135	0.0827515	0.872	
Foreigndirectinvestmenti	(0.0632683)	0.0460663	0.170	
BroadMoney				
_cons	79.3119400	1.2956080	0.000	

Figure 10 shows the random effect model for high-income countries. In this we see that there are statistically significant relationships between Trade Freedom and GDP, gross domestic savings, inflation, and trade. These are the same results that were seen in the previous baseline regression, likely telling us that the relationship between Trade Freedom and these four indicators in high-income countries is strong and stands up to the test of a more robust model.

Figure 11: Medium-income Countries Random Effect Model

Medium Income Countries Random Effect Model				
Trade Freedom Score	**Coef.**	**Std. Err**	**P>|z|**	**Significance**
GDPCurrentUS	0.0000000	0.0000000	0.000	***
GrossDomesticSavingsofGDP	(0.1594034)	0.0802272	0.047	**
InflationGDPDeflatorAnnual	(0.0239169)	0.0213988	0.264	
TradeofGDP	0.0733086	0.0264857	0.006	***
Unemploymenttotaloftotal	(0.7316554)	0.1688485	0.000	***
Foreigndirectinvestmenti	0.0622345	0.1507831	0.680	
BroadMoney	0.1920278	0.0248988	0.000	***
_cons	59.9752100	3.6359770	0.000	

Figure 11 shows the results from the random effect model that was run on Trade Freedom and the selected independent variables in medium-income countries. In this model we observe statistically significant relationships in 5/7 categories. The significant relationships that occur are between Trade Freedom and GDP, gross domestic savings, trade, unemployment, and broad money. No relationship is seen between Trade Freedom, inflation and FDI inflows. This is one less significant variable as the medium-income countries baseline regression and in this model, we see a relationship between Trade Freedom and gross domestic savings that was not previously there and there is no longer a relationship between Trade Freedom, inflation, and FDI inflows. The enhanced robustness of this model has provided us with relationships that were

previously not seen. The random effect model makes it clear that there are significant positive economic benefits associated with trade liberalization for medium-income nations.

Figure 12: Low-income Countries Random Effect Model

Low Income Countries Random Effect Model				
Trade Freedom Score	**Coef.**	**Std. Err**	**P>|z|**	**Significance**
GDPCurrentUS	0.0000000	0.0000000	0.000	***
GrossDomesticSavingsofGDP	0.1475590	0.0682844	0.031	**
InflationGDPDeflatorAnnual	(0.0041540)	0.0029147	0.154	
TradeofGDP	0.0330100	0.0353491	0.350	
Unemploymenttotaloftotal	0.4519326	0.2802476	0.107	
Foreigndirectinvestmenti	0.2552373	0.1090479	0.019	**
BroadMoney	0.1077142	0.0392988	0.006	***
_cons	53.8877900	2.5532350	0.000	

Figure 12 shows the results of the random effect model low-income nations. The results of this model showed statistically significant relationships between the dependent variable and independent variable in 4/7 categories. This is a decrease relative to the base regression model that showed significant relationships in 5/7 categories. In this model we see relationships between Trade Freedom and GDP, gross domestic savings, FDI inflows, and broad money. This tells us that there are roughly similar positive externalities associated with Trade Freedom for low-income nations in the random effect model relative to the base model. This model shows that Trade Freedom can help to increase low-income countries GDP, which will help them to grow and develop, and gross domestic savings, which will allow people to save money and invest it elsewhere in the economy instead of just spending it on life necessities. It also shows that Trade Freedom will lead to increases in the amount of FDI Inflows, as well as increases in the money supply which will help to power economic expansion.

Figure 13: All Countries Fixed Effect Model

All Countries Fixed Effect Model				
Trade Freedom Score	**Coef.**	**Std. Err**	**P>|t|**	**Significance**
GDPCurrentUS	0.0000000	0.0000000	0.001	***
GrossDomesticSavingsofGDP	0.0621163	0.0350575	0.077	*
InflationGDPDeflatorAnnual	(0.0048354)	0.0024670	0.050	**
TradeofGDP	0.0473371	0.0156775	0.003	***
Unemploymenttotaloftotal	(0.4774992)	0.0994840	0.001	***
Foreigndirectinvestmenti	0.0791104	0.0514809	0.125	
BroadMoney	0.2095244	0.0145689	0.001	***
_cons	56.9161200	1.2920770	0.000	

Figure 13 illustrates the results of the fixed effect regression model, showing the relationship between Trade Freedom and the assortment of independent variables. The base regression showed relationships in 7/7 independent variables while the random effect showed significance in 5/7 variables. This model shows statistically significant relationships between 6/7 variables, Trade Freedom and GDP, gross domestic savings, inflation, trade, unemployment, and broad money. Like the base model, there was no significant relationship between Trade Freedom and FDI inflows. These results are similar to the random effect results, as both models saw relationships between Trade Freedom and GDP, trade, unemployment, and broad money. In totality these results show that there are significant positive benefits associated with trade when the data is analyzed for all countries. Additionally, the inflation relationship is important because central bankers can look to enact measures to counter inflation due to its link with Trade Freedom. The following exhibits will discuss fixed effects results when the data when it is broken down by national income level.

Figure 14: High-income Countries Fixed Effect Model

High Income Countries Fixed Effect Model				
Trade Freedom Score	Coef.	Std. Err	P>|t|	Significance
GDPCurrentUS	0.0000000	0.0000000	0.001	***
GrossDomesticSavingsofGDP	(0.0791937)	0.0377281	0.036	**
InflationGDPDeflatorAnnual	(0.0577059)	0.0297333	0.053	*
TradeofGDP	0.0705359	0.0187061	0.001	***
Unemploymenttotaloftotal	(0.0131572)	0.0874710	0.881	
Foreigndirectinvestmenti	(0.0678983)	0.0455336	0.137	
BroadMoney				
_cons	77.8479600	1.1808310	0.000	

Figure 14 shows the results of the fixed effect model for high-income countries. In this model a statistically significant relationship is observed in 4/6 variables. These significant relationships shown here for high-income nations were between Trade Freedom and GDP, gross domestic savings, inflation, and trade. In the base regression model, there were relationships between 4/6 variables and in the random effect model there were relationships between 4/6 variables as well. All models observed relationships between Trade Freedom, GDP, gross domestic savings, and trade. The variable where the fixed effect model did not see a relationship was inflation. The increased robustness of the fixed effect model was able to discern that the relationship was not significant. The Hausman test showing that the fixed effect model was more appropriate is in the appendix. In totality, all three models showed a strong relationship between Trade Freedom and economic performance in high-income nations. The lack of relationship with inflation that was determined in the fixed effect model is helpful to central bankers in high-income nations provided that their goal is to keep inflation rates below a certain point. It means

that they can engage in robust growth generating trade policies without having to engage in other monetary policy actions to ward off inflation.

Figure 15: Medium-income Countries Fixed Effect Model

Medium Income Countries Fixed Effect Model				
Trade Freedom Score	**Coef.**	**Std. Err**	**P>|t|**	**Significance**
GDPCurrentUS	0.0000000	0.0000000	0.001	***
GrossDomesticSavingsofGDP	(0.1007990)	0.0819130	0.219	
InflationGDPDeflatorAnnual	(0.0155136)	0.0203914	0.447	
TradeofGDP	0.0598024	0.0285298	0.037	**
Unemploymenttotaloftotal	(1.0445530)	0.1790184	0.001	***
Foreigndirectinvestmenti	0.0324578	0.1444535	0.822	
BroadMoney	0.2362014	0.0251596	0.001	***
_cons	59.7509900	0.0251596	0.000	

Figure 15 shows the results of the fixed effect model for medium-income nations. In this model we see statistically significant relationships between 4/7 variables. The relationships seen are between Trade Freedom and GDP, trade, unemployment, and broad money. The base model produced statistically significant relationships between 6/7 variables and the random effect model produced statistically significant relationships between 5/7 variables. All of the models saw relationships between Trade Freedom and GDP, trade, unemployment, and broad money. Additionally, the base model witnessed a relationship between Trade freedom and inflation while the random effect model saw a relationship between Trade Freedom and gross domestic savings. The fixed effect model saw no such relationship between either of these variables. Nevertheless, all of these models showed that there were significant positive effects associated with trade liberalization for medium-income countries. Should these middle-income nations engage in more trade, then it should lead to significant increases in their economic performance.

Figure 16: Low-income Countries Fixed Effect Model

Low Income Countries Fixed Effect Model				
Trade Freedom Score	**Coef.**	**Std. Err**	**P>|t|**	**Significance**
GDPCurrentUS	0.0000000	0.0000000	0.001	***
GrossDomesticSavingsofGDP	0.1786817	0.0672140	0.008	**
InflationGDPDeflatorAnnual	(0.0045022)	0.0028213	0.112	
TradeofGDP	0.0330100	0.0353491	0.350	
Unemploymenttotaloftotal	0.2925030	0.3759671	0.437	
Foreigndirectinvestmenti	0.2625646	0.1022829	0.011	**
BroadMoney	0.1360331	0.0414355	0.001	***
_cons	55.2629200	2.0361910	0.000	

Lastly, figure 16 shows the fixed effect model in low-income countries. This model produced statistically significant relationships between 4/7 variables, Trade Freedom and GDP, gross domestic savings, FDI inflows, and broad money. This differs from the base low-income regression which showed significance between 5/7 variables and is the same as the random effect model where 4/7 variables were significant. The fixed effect and random effect low-income country models had the same significant variables whereas the base model saw significance between Trade Freedom, trade, and unemployment. The different significant variables point towards the increased effectiveness of the fixed and random Effect models over the base regression. Overall, the fixed effect model showed that there are significant benefits to trade liberalization for low-income nations. These benefits include GDP, as well as gross domestic savings, which will allow consumers with less resources to have more disposable income, which will eventually go back into the economy. The relation between Trade Freedom and FDI inflows means that the more openness they have the more desirable of an investment destination their country becomes for investors. Lastly, increases in the money supply will likely lead to more

investment within the nation. There are numerous positive benefits associated with trade liberalization for low-income nations, and it would be to their countries benefit to adopt policies that encourage trade freedom.

5.0 POLICY IMPLICATIONS

The findings of this paper provide numerous policy implications for all the countries analyzed, whether that be countries as a whole or broken down by income level. GDP and Trade Freedom had a statistically significant relationship in every one of the models ran. This is important for global policymakers because it shows empirically that there are large gains from trade, and should international institutions seek to promote global economic growth, then they should so it by promoting trade liberalization. For high-income nations, a key policy implication arises from the lack of relationship between Trade Freedom and Unemployment. Overall, results showed there are positive gains from trade, but the lack of relationship shows that while some jobs may be lost by manufacturing and other industries seeking cheaper sources of labor, there is not a significant effect on unemployment. This means that other positive externalities from trade offset losses. The key policy takeaway for medium-income nations should be that there are positive economic gains from trade liberalization, meaning it would be beneficial for their governments to keep pursuing these policies. Additionally, the statistically significant relationship between Trade Freedom and Unemployment likely suggests that increases in trade leads to decreases in unemployment. These economic benefits are key for these nations to build a stronger and more developed country. Lastly, there are significant benefits to low-income countries as well. Like all countries examined, there were statistically significant relationships between Trade Freedom and key economic indicators. It is also important to note that institutional quality is a significant factor here as well, meaning that these nations cannot only

focus on functioning economic systems, but should possess a functioning central government. Should policymakers in these countries focus on engaging in trade liberalization and developing strong and functioning governmental institutions then they will have a significant opportunity for national improvement in the long run.

6.0 CONCLUSION

The effects of trade freedom on a countries economy have come into question as a result of the recent rises in populist movements around the globe. Instead of trade being the great growth creator and equalizer that most economists believe, its reputation has been sullied. One group opposed to trade argues that it steals jobs from high-income nations, while others argue trade is quasi-colonial and results in large countries are taking advantage of smaller countries. Both groups are radically wrong in their assessments. This paper set out to analyze the trends in global trade liberalization between the years of 1999 and 2019, as well as run a Panel Data analysis of the effects that Trade Freedom, as measured by the Heritage Foundations Trade Freedom Score, has on a country's economy. The countries analyzed were broken down by income level to determine the different effects that trade liberalization policies have on various economic indicators in countries of varying income levels. In terms of the trends in trade liberalization, it is clear that the world is only becoming more globalized. In four of the major indicators examined, all the trends in the data showed us that trade liberalization has significantly increased over the past 20 years. Regarding the empirical models we used, we learned that the fixed effect regression model provided us with the most robust results. Across the board, when the data was analyzed as a whole and broken down by income level, we observed that there was an extremely significant relationship between Trade Freedom and GDP. Across the board we also saw a strong relationship between Trade Freedom and broad money, which tells us that the

more countries engage in trade liberalization the greater the amount of money will be in their economy. Additionally, the relationships between Trade Freedom and unemployment were mixed. In the fixed effect model, there was no relationship between the variables in low-income and high-income countries. However, there was a significant relationship in middle-income countries. The most important take away from this data point is the lack of relationship in high-income countries. This is likely attributable to increases in the money supply and consumer savings caused by the imports of lower cost goods from overseas. It is abundantly clear based upon the trends in trade liberalization that global trade should only continue to increase. Additionally, the empirical portion of this paper has shown that there are significant positive benefits associated with Trade Freedom regardless of the income level. It is evident that the data does not support the bad reputation some have now assigned to free and fair trade, and it would be in the best interest of the global community to continue its commitment to free trade.

Appendix

Appendix A: Variable Description and Data Source

Variable	Description	Data Source
Trade Freedom Score	Trade freedom is a composite measure of the absence of tariff and non-tariff barriers that affect imports and exports of goods and services.	Heritage Foundation
GDP Current US	GDP at purchaser's prices is the sum of gross value added by all residents.	World Bank
Gross domestic savings	Gross domestic savings are calculated as GDP less final consumption.	World Bank
Inflation	Inflation as measured by the annual growth rate of the GDP implicit deflator	World Bank
Trade (% of GDP)	Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product.	World Bank
Unemployment Rate	Unemployment refers to the share of the labor force that is without work	International Labour Organization
FDI Net Inflows	Foreign direct investment refers to direct investment equity flows in an economy.	International Monetary Fund
Broad Money	Broad money is the sum of currency outside banks.	International Monetary Fund

Appendix B: All Countries Hausman Test

All Countries Hausman Test			
Variable	**(b) Fixed**	**(B) Random**	**(b-B) Difference**
GDPCurrentUS	0.0000	0.0000	0.0000
GrossDomesticSavingsofGDP~P	0.0621	0.0485	0.0136
InflationGDPDeflatorAnnual~l	(0.0048)	(0.0049)	0.0000
TradeofGDP	0.0473	0.0543	(0.0069)
Unemploymenttotaloftotal~l	(0.4775)	(0.3644)	(0.1131)
Foreigndirectinvestmenti~i	0.0791	0.0826	(0.0035)
BroadMoney	0.2095	0.1853	0.0242

Appendix C: High-Income Countries Hausman Test

High Income Countries Hausman Test			
Variable	**(b) Fixed**	**(B) Random**	**(b-B) Difference**
GDPCurrentUS	0.0000	0.0000	0.0000
GrossDomesticSavingsofGDP~P	(0.0792)	(0.0995)	0.0203
InflationGDPDeflatorAnnual~l	(0.0577)	(0.0756)	0.0179
TradeofGDP	0.0705	0.0713	(0.0008)
Unemploymenttotaloftotal~l	(0.0132)	0.0133	(0.0265)
Foreigndirectinvestmenti~i	(0.0679)	(0.0633)	(0.0046)
BroadMoney			

Appendix D: Medium-Income Countries Hausman Test

Medium Income Countries Hausman Test			
Variable	**(b) Fixed**	**(B) Random**	**(b-B) Difference**
GDPCurrentUS	0.0000	0.0000	0.0000
GrossDomesticSavingsofGDP~P	(0.1008)	(0.1594)	0.0586
InflationGDPDeflatorAnnual~l	(0.0155)	(0.0239)	0.0084
TradeofGDP	0.0598	0.0733	(0.0135)
Unemploymenttotaloftotal~l	(1.0446)	(0.7317)	(0.3129)
Foreigndirectinvestmenti~i	0.0325	0.0622	(0.0298)
BroadMoney	0.2362	0.1920	0.0442

Appendix E: Low-Income Countries Hausman Test

Low Income Countries Hausman Test			
Variable	**(b) Fixed**	**(B) Random**	**(b-B) Difference**
GDPCurrentUS	0.0000	0.0000	0.0000
GrossDomesticSavingsofGDP~P	0.1519	0.1476	0.0043
InflationGDPDeflatorAnnual~l	(0.0041)	(0.0042)	0.0000
TradeofGDP	0.0329	0.0330	(0.0001)
Unemploymenttotaloftotal~l	0.1892	0.4519	(0.2628)
Foreigndirectinvestmenti~i	0.2223	0.2552	(0.0329)
BroadMoney	0.1315	0.1077	0.0238

Bibliography

Arbatli, Elif. “Economic Policies and FDI Inflows to Emerging Market Economies.” *IMF Working Papers*, vol. 11, no. 192, 2011, p. 1., doi:10.5089/9781462306251.001.

Ashraf, Badar Nadeem. “Do Trade and Financial Openness Matter for Financial Development? Bank-Level Evidence from Emerging Market Economies.” *Research in International Business and Finance*, vol. 44, 2018, pp. 434–458., doi:10.1016/j.ribaf.2017.07.115.

Baldwin, Richard. “Multilateralising Regionalism: Spaghetti Bowls as Building Blocs on the Path to Global Free Trade.” 2006, doi:10.3386/w12545.

Carter, Colin, and Sandro Steinbach. “The Impact of Retaliatory Tariffs on Agricultural and Food Trade.” 2020, doi:10.3386/w27147.

Furceri, Davide, et al. “Macroeconomic Consequences of Tariffs.” 2018, doi:10.3386/w25402.

Gnangnon, Sèna Kimm. “Multilateral Trade Liberalization and Economic Growth.” *Journal of Economic Integration*, vol. 33, no. 2, 2018, pp. 1261–1301., doi:10.11130/jei.2018.33.2.1261.

Irqin, Douglas A. “The Smoot-Hawley Tariff: A Quantitative Assessment.” 2001, pp. 326–334.

Leemput, Eva Van, and John K. Ferraro. “Long-Run Effects on Chinese GDP from U.S.-China Tariff Hikes.” *FEDS Notes*, vol. 2019, no. 2382, 2019, doi:10.17016/2380-7172.2382.

Nguyen, Canh Phuc, et al. “Institutions, Inward Foreign Direct Investment, Trade Openness and Credit Level in Emerging Market Economies.” *Review of Development Finance*, vol. 8, no. 2, 2018, pp. 75–88., doi:10.1016/j.rdf.2018.11.005.

Santos-Paulino, Amelia U. “Trade Liberalisation and Economic Performance: Theory and Evidence for Developing Countries.” *The World Economy*, vol. 28, no. 6, 2005, pp. 783–821., doi:10.1111/j.1467-9701.2005.00707.x.

Saunders, Ronald S. “The Political Economy of Effective Tariff Protection in Canadas Manufacturing Sector.” *The Canadian Journal of Economics*, vol. 13, no. 2, 1980, p. 340., doi:10.2307/134693.

Schularick, Moritz, and Solomos Solomou. “Tariffs and Economic Growth in the First Era of Globalization.” *Journal of Economic Growth*, vol. 16, no. 1, 2011, pp. 33–70., doi:10.1007/s10887-011-9061-6.

Schularick, Moritz, and Solomos Solomou. “Tariffs and Economic Growth in the First Era of Globalization.” *Journal of Economic Growth*, vol. 16, no. 1, 2011, pp. 33–70., doi:10.1007/s10887-011-9061-6.

Shousha, Samer. “The Dollar and Emerging Market Economies: Financial Vulnerabilities Meet the International Trade System.” *International Finance Discussion Paper*, vol. 2019, no. 1258, 2019, doi:10.17016/ifdp.2019.1258.

“Trade Freedom.” *Trade Freedom: Tariffs, Imports, Exports, and Economic Freedom*, www.heritage.org/index/trade-freedom.

Trade and Development Report 2019. (n.d.). Retrieved from https://unctad.org/webflyer/trade-and-development-report-2019