# AN ANALYSIS OF THE UNITED STATES-PERU TRADE PROMOTION AGREEMENT

by

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## ABSTRACT

## AN ANALYSIS OF THE UNITED STATES-PERU TRADE PROMOTION AGREEMENT

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The purpose of this research thesis is to understand how free trade agreements affect not just the macro-economies of the member countries, but also to understand the effects that the agreement has on the sub-parts of their economies. In particular, this research focuses on the United States-Peru Trade Promotion Agreement, which is a free trade agreement between the two mentioned countries. In order to study the Peruvian economy, I analyzed Peru's gross domestic product (GDP), exports, imports, inflation, and specific economic subparts, such as capital goods, raw materials, chemicals, fuels, and metals.

After obtaining the required information, economic analyses were performed using statistical tools. By applying regression analysis and gravity models, the data was tested to understand trade creation and trade diversion associated with the free trade agreement between member and non-member countries. The United States-Peru Trade Promotion Agreement was signed on April 12, 2006, and it was finally implemented on February 1, 2009.

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# CHAPTER 1: INTRODUCTION

## Section 1.1 Objective

The objective of this thesis is to answer the following three main research questions:

1. To what extent does the United States-Peru Trade Promotion Agreement help the Peruvian macro-economy and specific industrial sectors?
2. To what extent are Peru's exports and imports with non-member countries affected by the bilateral free trade agreement of Peru and the United States?
3. To what extent does the geographical distance between Peru and other countries affect the trade between them and Peru now that the United States-Peru Trade Promotion Agreement has been implemented?

## Section 1.2 Thesis Overview

In order to thoroughly analyze the different hypotheses, the research is separated into assigned chapters. The first chapter covers the objective and the thesis overview in the two first sections. Sections three and four encompass the overview of free trade in general and a brief description of Peru's political and economic systems. These four first sections explain the purpose of the thesis, ideology of free trade, and history of Peru, allowing the reader to understand the economic changes from a high-context culture point of view (Peru), and at the same time, analyzing the changes from a low-context culture point of view (United States).

Background and general information are comprised in the first chapter to enhance the readers' understanding in regards to the effects of the implementation of the free trade agreement between the developed and developing countries mentioned. The last section

of the chapter focuses on the explanation of trade creation, trade diversion, and gravity models. Since there are other academic studies that focus on the three terms just mentioned, it is important to explain that this thesis is using those terminologies and assumptions, because they have been proven to be correct after much research and are currently used in academia.

The second chapter of the research focuses on the hypotheses of the thesis. This thesis analyzes three different hypotheses in order to have a broad outlook on the results of the effects that the United States-Peru Trade Promotion Agreement has had.

Then, chapter three covers Peru's macro-economy. Changes in variables, such as GDP and inflation, and exports and imports between the United States and Peru are analyzed; showing how the trade trends were prior, during, and after the free trade agreement was implemented. The next section extends the idea of changes in imports and exports; it exemplifies major economic sectors. This section is meant to analyze five specific Peruvian industries: capital goods, raw materials, chemicals, fuels, and metals. The last section of chapter two encompasses the trading patterns between Peru and the non-member countries. It covers the effects that the agreement has had on the trading patterns in a macro scale, as well as in the specific industries mentioned in section two of the chapter.

Chapter four of the thesis includes the data collection, methods, and approach. The sources from which the data were gathered are summarized and the variables used for the economic analyses are thoroughly explained. The fixed effects model and the Hausman test are also explained here.

Chapter five encompasses the expected results of the thesis and the conclusion. It also includes the reason of why the topic of free trade between the countries of the United States and Peru was selected. In addition, the important outcomes of this thesis are identified, such as the enhancement in the educational knowledge here at the University of Texas at San Antonio and also as the addition of value to the educational arena.

**Section 1.3 Free Trade Background**

For many years, the ideas of protectionism and free trade have been of great debate. Protectionism stands for protecting a nation from outside competitors with the belief that by closing the doors or imposing quotas or tariffs to other countries, the national economy will get stronger. On the other side of the spectrum lies free trade. Free trade reduces or eliminates the quotas or tariffs in order to promote more international trade, while giving the national suppliers and consumers the option to trade nationally and internationally. Countries under free trade agreements have comparative advantage, the ability to produce a good or service with a lower opportunity cost than the competitor, over the ones that stay out of trade liberalization.

In 1776, economy philosopher Adam Smith stated, "It is the maxim of every prudent master of a family, never to attempt to make at home what it will cost him more to make than to buy. If a foreign country can supply us with a commodity cheaper than we ourselves can make it, better buy it off **t**hem with some part of the produce of our own industry, employed in a way in which we have some advantage" (Salvadori and Signorino, 2012). His point of view brings to light the reason behind free trade between countries. Although more than 200 years have passed since Smith's comment, the idea of protectionism and free trade are still in today's economic debates.

The United States-Peru Promotion Trade Agreement was introduced in order for the United States and Peru to become more efficient and effective in the trading arena. "There are two broad options for governments seeking to liberalize trade: unilateral or preferential tariff reductions. Both of these options lead to trade creation: the removal of trade barriers leads to the elimination of domestic sourcing by firms and consumers in some industries in favor of imports more efficiently produced in partner countries" (Kandogan, 2009).

In order to evaluate the sub-parts of the Peruvian economy, the following terms needed to be well understood in this dissertation. Exports are products or services produced nationally and sold internationally. Imports, on the other side, are products or services produced internationally and brought inside national borders. Inflation occurs as the prices of goods and services increase over the long-term. Lastly, GDP is used to glance at how strong or weak a nation's economy is. It is the monetary value of the goods and services produced by a country in a period of time. More specifically, real GDP, which is nominal GDP minus inflation, will be used to compare the real growth of the economies involved. I use real GDP constant to 2005 U.S. Dollars in this research. These terminologies are key to the research of the developing and developed countries' economies.

Overall, debates regarding free trade and protectionism are still a dilemma nowadays. Through the use of statistical and economic modeling, people argue their point of view in regards to this subject. It is important to use real GDP in order to control for inflation when analyzing economies. Thus, it is also important to understand the changes in exports as well as in imports, in order to understand the effect on net trade.

**Section 1.4 Overview of Peru's Political and Economic System**

In order to understand the economic growth that Peruvians are experiencing in their country, I provide a brief description of the economic and political system.

Peru was established in 1821, when its citizens declared independence from Spain. The potential for mining and agriculture were strong motivating factors for the Spanish conquistadors' interest in this territory. "Sites such as Machu Picchu and Cusco recall the wealth of the Inca civilization, destroyed in the early 16th century by Spaniards, who built an empire on Peru's gold and silver" (National Geographic, 2014).

As history shows, the geographic location of the country has provided its people with an abundance of resources for many centuries. "Peru is known for its variety of natural resources due to its geographical zones and climates. For example, its mining industry is recognized world-wide; Peru ranks in the top five in gold, lead, and zinc production…Today Peru ranks among the world's top producers of silver, copper, lead, and zinc. Its petroleum industry is one of the world's oldest, and its fisheries are among the world's richest" (National Geographic, 2014).

Unlike the United States, when the political system of Peru was created, it was not developed into two main political parties. Instead, it has a multi-party system. Under the presidency of Alan Garcia in the mid-1980s, Peru suffered an economic crisis. The government defaulted on its liabilities and negotiated with the International Monetary Fund (IMF) and other agencies. This economic crisis was caused by the increase in the domestic credit in previous years. The domestic credit grew over fifty percent each year from 1982 to 1984, letting to the devaluation of the sol, Peru's currency (Feenstra and Taylor, 2011). Also, Peru was suffering from an increased exposure to terrorism in the

late 1900s. However in 1990, Alberto Fujimori started his presidency and his political tactics decreased the terrorism in the country. In 1992, he closed the Congress, and a year after; he decided to write a new constitution. He was reelected twice, in 1995 and 2000 (Burt, 2009). Under Fujimori's presidency, Peru went through a phase of economic liberalization, which is still being implemented under the current government (The Heritage Foundation, 2015).

The foreign investment in Peru has increased in the last years due to the economic implementations of the country's current president, Ollanta Humala, allowing millions of Peruvian to be above the poverty line (The Heritage Foundation, 2015). He claims that one of his main goals during his presidency is to help the poor and raise the country's economy through the government's political interaction. Humala believes in free trade agreements, which allow the citizens of Peru to interact with the rest of the world. "Since his election, Humala has carried on the sound, market-oriented economic policies of the three preceding administrations…The Peruvian economy has been growing by an average of 5.6% for the past five years with a stable exchange rate and low inflation" (Central Intelligence Agency, 2014). This shows how the high-context country of Peru has been expanding its economic horizon through government intervention since the mid-1990s.

**Section 1.5 Trade Creation, Trade Diversion, and Gravity Model**

For many years, the topics of trade creation, trade diversion, and gravity models have been used in many trade agreement debates. Through statistical and regression analysis, data gathered can be interpreted and relationships between different variables can be found. In the case of this research project, regression analysis is used in the comparison of the changes in the variables affected by the free trade agreement in place.

Inputting the data gathered and analyzing the changes in the economies are essential to the understanding of the effects of free trade agreements in the short and long term. Another type of analysis used is gravity modeling, which is used extensively in the international economics literature. This type of model is used in this case to understand the relationship between geographical locations of the trading partners and the implementation of the free trade agreement between the United States and Peru.

Trade creation is the process of when the consumption moves from the high cost supplier or producer to the low cost supplier or producer (Margetts, 2014). Trade creation allows countries to shift from high-cost industries to imports from a lower cost industry due to a reduction in the tariffs (Krueger, 1991). When a country agrees on a free trade agreement, tariffs on imports and exports are minimized or eliminated. This creates a more abundant flow of trade between member countries. As stated in a journal article, "The results show that the majority of the liberalization agreements created significant new trade for all partners involved in all sectors, especially in human and physical capital-intensive sectors" (Kandogan, 2009).

An example can be seen in an analysis of the North American Free Trade Agreement (NAFTA), especially in the textile and apparel industries. The results of the analysis shows that NAFTA has changed many trading and production patterns. After the agreement was implemented, the United States started trading more with the low cost country of Mexico. Part of this increment was due to the proximity of the country (Datta and Kouliavtsev, 2009). Later, the same authors mentioned Krugman and Summers, saying, "Preferential trading arrangements (PTAs) between neighbors are likely to be beneficial, as neighbors are "natural" trading partners" (Datta and Kouliavtsev, 2009).

In the previous example, one can see how geographical proximity plays a role in the trading patterns of countries. In the case of this thesis, the member countries, the United States and Peru, are not neighbors. Thus, the research shows how trade creation is established with countries that are in different hemispheres. If the implementation of the United States-Peru Trade Promotion Agreement was meant to help the two countries' economies, then the member countries' macro-economy and specific industrial sectors chosen in this research should see an improvement in their exports and imports, creating a positive trade creation.

Opposite to trade creation is trade diversion. This incident, on the contrary, occurs when consumers move from a low cost supplier or producer to the high cost supplier or producer (Margetts, 2014). Trade diversion can be considered as the shift from low cost production industries to higher cost production industries due to a change in tariffs (Krueger 1991). This change is created by the implementation of free trade agreement, which lowers tariffs with the high cost country. Sun and Reed state, "There has been a rapid spread of economic regionalism across the word, especially in the last two decades. One of the most visible outputs from this expansion is the proliferaton of free trade agreements (FTAs) among countries…Economists have debated the merits of FTAs for a long time because of their well-known trade diversion possibilities" (Sun and Reed, 2010).

An analysis of NAFTA suggests that the implementation of the free trade agreement not only affected the member countries, but also non-member countries. Datta and Kouliavtsev mention the research of Bhagwati, in which it says that there may be negative effects on the PTAs, causing a change in the trading patterns. This change

reduces the trade with the low cost countries and increases the trade with the member countries (Datta and Kouliavtsev, 2009). As some non-member countries were negatively affected by the implementation of NAFTA, this thesis also focuses on the effects that the free trade agreement between the United States and Peru have had on non-member countries.

In order to understand trade creation and trade diversion with more detail, this thesis covers graviy models. In the 1900s, Dutch economist Jan Tinbergen, who had studied physics, decided to apply Newton's Universal Law of Gravition. "Newton's universal law of gravition states that objects with larger mass, or that are closer to each other, have a greater gravitational pull between them" (Feenstra and Taylor, 2011: 190). Tinbergen used this equation and decided to apply it to the GDP of the countries. He believed that countries with a larger GDP should have more trade with eachother. Also, he believed that the distance between each country was a factor on the total trade between them (Feenstra and Taylor, 2011).

Newton's Universal Law of Gravitation is $F_g = G * (M_1*M_2)/d^2$, where $F_g$ stands for the gravitational force between the two objects, G stands for the magnitude of the relationship, $M_1$ and $M_2$ stand for the masses of the two selected objects, and d stands for the distance between $M_1$ and $M_2$. Based on the previous equation shown, Tinbergen decided to apply it to the economics field. The equation that Tinbergen suggested is $Trade = B * (GDP_1 * GDP_2)/d^n$, where B stands for the constant that shows the relationship between gravity and trade, d stands for distance, and n stands for the precise relationship between their distance and trade. For the n in the equation, 1.25 is used,

because other researches show that it is a good measurement to describe the distance and trade value between the two countries selected (Feenstra and Taylor, 2011).

Gravity models are meant to explain different types of behavior (Anderson, 2010). Kandogan states, "It is known that the impact of any trade agreement is a combination of trade creation and diversion effects, gravity modelers have rarely tried to decompose these effects" (Kandogan, 2009). Datta and Kouliavtsev state, "A large number of econometric studies of the impact of NAFTA on trade flows among the partner countries—US, Mexico, and Canada—use gravity models, which consider the effects of various factors such as each country's per capita GDP" (Datta and Kouliavtsev, 2009).

Gravity models explain how trade diversion is reduced by the country's gravity. For example, if Peru trades (with tariffs) with country A and country B, it would cost Peru X plus a Y of tariffs to import the product from country A, and it would cost Peru Z (assuming that Z < X) plus a Y of tariffs to import the product from country B. If Peru and country A decide to have a free trade agreement, eliminating tariffs, then it would cost Peru only X to import a product from country A. The free trade agreement would give country A competitive advantage over country B, because Peru would now trade with country A due to the efficiency of lower costs.

In the case of this thesis, gravity models are used to understand the trading relationship of member and non-member countries based on their geographical location. The distance between the capital cities of the United States and the non-member countries to Lima, Peru's capital, are measured in order to see if there is a connection between the trading patterns or if those distances in today's interconnected world are not

relevant. Also, the GDP of the member and non-member countries are used to calculate the gravity between eachother, based on the equation proposed by Tinbergen, as well as Newton's equation. I use the equations of both authors to have a more accurate results. When testing the variables with the equation of Newton, distance is squared, whereas when using the equation of Tinbergen, the exponent of distance is 1.25.

# CHAPTER 2: THESIS STATEMENT

## Section 2.1 Hypotheses Development

Due to the complexity of the free trade agreement between the United States and Peru, I developed three hypotheses.

The United States-Peru Trade Promotion Agreement will lead to trade creation with member countries (ie. The United States and Peru).

### 2.1.1 Hypothesis 1

The United States-Peru Trade Promotion Agreement is expected to lead to trade diversion with non-member countries.

### 2.1.2 Hypothesis 2

The economic gravity between Peru and non-member countries weakens the negative effect of trade diversion.

### 2.1.3 Hypothesis 3

# CHAPTER 3: ANALYSIS OF HISTORICAL DATA

## 3.1 Changes in Peru's Economic Variables

Now, let us focus in some specific trends within the Peruvian economy. This section covers the changes in GDP, exports, imports, and inflation of Peru. Having these trends analyzed, shows an overall understanding of how the United States-Peru Trade Promotion Agreement has affected different variables of the Peruvian economy.

Also, during 2009, there was a global financial recession happening. I have controlled for this variable in the analyses of all of the information tested. "Pressures on emerging markets intensified in September 2008, following the collapse of Lehman Brothers, as counterparty risks rose and as the credit crunch's impact on economic activity became indisputable…A large set of interlinked risks has already pushed some emerging markets into crisis, and threatens many more...Emerging market policymakers, in turn, need to strengthen their financial systems and policies for the more challenging global economic environment" (International Monetary Fund, 2009).

This shows how developing countries were affected by the financial crisis that was occurring in some developed countries. Based on the occurrence of 2009, developing countries, such as Peru, need to become economically prepared to avoid a monetary loss due to other countries' economic turbulences.

To start the analysis, a focus in real GDP is necessary. As shown in Figure 1, from 1992 to 2006 the percent change in Peru's real GDP was 92.02 percent, from $44,542.25 million US dollars to $85,529.87 million US dollars. From 2006 to 2009, the percent change in real GDP was 20.43 percent, from $85,529.87 US dollars to $103,000 million US dollars, and from 2009 to 2012, real GDP increased to $128,000 million US

dollars, having a percent change of 24.27 percent (World Bank, 2014). Although the percentage change appears to be consistent from 2006 to 2009 and from 2009 to 2012, the dollars amount does show an improvement in the economy. Although real GDP has increased at almost a constant rate since 2006, the correlation between real GDP and the United States-Peru Trade Promotion Agreement is required in order to understand its growth.

In addition to the real GDP of a country, exports and imports need to be understood. The purpose of a free trade agreement is to increase trade between the parties that signed the contract. Figure 2 represents Peruvian exports to the United States from 1992 to 2012. From 1992 to 2006, there was a 708.69 percent increase. From 2006 to 2009, the percent change was negative 19.34 percent, and from 2009 to 2012, the percent change was 41.55 percent (World Bank, 2014). Then again, the drop in 2009 is controlled in the analyses performed in a later section due to the global financial recession that was ocurring during that period. Exports increased at a fast pace from 1992 to 2012, but in the years of when the agreement was being signed and implemented, it dropped by almost twenty percent. The analysis encompasses the question of whether the increase from 2009 to 2012 was due to the implementation of the United States-Peru Trade Promotion Agreement.

Figure 3 represents the Peruvian imports from the United States from 1992 to 2012. The percentage change of imports between 1992 and 2006 was 119.61 percent. The percentage change from the year of when the agreement was signed to the year of when it was implemented was 71.54 percent, and from 2009 to 2012, it was 85.86 percent (World

Bank, 2014). Figure 3 shows how there was a rapid increase in imports from 2006 to 2008, followed by a sharp decline in the following year.

Again, the drop in 2009 could be due to the financial turmoil of 2009, so the variable will be controlled for when applying the data to the analysis. The United States-Peru Trade Promotion Agreement could be the main variable affecting the economic growth of the developing country; however, a thorough empirical analysis will be done in order to make that determination.

If the exports from Peru to the United States have increased due to the implementation of the free trade agreement, one may argue that trade creation was created. Also, if imports from the United States to Peru also increase due to the implementation of the agreement, the same could be argued.

Inflation is a key concept that plays a role in the analysis of the economic growth of a country. As figure 4 shows, inflation in Peru has been maintained under ten percent since 1997. The average inflation from 1997 to 2012 was 3.38 percent; the highest being in 2008 with an amount of 5.80 percent and the lowest being in 2002 with an amount of 0.20 percent (World Bank, 2014).

By taking out inflation of the countries' GDPs, I was able to adjust gross growth to net growth of the previous term mentioned. The present study uses GDP in constant 2005 U.S. dollars. This way, inflation is taken out and a comparison of many time periods can be done. The GDP in constant to 2005 U.S. Dollars was gathered from the World Bank.

**Section 3.2 Specific Industry Samples**

The specific industries within the United States and Peruvian economy that are examined in this chapter are capital goods, raw materials, chemicals, fuels, and metals. These fives sectors were chosen due to their different characteristics and trading aspects. This section has a limited scope, focusing only in the exports and imports between Peru and the United States in the economic sectors mentioned. If free trade agreements are meant to benefit the economies of the countries in the deal, does it mean that all sectors of the economyies are going to be benefited? Statistical analyses are implemented in a later chapter in order to see the volatility and correlation of each industry in regards to the United States-Peru Trade Promotion Agreement.

When examining the data of the exports from Peru to the United States of the sectors previously mentioned, I can see how these five sectors were affected differently. The data gathered is represented in figure 5.

There was a sharp decline of exports between 2008 and 2009 for capital goods, raw materials, and metals, which may be explained based on the financial crisis of the time. On the other side, chemicals dropped by a smaller amount, and capital goods exports increased. After one year of the implementation of the free trade agreement, exports of the chemicals and metals sectors dropped. In 2012, the metals industry was exporting less than half of what it was exporting in 2006. On the contrary, capital goods' exports have increased by over half since 2006 (World Bank, 2014). If the implementation of the free trade agreement was the reason for the increment of trade in sectors such as capital goods and fuels, then trade creation was created. On the contrary, if the implementation of the free trade agreement was the variable that negatively

affected sectors such as metals and raw materials, then the implementation of the agreement can be seen as a variable that is harming the exports of those Peruvian's segments.

Figure 6 represents the imports of these industries from the United States to Peru. The sector that was affected the most was fuels. From 2006 to 2008, the imports increased rapidly, but they were followed by a sharp decline from 2008 to 2009, taking imports almost back to what they were in 2006. After 2009, imports within the industry increased by almost four times by 2012 (World Bank, 2014). In comparison with exports, all five sectors experienced a decline of imports in 2009, which again, the drop may have been caused purely on the global financial fluctuations of that year.

An analysis of the exports and imports between member countries will show if there was trade creation between the United States and Peru. The analysis will also cover specific indutries of the countries in order to see if the agreement benefited all sector or if it only benefited some. To see the relationship between the free trade agreement and the trading pattern that has ocurred within these five industries is one of the main goals of this research. In this case, gravity models will measure the effect of the trade creation and trade diversion created by the agreement between the United States and Peru.

**Section 3.3 Peru's Neighboring Trading Partners**

A free trade agreement can benefit the countries involved in the contract, but it can sometimes hurt the trading relationship with third party countries. Understanding the growth or decline of exports and imports between Peru and the agreement's non-member countries will help to examine the possitive and negative impacts that a free trade agreement can have.

Peru's imports from its neighboring countries (Argentina, Bolivia, Brazil, Chile, Colombia, and Ecuador) are represented in figure 7. I have decided to put the neighboring countries in figure 7 instead of all of the other non-member countries from South America, to illustrate how countries that are closer to Peru are being affected by the United States-Peru Trade Promotion Agreement.

Although the traded amount in dollars varies per country, between 2008 and 2009, most imports declined sharply (World Bank, 2014). One of the reasons that could have affected this drop was the global financial crisis of those years. Bolivia, opposite to the other neighboring countries, was not as negatively affected. After the sharp decline in imports in the years while the free trade agreement was being implemented, imports from all of the countries mentioned increased after the agreement's implementation (World Bank, 2014).

Figure 8 illustrates Peru's exports to the six countries previously mentioned. In this case, exports to Brazil and Chile dropped sharply between 2008 and 2009, while the exports to the other countries kept a slow growth or saw a small decline (World Bank, 2014). This shows that if the global financial crisis was one of the reasons for the decline in exports, not all of the countries were affected by it. Exports to Argentina, Ecuador, and Bolivia were not affected as much as the other countries. If the free trade agreement was the reason for some of the decline, the analysis will show why exports to some countries were affected more than others and why Ecuador was the least altered.

A relative recent term used in economics, gravity models, will be used to also see if the distance between Peru and other countries has an effect in the trading pattern. This

type of model is used to understand the impact of gravity in a bilateral trade situation. This method is explained with greater detail in the chapter 1 section 5 of this thesis.

After the gravity models are created and examined, the results will show if there is a relationship between the United States–Peru Trade Promotion Agreement and the trading pattern changes that ocurred between members, as well as with non-member countries. In other words, this research will analyze if there was a trade diversion effect in relation to member and non-member countries, and if so, how economic gravity eliminated, reduced, or increased this diversion in trade.

# CHAPTER 4: METHODS AND SOURCES

## Section 4.1 Data Collection

To test the three hypotheses, I collected the historical data from 1992 to 2012 of the member and non-member countries' imports, exports, and GDP from the World Bank's database. This source offers relevant reliability and quality in regards to the information needed.

In addition, the IMF's and the CIA's published data of the member and non-member countries are used. Also, published economic journals are part of this research. With precise definitions of the economic contexts and previous studies done, this thesis encompasses a strong reliable characteristics for the results expected.

## Section 4.2 Methods and Approach

The methods that are used in the analysis of the three hypotheses involve statistical and economic characteristics, which are needed to see the impact that the United States-Peru Trade Promotion Agreement has caused to different variables, such as Peru's exports and imports with the United States and the non-member countries of the agreement.

Correlation refers to the relationship of two variables. Correlation analysis is used to see how closely related are the two variables affected by each other, dependent of each other, or if they are independent. The models created encompass the macro-economic variables as a whole and also cover specific trends in some industries in order to see the outcomes that the free trade agreement between the United States and Peru has caused in the economy from a broad scale, as well as from a more concentrated scale.

Also, through economic gravity models, I am able to identify the changes that the free trade agreement has created in the trading patterns. I am able to see how trade creation and trade diversion affected the trade between member and non-member countries.

It is important to mention that during the years of 2008 and 2009, a global recession was occurring. Due to this reason, I control for this variable in the statistical and economic analyses. This allows for a more precise result of the effects of the implementation of the United States-Peru Trade Promotion Agreement.

Based on the sources mentioned in the previous section, the following variables were measured. The dependent variables used in the thesis is trade and net trade (net exports minus net imports) of the countries selected and the trade (exports and imports) of the specific industries chosen.

The independent variables are the real GDP of each country (member and non-members), which is constant to the 2005 U.S. dollar. The non-member countries chosen are all of the South American countries, which equal twelve. For each country used in the study, a number is assigned. This dummy variable controls for the unseen heterogeneity, because they remain unchanged from 1992 to 2012. A second independent variable is each countries' geographical distance to Peru. The geographical distance is measured in miles by taking the distance from Lima to the other countries' capitals. A third independent variable is the language distance. In this case, the language distance is used as a dummy variable. The number one is used for the countries in which Spanish is not the national language and the number zero is used for the countries in which Spanish is the national language. Gravity is also used as an independent variable in the study. I

standardized this variable by mean and standard deviation. The formula used is (Real $GDP_{jt}$ * Real $GDP_{P,t}$) / distance, where the real GDP of Peru and another country are used and the distance is measured in kilometers. I added a dummy variable to classify the countries that were under the agreement and the ones that were not. This means that from 1992 to 2008, the United States was assigned the number zero and the other countries were assigned the number one. On the contrary, the number one was used for the United States from 2009 to 2012, whereas the other countries had the number zero. A last independent variable is cultural distance.

Since this study used panel data – multiple observations for each country, I considered fixed effects and random effects to deal with correlation issues. A fixed effects model assumes that there is unobserved heterogeneity and which is captured with an error term that is time invariant. Invariant means that the variables are not expected to change over time, such as language, geographical, and cultural distance. This model controls for the omitted variables that are unchanged throughout the years. I did not add insignificant variables. When insignificant variables are added, the r squared increases, because the model counts them as independent variables.

Also, a Hausman test is used in the study to confirm the results of the fixed effects model. Although the fixed effects model is considered to be the most conservative model in comparison to other models used in the economics field, it is not always the most efficient one. Thus, the Hausman test is used to see which model gives the most effective and efficient results to the study in place. When using the Hausman test, one must pay attention to the P-value, because if it is significant, then the fixed effects models is preferred.

# CHAPTER 5: RESULTS

## Section 5.1 Expected Results of Hypotheses

The expected results of the three hyphotheses are desbribed below.

Hypothesis 1: The United States-Peru Trade Promotion Agreement will lead to trade creation with member countries (ie. The United States and Peru). It is expected in this research that the free trade agreement in question was a main variable that positively affected the growth in real GDP, the total trade, and the specific sectors' imports and exports between the United States and Peru. In other words, I expect to see a trade creation effect between member countries.

Hypothesis 2: The United States-Peru Trade Promotion Agreement is expected to lead to trade diversion with non-member countries. It is expected that the free trade agreement between the United States and Peru produced a trade diversion effect between member and non-member countries. I expect to see imports and exports decrease between Peru and non-member countries, because the implementation of the free trade agreement between member countries should have an economic impact on the trade of the non-member countries selected in this thesis. Thus, although the agreement may benefit the United States and Peru, it may adversely affect the trade with non-member countries.

Hypothesis 3: The economic gravity between Peru and non-member countries weakens the negative effect of trade diversion. It is expected to see that the geographical locations of member and non-member countries affect the final outcomes in the different trading sectors in the economy. Economic gravity is expected to reduce the trade diversion effect caused by the agreement, allowing non-member countries to maintain a similar or reduced trading flow between them and the member-countries.

**Section 5.2 Final Results**

The final results of the tests are separated in this section into six parts. The results are shown in the following order: Total Trade, Capital Goods Trade, Raw Materials Trade, Chemicals Trade, Fuels Trade, and Metals Trade. The empirical analysis to test hypothesis 3 created a problem with multicollinearity – the VIF test produce values that exceeded 10. To correct this problem, we had to remove one of the other hypothesized variables; which introduced an omitted variable problem. As such, it was not feasible to adequately address hypotheses 3.

**Section 5.2.1 Results of Total Trade**

Model 1 of Table 1 presents results using the sum of exports and imports (total trade). The results indicate that the coefficient for Gravity is positive and significant (B= 2255.08; P< .001). The coefficient for U.S.-Peru is not statistically significant. The coefficient for nonmember is positive and significant (B= 517.94; P< .001). Model 2 of Table 1 presents results using total exports as the dependent variable. The coefficient for Gravity is positive and significant (B= 1378.24; P< .001). Next, the coefficient U.S.-Peru is actually negative and significant (B= -1192.11; P< .001). Lastly, the coefficient for nonmember is positive and significant (B= 183.73; P< .001). Model 3 of Table 1 presents results using total imports as the dependent variable. The coefficient for Gravity is positive and significant (B= 876.87; P< .001). Next, the coefficient U.S.-Peru is positive and significant (B= 1251.78; P< .001). Finally, the coefficient for nonmember is positive and significant (B= 334.03; P< .001). These results provide support for the gravity hypothesis. Moreover, the results provide support for the trade creation hypothesis for only imports from the United States, whereas the U.S.-Peru agreement lead to lower

exports to the United States by Peruvian companies. There is support for the nonmember spillover hypothesis in that nonmember countries increase their exports to and imports from Peru.

**Section 5.2.2 Results of Capital Goods Trade**

Model 1 of Table 2 presents results using the sum of exports and imports of capital goods. The results indicate that the coefficient for Gravity is positive and significant (B= 245.47; P< .001). The coefficient for U.S.-Peru is significant (B= 432.00; P < .001). The coefficient for nonmember is positive and significant (B= 60.88; P< .001). Model 2 of Table 1 presents results using total exports of capital goods as the dependent variable. The coefficient for Gravity is positive and significant (B= 10.45; P< .001). Next, the coefficient U.S.-Peru is actually not significant. Lastly, the coefficient for nonmember is positive and significant (B= 11.71; P< .001). Model 3 of Table 1 presents results using total imports of capital goods as the dependent variable. The coefficient for Gravity is positive and significant (B= 235.07; P< .001). Next, the coefficient U.S.-Peru is positive and significant (B= 442.25; P< .001). Finally, the coefficient for nonmember is positive and significant (B= 48.74; P< .01). For this supplemental analysis involving trade of capital goods, the U.S.-Peru trade agreement seems to benefit bilateral trade, but a closer look reveals that the agreement prompted an increase in imports to Peru from the U.S. The results for Gravity and nonmember spillover effect remain similar to those for total trade.

**Section 5.2.3 Results of Raw Materials Trade**

Model 1 of Table 3 presents results using the sum of exports and imports of raw materials. The results indicate that the coefficient for Gravity is positive and significant

(B= 282.47; P < .001). The coefficient for U.S.-Peru is not significant. The coefficient for nonmember is positive and significant (B= 173.02; P< .001). Model 2 of Table 1 presents results using total exports of raw materials as the dependent variable. The coefficient for Gravity is positive and significant (B= 200.02; P< .001). Next, the coefficient U.S.-Peru is positive and significant (B= 294.51; P< .01). Lastly, the coefficient for nonmember is positive and significant (B= 45.49; P< .05). Model 3 of Table 1 presents results using total imports of raw materials as the dependent variable. The coefficient for Gravity is positive and significant (B= 82.46; P< .05). Next, the coefficient U.S.-Peru is not significant. Finally, the coefficient for nonmember is positive and significant (B= 127.48; P< .001). For this supplemental analysis involving trade of raw materials, the trade agreement produces increased exports from Peru to the U.S. but not imports from Peru to the U.S. Again, the findings for Gravity and nonmember spillover effect remain similar to those for total trade.

**Section 5.2.4 Results of Chemicals Trade**

Model 1 of Table 4 presents results using the sum of exports and imports of chemicals. The results indicate that the coefficient for Gravity is positive and significant (B= 108.11; P< .001). The coefficient for U.S.-Peru is positive and significant (B= 66.80; P< .10. The coefficient for nonmember is positive and significant (B= 77.72; P< .001). Model 2 of Table 4 presents results using total exports of chemicals as the dependent variable. The coefficient for Gravity is positive and significant (B= 12.41; p< .01). Next, the coefficient U.S.-Peru is actually negative and significant (B= -60.29; P< .001). Lastly, the coefficient for nonmember is positive and significant (B= 31.50; P< .001). Model 3 of Table 4 presents results using total imports of chemicals as the dependent variable. The

coefficient for Gravity is positive and significant (B= 96.14; P< .001). Next, the coefficient U.S.-Peru is positive and significant (B= 128.75; P< .001). Finally, the coefficient for nonmember is positive and significant (B= 43.29; P< .001). For this supplemental analysis involving trade of chemicals, the U.S. Peruvian trade agreement shows that exports from Peru to the U.S. declined after the agreement, while imports from the U.S. increased. The results for Gravity and nonmember spillover effect remain similar to those for total trade.

**Section 5.2.5 Results of Fuels Trade**

Model 1 of Table 5 presents results using the sum of exports and imports of fuels. The results indicate that the coefficient for Gravity is positive and significant (B= 542.44; P< .001). The coefficient for U.S.-Peru is positive and significant (B= 504.65; P< .01). The coefficient for nonmember is positive and significant (B= 73.21; P< .10). Model 2 of Table 1 presents results using total exports of fuels as the dependent variable. The coefficient for Gravity is positive and significant (B= 284.67; P< .001). Next, the coefficient U.S.-Peru is positive and significant (B= 142.67; p< .05). Lastly, the coefficient for nonmember is not significant. Model 3 of Table 1 presents results using total imports of fuels as the dependent variable. The coefficient for Gravity is positive and significant (B= 259.49; P< .001). Next, the coefficient U.S.-Peru is positive and significant (B= 353.08; P< .05). Finally, the coefficient for nonmember is positive and significant (B= 55.85; P< .10). For this supplemental analysis of trade of fuels, the U.S.-Peru Trade Promotion Agreement, bilateral trade of fuels between the U.S. and Peru increased as both export from Peru to the U.S. and imports to Peru from the USA

increased. However, the nonmember spillover effect holds only for imports of fuels. Again, Gravity strongly influences fuel trade.

**Section 5.2.6 Results of Metals Trade**

Model 1 of Table 6 presents results using the sum of exports and imports of metals. The results indicate that the coefficient for Gravity is positive and significant (B= 354.16; P< .001). The coefficient for U.S.-Peru is negative and significant (B= -663.26; P< .001. The coefficient for nonmember is positive and significant (B= 40.28; P< .05). Model 2 of Table 1 presents results using total exports of metals as the dependent variable. The coefficient for Gravity is positive and significant (B= 286.71; P< .001). Next, the coefficient U.S.-Peru is actually negative and significant (B= -713.54; P< .001). Lastly, the coefficient for nonmember is not significant. Model 3 of Table 1 presents results using total imports of metals as the dependent variable. The coefficient for Gravity is positive and significant (B= 67.50; P< .001). Next, the coefficient U.S.-Peru is positive and significant (B= 50.48; P< .10). Finally, the coefficient for nonmember is positive and significant (B= 21.63; P< .001). The supplemental analysis of trade of metals shows that the U.S.-Peru trade agreement adversely affects total trade of metals. The trade agreement led to lower metal exports from Peru to the U.S. and increased metal imports to Peru from the U.S. The nonmember spillover effect increases total trade of metals, but these results show that metal imports drive that result. Lastly, Gravity positively increases total trade, exports and imports, which is consistent with all of the above findings.

**Section 5.3 Why is This Thesis Relevant?**

Nowadays, there is great debate whether free trade truly helps or harms an economy. The United States-Peru Trade Promotion Agreement is a relative new

implementation and there is not much material regarding the research of its outcomes. Covering three hypotheses allows for a better understanding of the free trade agreement, because it not only analyzes the economic growth from a large scope, but it also covers the different sectors within the entire industry and the effects on trading patterns of other countries involved. This means that the research covers specific segments or sectors of the industry, allowing for a better understanding of the overall effect of the agreement between member and non-member countries.

This thesis also covers the topics of trade creation and trade diversion, which need to be understood in order to better analyze the outcomes of the free trade agreement. Economic gravity models enhance the results of the hypotheses, because economic gravity is expected to reduce the adverse effect in trading patterns with non-member countries. Adding this valuable information into the educational arena will enhance the knowledge of the foundations of today's free trade ideology.

**Section 5.4 Final Thoughts**

This thesis research sought to examine the trade implications of the U.S.–Peru Trade Promotion Agreement. The results provide strong support for the gravity hypothesis for total trade, exports, and imports. However, the results also show that the U.S.-Peru Trade Promotion Agreement appears to enhance total trade with nonmember countries, but not with the United States. However, a closer look at the analysis reveals that the trade agreement adversely affected Peruvian exports to the United States but increased Peruvian imports from the United States. Moreover, the agreement has a positive spillover effect for nonmembers with respect to total trade, total exports and total imports.

The supplemental analysis reveals that the U.S.-Peru Trade Promotion Agreement has distinctive effects for specific aspects of trade. The agreement enhances Peruvian exports of raw materials and fuels to the United States; however, it also has some unintended consequences (from the Peruvian perspective) in that it negatively affects Peruvian exports of chemicals and metals to the United States. Moreover, it stimulates Peruvian imports from the United States in general, except raw materials. This study sought to clarify, not only the overall effect of trade, but to provide a more granular view of the implications of the U.S.-Peru Trade Promotion Agreement.

**FIGURE 1**

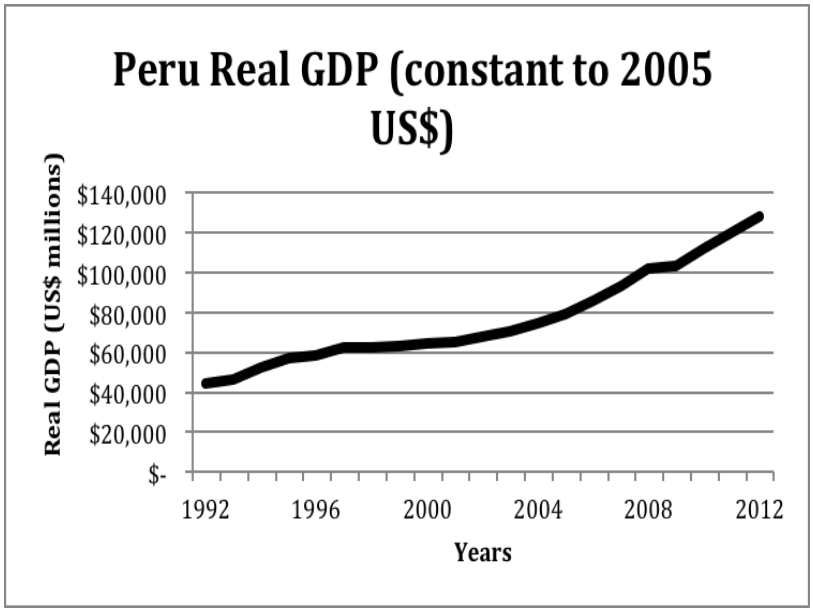



**FIGURE 2**

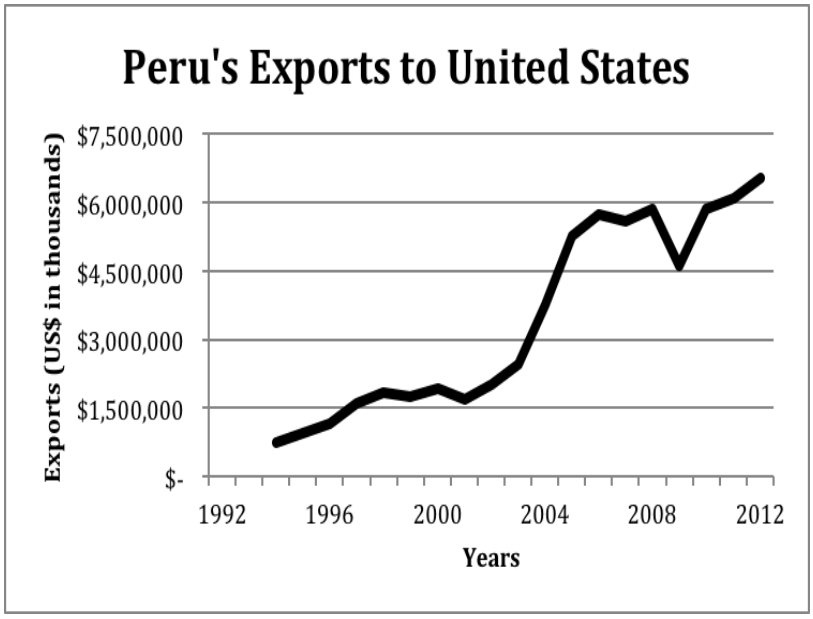


**FIGURE 3**

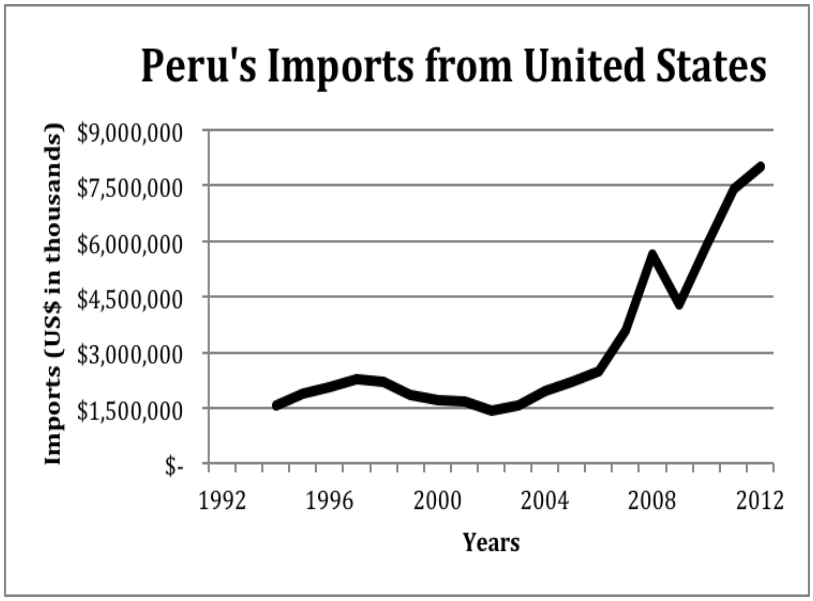



**FIGURE 4**

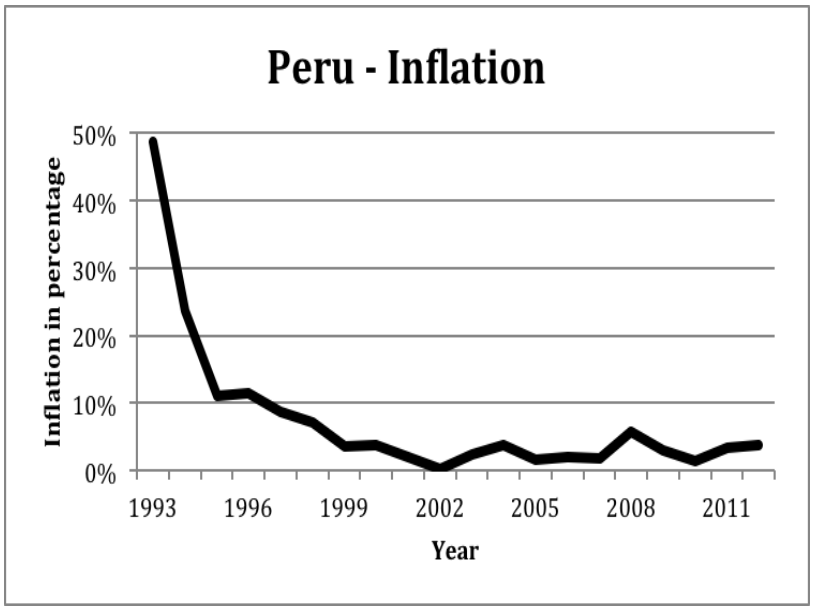


**FIGURE 5**

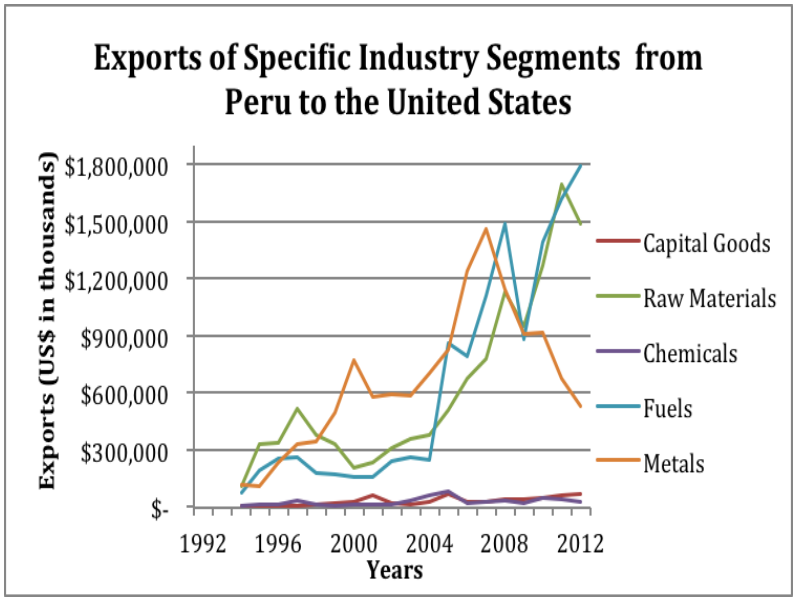



**FIGURE 6**

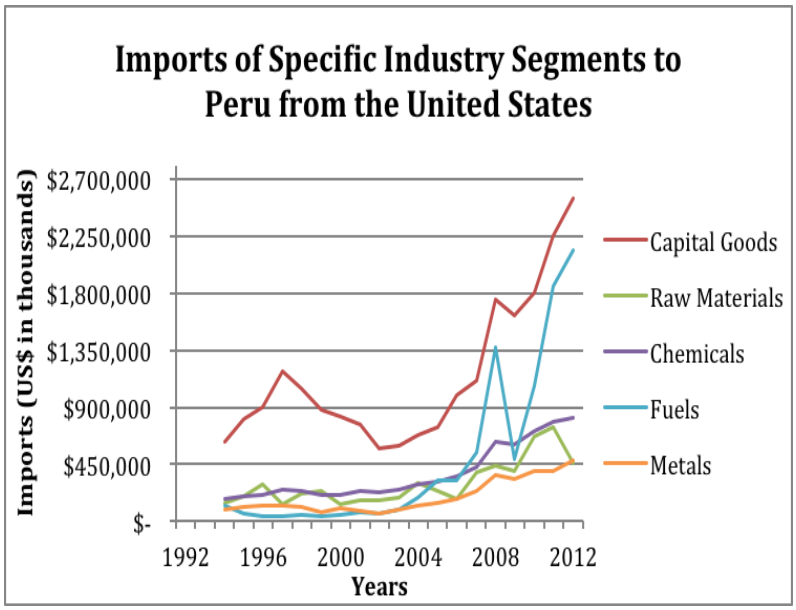


**FIGURE 7**

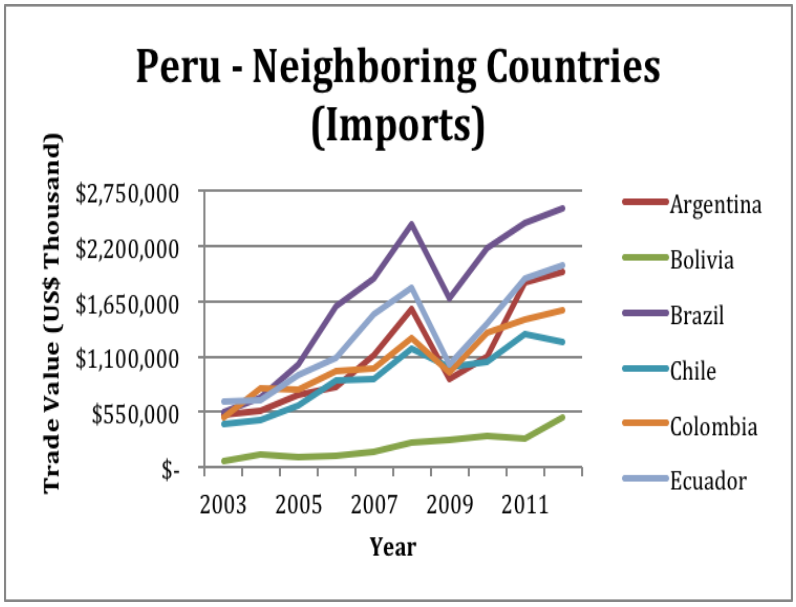



**FIGURE 8**

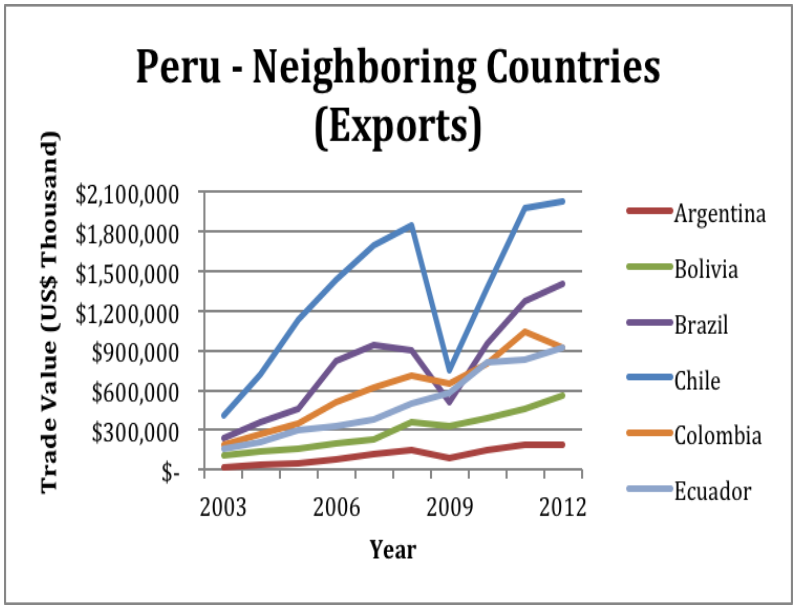


**TABLE 1**

**REGRESSION RESULTS USING COUNTRY FIXED EFFECTS**
(Total Trade)

| | **Export + Import** | **Exports only** | **Imports only** |
|---|---|---|---|
| | **Model 1** | **Model 2** | **Model 3** |
| **Constant** | 906.19*** | 417.40*** | 489.06*** |
| | (36.63) | (20.71) | (25.75) |
| **Gravity** | 2255.08*** | 1378.24*** | 876.87*** |
| | (103.15) | (58.42) | (72.49) |
| **U.S. - Peru** | 59.57 | -1192.11*** | 1251.78*** |
| | (424.24) | (240.28) | (298.14) |
| **Nonmember** | 517.94*** | 183.73*** | 334.03*** |
| | (85.01) | (48.12) | (59.74) |
| **N** | 261 | 262 | 261 |
| **Adj. R-squared** | 0.827 | 0.794 | 0.714 |
| **F-stat** | 391.13*** | 315.93*** | 204.03*** |

+ $p \leq 0.10$; * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$.

**TABLE 2**

**REGRESSION RESULTS USING COUNTRY FIXED EFFECTS**
(Trade of Capital Goods)

| | **Export + Import** | **Exports only** | **Imports only** |
|---|---|---|---|
| | **Model 1** | **Model 2** | **Model 3** |
| **Constant** | 116.58*** | 5.48*** | 111.07*** |
| | (7.59) | (0.52) | (7.64) |
| **Gravity** | 245.47*** | 10.45*** | 235.07*** |
| | (21.46) | (1.48) | (21.57) |
| **U.S. - Peru** | 432.00*** | -9.99 | 442.25*** |
| | (88.26) | (6.10) | (88.71) |
| **Nonmember** | 60.88*** | 11.71*** | 48.74** |
| | (17.99) | (1.22) | (18.08) |
| **N** | 260 | 262 | 260 |
| **Adj. R-squared** | 0.695 | 0.473 | 0.678 |
| **F-stat** | 185.75*** | 73.64*** | 171.09*** |

+ $p \leq 0.10$; * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$.

**TABLE 3**

**REGRESSION RESULTS USING COUNTRY FIXED EFFECTS**
(Trade of Raw Materials)

| | **Export + Import** | **Exports only** | **Imports only** |
|---|---|---|---|
| | **Model 1** | **Model 2** | **Model 3** |
| **Constant** | 190.46*** | 80.46*** | 109.97*** |
| | (15.79) | (9.58) | (11.86) |
| **Gravity** | 282.47*** | 200.02*** | 82.46* |
| | (44.46) | (27.02) | (33.41) |
| **U.S. - Peru Enact** | 267.92 | 294.51** | -26.56 |
| | (182.86) | (111.15) | (137.41) |
| **Nonmember Enact** | 173.02*** | 45.49* | 127.48*** |
| | (36.64) | (22.26) | (27.53) |
| **N** | 261 | 262 | 261 |
| **Adj. R-squared** | 0.415 | 0.463 | 0.153 |
| **F-stat** | 58.00*** | 70.67*** | 14.70*** |

+ $p \leq 0.10$; * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$.

**TABLE 4**

**REGRESSION RESULTS USING COUNTRY FIXED EFFECTS**
(Trade of Chemicals)

| | **Export + Import** | **Exports only** | **Imports only** |
|---|---|---|---|
| | **Model 1** | **Model 2** | **Model 3** |
| **Constant** | 63.45*** | 12.38*** | 50.39*** |
| | (3.48) | (1.48) | (2.76) |
| **Gravity** | 108.11*** | 12.41** | 96.14*** |
| | (9.57) | (4.19) | (7.58) |
| **U.S. - Peru Enact** | 66.80+ | -60.29*** | 128.75*** |
| | (39.36) | (17.22) | (31.18) |
| **Nonmember Enact** | 77.72*** | 31.50*** | 43.29*** |
| | (8.22) | (3.44) | (6.52) |
| **N** | 244 | 265 | 244 |
| **Adj. R-squared** | 0.703 | 0.289 | 0.749 |
| **F-stat** | 180.85*** | 33.69*** | 227.76*** |

+ $p \leq 0.10$; * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$.

**TABLE 5**

**REGRESSION RESULTS USING COUNTRY FIXED EFFECTS**
(Trade of Fuels)

| | **Export + Import** | **Exports only** | **Imports only** |
|---|---|---|---|
| | **Model 1** | **Model 2** | **Model 3** |
| **Constant** | 175.39*** | 60.17*** | 112.56*** |
| | (16.50) | (5.81) | (13.10) |
| **Gravity** | 542.44*** | 284.67*** | 259.49*** |
| | (46.07) | (16.21) | (37.02) |
| **U.S. - Peru Enact** | 504.65** | 142.67* | 353.08* |
| | (189.23) | (66.60) | (152.24) |
| **Nonmember Enact** | 73.21+ | 21.15 | 55.85+ |
| | (37.90) | (13.34) | (30.48) |
| **N** | 255 | 255 | 263 |
| **Adj. R-squared** | 0.644 | 0.772 | 0.425 |
| **F-stat** | 144.24*** | 269.11*** | 60.87*** |

+ $p \leq 0.10$; * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$.

**TABLE 6**

**REGRESSION RESULTS USING COUNTRY FIXED EFFECTS**
(Trade of Metal)

| | **Export + Import** | **Exports only** | **Imports only** |
|---|---|---|---|
| | **Model 1** | **Model 2** | **Model 3** |
| **Constant** | 131.22*** | 96.71*** | 34.51*** |
| | (6.65) | (5.31) | (2.53) |
| **Gravity** | 354.16*** | 286.71*** | 67.50*** |
| | (18.86) | (15.05) | (7.19) |
| **U.S. - Peru Enact** | -663.26*** | -713.54*** | 50.48+ |
| | (77.55) | (62.90) | (29.57) |
| **Nonmember Enact** | 40.28* | 18.30 | 21.63*** |
| | (15.65) | (12.38) | (5.97) |
| **N** | 264 | 265 | 264 |
| **Adj. R-squared** | 0.640 | 0.611 | 0.539 |
| **F-stat** | 147.00*** | 130.26*** | 96.62*** |

+ $p \leq 0.10$; * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$.

# REFERENCES


Anderson, James E. 2010. The Gravity Model. Annual Review of Economics, Annual Reviews, publication December 2010. doi: 10.3386/w16576.

Burt, Jo-Marie. 2009. "Guilty as Charged: The Trial of Former Peruvian President Alberto Fujimori for Human Rights Violations". International Journal of Transitional Justice, publication November 2009. doi: 10.1093/ijtj/ijp017.

Central Intelligence Agency. 2014. The World Factbook. https://www.cia.gov/library/publications/the-world-factbook/geos/pe.html. Accessed 2 December 2014.

Datta, Anusua and Kouliavtsev, Mikhail. 2009. NAFTA and the Realignment of Textile and Apparel Trade: Trade Creation or Trade Diversion? Review of International Economics, publication February 2009. doi: 10.1111/j.1467-9396.2008.00783.

Feenstra, Robert C. and Taylor, Alan M. 2011. *International Economics*. New York: Worth Publishers.

International Monetary Fund. 2009. Global Financial Stability Report. http://www.imf.org/External/Pubs/FT/GFSR/2009/01/pdf/text.pdf. Accessed 1 December 2014.

Kandogan, Yener. 2009. "Trade Creation and Diversion Effects of Europe's Regional Liberalization Agreements". International Economic Journal, publication December 2009. doi: 10.1080/10168730903372257

Krueger, Anne O. 1991. Trade Creation and Trade Diversion Under NAFTA. National Bureau of Economic Research, working paper 2009. http://www.nber.org/papers/w7429. Accessed 11 November 2014.

Margetts, Steve. Revision Guru. http://www.revisionguru.co.uk/economics/creatdiver.htm. Accessed 8 November 2014.

National Geographic. 2014. Peru Facts. http://travel.nationalgeographic.com/travel/countries/peru-facts/. Accessed 2 December 2014.

Salvadori, Neri and Signorino, Rodolfo. 2012. Adam Smith On Monopoly Theory: Making Good A Lacuna. Scottish Journal Of Political Economy, advance online publication April 27. doi: 10.1111/sjpe.12040.

Sun, Lin and Reed, Michael R. 2010. "Impacts of Free Trade Agreements on Agricultural Trade Creation and Trade Diversion". Oxford University Press, publication October 2010. doi: 10.1093/ajae/aaq076

The Heritage Foundation. 2015. 2015 Index of Economic Freedom. http://www.heritage.org/index/country/peru. Accessed 15 February 2015.

World Bank. 2014. World Integrated Trade Solution. http://wits.worldbank.org/.