Intellectual Property Rights: A proxy to the continuous economic dependence of South American economies on the United States

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Intellectual Property Rights: A proxy to the continuous economic dependence of South American Economies on the United States
A Focus on International disparity

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ABSTRACT

This thesis examines intellectual property right regulations as a contributor to the economic dependence of Latin American countries such as Chile, Brazil, Honduras, Peru, and Venezuela on the United States. This paper examines levels of economic development in terms of power disparity in the international system as explanations for economic dependence, and examines intellectual property right regulations as a measure that has future implications in adjusting this imbalance of development. The empirical evidence indicates that as IPR regulations increase economic dependence also increases. The conclusion of this paper touches on a few policy implications and a discussion on positive and negative effects of possible solutions to decrease economic dependence in countries in Latin America through IPR policy changes.
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Chapter I: Introduction

This thesis is designed to investigate whether a proper intellectual property rights (IPR) system is associated with ties to the United States through imports, exports, and Foreign Direct Investment (FDI). Dependent countries, I argue, are coerced to adopt inappropriate levels of intellectual property rights, putting them at a severe economic disadvantage. The economic disadvantage in this paper specifically refers to the different levels of economic dependence in their relation to the ability for sovereign autonomy and economic development.

Some argue the entire international economic system is based on an economic dependence of less developed countries (LDC), such as the Latin American region, on advanced developed countries, such as the United States. This dependency is directly related to the powerful influence that developed nations, such as the United States of America, have in the international system concerning other sovereign nations. Developed countries have not only an economic advantage, but also a political advantage that plays a key role in their ability to further develop and expand the influences of their economy increasing the developmental gap. Therefore LDCs will become economically dependent on a country through inappropriately high levels of IPR. If a country is dependent upon another country it can fall into a cycle of economic underdevelopment.

For the purpose of this paper the United States will function as the developed country with strong IPR regulations while the Latin American region specifically looking at cases from Chile, Brazil, Peru, Honduras, and Venezuela will serve as the less developed countries (LDC). This paper suggests the role of continuous underdevelopment and disparity between developed and less developed countries in Latin America by means of economic dependency. This paper

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1 This paper takes into account the economistic characteristics of the United States.
will describe the role of intellectual property rights in less developed countries and examine how stronger regulations would affect their IPR system. I project that economic and political instability are directly related to the level of economic dependence of a country.

This thesis will address the following questions: Why do some countries experience high rates of intellectual property rights and low rates of economic dependency while others do not? Why does trade and investment with the developed world lead developing countries in Latin America to be at a disadvantage when trying to implement stronger IPR regulations?

Main Variables and Core Assumptions:

Background information on Intellectual Property Rights

Intellectual Property rights refer to the legal protection of innovation, artistic and creative works, symbols, and ideas in commerce (WIPO). This paper will focus specifically on the international use of IPR’s. Intellectual Property rights increase and stimulate innovation without which advancements would decline in value, and provide dividends for citizens to innovate and advance ideas and technology (Keith Maskus 2007). International organizations such as the World Intellectual Property Organization (WIPO) and the World Trade Organization (WTO) stimulate and protect the use of Intellectual Property Rights. Developed countries established these two institutions as a means to protect the innovative rights of their citizens, which in turn increases the overall prosperity of their economies. It also results in the developed countries accumulating a high level of influential power within these organizations. I plan to examine factors that portray a stable economy such as GDP, regime type, number of imports compared to exports, amount of foreign direct investment leaving or entering an economy, and the level of aid given or received. High GDP, a democratic regime type, a greater number of imports than
exports, more foreign direct investment and development aid leaving a country, are signals for a stable political and economic system. For a developing country the reverse is true with certain exceptions. These economic variables represent international trade and investments, and for the purpose of this paper serve as evidence in explaining the role of economic dependence. The hypothesis of this paper proposes a strong correlation between the levels of economic dependence a country has (as measured through trade and investments) with a country’s ability to effectively carry out a proper intellectual property rights system.

Another important factor to discuss is the design of a strong intellectual property right system, its importance, as well as the negative effects of intellectual property theft, piracy, and counterfeiting of products. A strong IPR system is important for protecting and stimulating further innovations of a country’s citizens, which promotes the opportunity for growth and technological advancements. IPR theft occurs because of the insufficient enforcement and protection, or a limited access for citizens looking for IPR protection. IPR theft exists internationally and is committed by both developed as well as underdeveloped countries; however, the latter is more common. The most common method of property right theft is known as a counterfeit good or copying of a good, producing it at a lower quality and selling it for a cheaper price. Despite the prevalence of IPR theft internationally this is considered a serious crime as it is seen as “stealing” from the original innovator, causing that innovator to lose possible business and revenues, which are internationally and legally protected. International industries that are particularly threatened by this problem include: clothing, business software, motion pictures and photography, sporting goods, watches, perfume, toys, medicine, and spare parts (automotive/aircrafts). This background information is pertinent to international problems.
such as stronger intellectual property right regulations and enforcement that will be investigated in this paper.

Background information on International Dependency

Due to the natural sovereignty of states the international system has an imbalance of power. Economic and political power has favorable outcomes for developed nations who have large amounts of political influence due to their stable economic and political policies. This powerful international influence has impacted the economic and political development of less-developed nations. In particular the dependency theory draws from the phenomenon that occurs when a developed nation brings trade and commerce to a developing nation, which in turn makes the industrializing country dependent upon the already advanced economy. A debate that has developed over the last few decades in the political science community discusses whether the Dependency Theory is an accurate portrayal of the international system. One argument that aligns with the World Systems Theory encourages the idea that there are many other factors that affect the relations between states in the international system such as the domestic environment, international/intergovernmental organizations, historical outcomes, as well as many other factors that may have led to the inability of the Global South to develop. This paper takes this argument into consideration in this paper as a flaw in the Dependency Theory. The World Systems Theory along with other models have followed from the Dependency Theory acknowledging the exploitative qualities of capitalism while also recognizing that the international system is more complicated than just the binary description of rich vs. poor countries.

Now that the basic background of the Dependency Theory has been described I can now propose the working definition of the Dependency Theory that will be used in this research model. Due to the current debates surrounding the validity of this theory I will propose my own
modifications in order to provide a better representation of it’s influence in today’s international system. I agree with the World Systems Theory in that the international system is more complicated than the binary model originally discussed. I also agree that there is other factors that influence a countries development other than the exploitive influence of already capitalized countries. This paper focuses on Intellectual property rights as an alternative factor influencing the development of a country. I would like to use this variable to add an economic clarification to the Dependency Theory; it should not be assumed that the exploitation and economic dependence develops solely as a result of political institutions and governments interacting, but rather in today’s society it is more common to find that dependency stems from the private sector through businesses and corporations. This is especially important when considering IPR as corporations and businesses are the primary actors when it comes to receiving an IPR and enforcing a proper IPR system. From this modification to the Dependency Theory I can now supply the working definition for economic dependence as the independent variable in this research: economic dependence occurs as a result of the disparity in the international system causing a less developed nation to be inefficient and incapable of economic autonomy and development. The next section will provide clarity as to the current realms of thought for both intellectual property rights as well as international dependency.

**Chapter II: Literature Review**

This literature review provides insight into the research already available and conducted on the topic of intellectual property rights, economic dependency of countries in Latin America, and underdevelopment of Latin American economies. These sources provide valuable applications that will prove useful for defining existing data that will be used in the statistical
analysis of my research. Several of the sources provide pertinent background information and historical facts about the process and development of these core theories, and the basis for already analyzed case studies of specific Latin American countries. The journals will examine common themes and central ideas of the core theories that are broadly accepted in current literature. This will be used in preparing the core assumptions in each field of study to define the research theories of this paper. A part of this literature will also cover critical international organizations and institutions, trade agreements, and treaties that are involved in the field of intellectual property rights. The importance of this literature, as listed above, will provide the reader with the necessary background information in the fields of intellectual property rights and economic dependency in terms of underdevelopment in Latin America.

It will also be used in determining my core assumptions and data needed to test my hypothesis. Intellectual property rights are used as a proxy to examine the prejudicial effects of economic dependence in the developing region of Latin America. In this paper, dependency is measured by how integrated a country is in the global economy. In order for the developing Latin American countries to autonomously play the international trade game they are forced to have a certain level of intellectual property regulations. This involuntary system of IPR regulation may not always be in the best interest of developing countries, as described in further depth in the following sections. It is important to keep this inference in mind throughout this paper to establish relevance for these sources as well as major limitations that may arise due to available information in these fields of study.

**Intellectual Property Rights**

Current literature on intellectual property rights aligns with one of two positions: in favor of stronger IPR regulations, or against stronger IPR regulations. The literature in favor of
stronger intellectual property right regulations discusses the importance of intellectual property rights in the global system as a means to stimulate innovation and advancements. The most accurate definitions on intellectual property rights can be found on the World Intellectual Property Organization institution website, and refers specifically to the “creation of the mind” (WIPO). This creation includes, trademarks, patents, copyrights, industrial design, and geographical indications. The WIPO website and journal also provides a complete list of current IPR agreements the most recent and relevant being the Trade Related Aspects of Intellectual Property Rights (TRIPS). These institutions were created and continue to be heavily influenced by developed countries seeking to protect the innovative rights of their domestic businesses in order to ensure positive revenue on exports and industries. As defined by the United States Trade Representative a proper intellectual property rights system is “functional if it works efficiently and securely, which occurs only when there is little distrust and corruption, and when the rules of ownership and property claims are not arbitrary and inconsistent”. The TRIPS agreement also distinctly states the importance of multilateral institutions that provide aid to developing countries by “Supporting the IPRs reform process, implementing reforms and building institutions, enhancing the environment for IPRs, and increasing the understanding of the social and economic effects of IPRs protection” (TRIPS Agreement, WTO).

There are many sources that comply with the big business and institutional view of intellectual property rights claiming that there should be stricter regulations on IPR in developing countries. This area of thought derives from the point of view of an already developed country

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2 Definition and explanation of World intellectual property right organization found in Appendix 2
3 Definition and explanation of the Trade Related Aspects of Intellectual Property Rights agreement found in Appendix 2
4 USTR found in Appendix 1
with an established IPR system looking to protect itself from intellectual property right theft, counterfeiting, and piracy. Trade reports offer the most up to date analysis of trade relations between the United States and other less developed countries. This is useful in analyzing the types of economies that are importing/exporting from the United States. The office of United States Trade Representative provides data correlating to the negative effects of IPR theft on the United States economy. Directly taken from the WIPO website are reasons for protecting intellectual property rights including many resources for the protection of business innovation and rights. It is key to remember that this website is directly organized by influential members of the WIPO such as developed countries like the U.S. whose goal is to protect domestic businesses internationally. The TRIPS agreement described above is one such example of the influence that the United States and other developed countries have in such institutions. Along with the many sources that support the requirement of stronger IPR regulations there is also substantial literature on the effects of IPR on the underdevelopment of less developed countries.

On the other hand, there is considerable research that positively correlates stronger intellectual property right regulations with higher rates of underdevelopment in Latin America. In researching IPR and effects on underdeveloped there are many factors that have already been tested such as: stage development (Angus C. Chu, Guido Cozzi, and Silvia Galli, 2014), offshoring (Claudia Canalis, and Fuat Sener), legal and economic implications (Cimoli, Mario, Giovanni Dosi, Keith E. Maskus, Ruth L. Okediji, Jerome H. Reichman, and Joseph E. Stiglitz), income inequality (Samuel Adams), and power influence on institutions (Ohid Yaqub Hassan, Emmanuel, and Stephanie Diepeveen). Each of these articles touches on different variables that are contributing to underdevelopment due to stronger IPR regulations. There are several main arguments that emphasize this reasoning. Many of these challenges that developing countries
face are in regards to a countries’ ability to efficiently and effectively administer and enforce IPR’s, adapt to advancements in technology, educate the public on IPR usage, and obtain and use assistance from WIPO or developed member states. All of these factors contribute to a developing country’s ability to handle a proper IPR system. A developing country may not have the political and economic stability to administer or enforce IPR regulations. Fore developing countries IPRs on technology advancements also increase a developing countries’ industries barriers to entry leading developing economies to turn to counterfeiting, piracy, or IPR theft. Another factor hindering a productive IPR system in developing countries is the level of corruption and the lack of funding for educating and building consensus within the society on IPR regulations. My research will take into account these factors while also testing for several control variables such as, democracy, FDI, GDP, and GDP/capita, economic aid, and imports and exports to test for a possible correlation between the underdevelopment caused by Intellectual Property Rights and how this may encourage further economic dependence. Literature that supports a positive correlation between intellectual property rights and underdevelopment in Latin America will be used as the first core assumption in the theories section of my research.5

Economic Dependency

A contemporary thought in this field suggests that since an increase in IPR regulations is almost inevitable, only a slight increase should be proposed. This perspective will weigh heavily in my considerations for future implications. This model of IPR regulations would allow for developed countries to satisfy their desire of stronger regulations while also allowing the developing countries time to adjust to the changing system. A similar argument that also

5 First core assumption
coincides with the first core assumption listed above is the “catch up” problem (Hiroyuki Odagiri). This argument serves as a modern day examination of the dependency theory explaining that development cannot be achieved solely through investments such as FDI, but instead through their own personal technological advancements and innovative process. This however cannot be achieved with strict IPR regulations and enforcements. Depending on the results of the findings section of this paper I will further this argument by proving that technological advancements cannot be obtained if these countries are being continuously held back as a result of their dependency on developed nations and by means of stronger IPR regulations which would eliminate accessibility to these technologies. Thus, it can be interpreted as contradictory foreign policy for developed nations to require stronger IPR regulation in less developed countries for their own economic benefit, when in fact it is the stronger regulations inhibiting the advancements of less developed economies.

The data for many of these variables has been previously collected and examined in indexes such as the intellectual property rights index 2010 and 2016, the competitiveness report, and the power distance index. One important factor that I believe contributes to the correlation between intellectual property rights and economic dependency is the power gap and influence in institutions such as the WIPO. One measurement that I will take into account is the “Power Distance Index” by Geert Hofstede. This index provides relevant data on the distribution of power in the international system based on measuring individualism, masculinity, uncertainty avoidance index, long-term orientation. This will prove extensively useful in the measurement of power on a country-by-country basis in the international system. It is also useful in measuring each country’s citizens and their ideologies oriented to accept and expect that power be

6 Power Distance Index found in Appendix 2
distributed in an unequal manner. The Economic commission for Latin America and the Caribbean\textsuperscript{7} provides relevant trade developments between the U.S. and Latin America, comparing factors such as power influence by the United States as a result of the need for Latin American countries to keep their economic ties with the U.S. Using the available information on economic dependency I will examine the importance of power as an influential factor in underdevelopment. The research conducted in this paper does not propose that Latin American economies should completely disconnect economic ties with the U.S. as described later in the discussion on import substitution industrialization. Another important index is the global competitiveness report\textsuperscript{8} as a measure of economic competitiveness in the international system. This will be useful in explaining the level of economic underdevelopment in South America. These indexes measure both economic as well as political factors in measuring the economic and political stages of development in the world system.

Economic dependence in Latin America is rooted in the imperialist era and industrialization. This epoch was defined by developing countries such as Europe and the U.S. outsourcing to periphery territories for resources. This period of time was responsible for the development of states and a responsive economy in the Latin American region. These societies soon became dependent upon the core countries for economic stimulation, trade, and revenue. After WWII this economic dependency expanded towards international capitalism and multinational corporations. This new form of dependency was more interchangeable and globalized making the periphery countries of Latin America a commodity for international investments. This relationship may seem to cause parity among international actors since the core countries are also dependent upon the periphery for their resources, and provides a

\textsuperscript{7} ECLC further described in appendix 2
\textsuperscript{8} GCP further described in appendix 2
definitive line of development available for Latin America and other periphery countries. Developed countries will aid in economic development to a certain extent by providing FDI and technology advancements so long as they are reaping the capital benefits as well. To this point there is a ceiling to the level of development a developing country is able to reach with its available resources in the international political system. This relationship causes periphery countries to hold the weaker hand in the world market.

After WWII during the 1950’s-60’s countries in Latin America took advantage of the industrialization that had occurred and created an internalized policy of import substitution industrialization in order to stimulate economic production domestically and further economic development attempting to close the gap between their periphery status and the developed core. ISI was structure around tariffs and quotas for products that had previously been imported by creating domestic production facilities stimulating jobs, technological advancements, and restricting economic dependence. Although Latin America had considerate natural resources, they did not take advantage of their comparative advantage and as a result fell victim to reducing tariffs and quotas, slowly opening their economies back up to the international market. This was especially seen in Latin America in the automobile and steel industries, in which multiple firms were allowed to enter into the market leaving no room for large-scale production and resulting in industries realizing little profit. In Brazil tariffs were eliminated not encourage imports but rather to decrease the monopoly and encourage lower costs of production in order for the industries to realize profit. Although this model worked for several countries for a short period of time is it apparent that the globalization and interconnection of the global market supports trade over a closed market system. To clarify this paper does not see a closed market system as a solution to the phenomenon of economic dependence.
To summarize this literature review, there are several major themes that can be taken away from both fields of study. In terms of intellectual property rights the current literature holds views both in favor of stronger IPR regulations as well as against stronger IPR regulations. The arguments in favor of stronger regulations align with the point of view of a developed country such as the United States who desires protection from IPR theft and to regain the revenue lost due to illegal means of obtaining intellectual property common among developing nations. An opposing view states that intellectual property rights are directly correlated with underdevelopment in Latin America and would therefore advise against stronger IPR regulations if progress is to be made in breaking away from this continuous cycle of underdevelopment. Both theories are derived from scholars in developed countries. The most idealistic argument discussed proposed a slight increase in regulations in order to satisfy developed countries desires as well as allowing for more “catch up” room for the developing economies to adjust to a more rigorous system.

This section also discussed several data points from which I will be able to gather information in relation to the economic dependency of less developed countries by measuring trade and investments such as FDI, imports and exports, and the global competitiveness report. Many theories have been tested on the relationship between intellectual property rights and underdevelopment, however there remains a gap in how economic dependence place a role in the continuous underdevelopment. My thesis will fill this gap by measuring Intellectual property rights as a proxy of economic dependency of countries in Latin America. These two theories have been tested separately as contributing to underdevelopment, and the research that follows in this paper will combine these two approaches to test for a positive correlation of these two common schools of thought.
Chapter III: Variables in Context

This section details the control variables relevant for the research of this hypothesis. Included in each description of the control variables is an example from a case country in Latin America. The variables in this section include economic dependency, foreign direct investment, import substitution industrialization, intellectual property rights, imports and exports, and democracy. The countries included in this section are Venezuela, Brazil, Honduras, Peru, and Chile. These countries were included as having varied levels of intellectual property rights as well as varied levels of economic development.

Economic Dependency

Dependency in Latin America resulted from the introduction of capitalist styled economies from the already industrialized international economic powers. According to Cardoso and Faletto, “The very existence of an economic “periphery” cannot be understood without reference to the economic drive of advanced capitalist economies, which were responsible for the formation of a capitalist periphery and for the integration of traditional capitalist economies into the world market” (Cardoso and Faletto pg. 8, 1997). The two main types of dependency originated as a result of domestic, nationally controlled production systems, or from foreign companies and influences. The external factor is a product of multinational corporations or international companies using FDI to exploit lower labor costs and natural resources. The internal factor is caused by “local bourgeoisie” accumulation of natural resources and exploiting the same local labor force. “Peripheral economies even when they are no longer restricted to the production of raw material remain dependent in a very specific form: their capital goods production sectors are not strong enough to ensure continuous advance of the system, in financial
as well as in technological and organizational sectors. So in order to go ahead with economic expansion a dependent country has to play the “interdependency game…” (Cardoso and Faletto pg. 11 1997). Even after the dependent country grows economically its growth is still based on the aid of the economically sound country. One distinction exclusive to periphery countries is their deep economic root that relies on natural resources. This allows for the countries to export to developed countries making their national income heavily, if not completely, dependent upon one or two natural resources. A perfect example is the 2014 Venezuelan oil crisis.

Venezuela’s economy over the last decade has greatly depended upon its unusually high oil prices; a dependence they did not realize was too established until the oil prices collapsed internationally. The government initiated public companies and nationalized private firms in the oil and natural gas industries. They also implemented social programs to deliver basic services to reach a larger portion of the population. “Economic growth and redistribution policies led to a significant decline in poverty, from 50 percent in 1998 to approximately 30 percent in 2013, according to official figures. Inequality also decreased, as reflected in the decrease in the Gini Index, from 0.49 in 1998 to 0.40 in 2012, among the lowest rates in the region” (The World Bank). Oil prices fell 50% in 2015 and an additional 35% in 2016. The crisis can be attributed to a few of Venezuela’s economic policies: an unstable macro and microeconomic environment, did not account for savings or a cushion to reverse trade terms and allow for adjustment in case of a market failure. As a result of the nationalized business and social programs, access to external financing was limited. “This source of financing, price controls, limitations on access to foreign currency, and the collapse of the private sector in the provision of basic goods, have cumulatively led to one of the world’s highest inflation rates,” (World Data Bank). A multiple exchange rate program caused a contraction of imports and uncontrollable outflow of foreign
currency. As the country faces major stagflation, there is persistent neglect of basic goods, supply problems for production imports, and high inflation pressures. Investments have plummeted due to distortions of monetary values and uncertainty decreases any capital stock in the country’s economy. This bad investment rating also lowers the amount of FDI entering the economy.

With no economic plan to fall back on, and a dependency on investors and FDI Venezuela’s has declared this crisis a national emergency. Venezuela was not only economically dependent upon their oil exports, but also relied heavily on foreign investors. Many of these investments come in the form in intellectual property rights and with a loss of FDI they also lost their ability to maintain a sustainable IPR system. As a periphery country they were economically dependent upon the developed countries for the success of their economy, and realized a significant exposure to the perils of economic dependency.

Foreign Direct Investment

The collapse of international oil prices caused the Venezuelan market to crash. Along with this fall came a mass movement of financial aid to flee the country. As a result a large portion of their foreign direct investment pulled out of the economy.

As examined by Amirahmadi and Wu over the last few decades foreign direct investment has increased overall in Latin America, and can be attributed to several factors some including a theoretical shift in development philosophy, domestic urgency in developing countries for economic growth, globalization of production and services due to technological

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9 Foreign Direct Investment in Developing Countries
advancements, and a more interconnected international environment. This last factor is a core reason for the continuous use of foreign direct investment and multinational corporations.

Although developing countries may be dependent upon the developed countries for economic stimulus, the reverse is true for developed nations. Developed nations are dependent upon those developing countries for human capital, natural resources, and support the development process through technology transfers. As such there has been an increased use of FDI as means for capital transfer. Since many developing countries (especially seen in Latin America through the use of ISI policy) have chosen industrialization as their means to develop, their economies became aware of how important imports were for their access to basic industrialization technology. The United States once was the leading FDI country in the world especially for the input of investment in Latin America. A decline in FDI after the 1980s along with the 2008 recession has caused a setback for Latin America. One example of a country that showed growth during its industrialization period is Brazil. The extensive growths combined with a large population are attractive factors for FDI.

Latin America also experienced a large debt deficit, discouraging current and future investors from taking the risk of investing in that region. As a region Latin America is one of the largest debtors an undesirable trait for investors resulting in scarce legal technology transfers. This is important because it can cause a loss of FDI furthering the underdevelopment and dependency of developing countries.

**Import Substitution Industrialization**

During the decades between 1945 and 1964 after World War II, many of the Latin American countries started a policy known as import substitution industrialization. This policy was enacted in most Latin American countries; the most successful cases include Brazil, Mexico,
Argentina, Chile, Uruguay, and Venezuela. Brazil like most of Latin America in the post World War II era tried to increase their economic development through a closed system of mercantilism. Import substitution industrialization prompted businesses within the territory to register their products with the government providing a market reserve for domestic producers eliminating international competitors. Under the government of Getúlio Vargas of 1951 imports of essential goods and inputs (fuel and machinery) were required to get a license, discouraging the importation of consumer goods. This system later became an ISI dedicated economy using foreign export controls, such as tariffs and quotas, to protect domestic industries employing the imported machinery for their profit.

ISI policy resulted in a balance of payments issue and international trade policies such as the Tariff Law of 1957 leading to an inadequate export growth. ISI only increased the balance of payments problem as a result of vertical integration causing money to leave the economy via imports of industrial goods, but an inadequate amount of money entering the economy, and led to an in-equilibrium. Basic needs were not being met due to the inability and high inflation prices that were caused by closed international borders. Import substitution industrialization was progressively encouraged to end in the 80’s and 90’s due to persistent urging from the IMF and World Bank to start developmental liberalization of the Latin American economies. This example of ISI in Brazil was one of the more successful cases in Latin America. Closed borders were unsustainable over time and resulted in high economic and social costs causing these countries to depend on the aid of more developed ones. When these economies were once again opened to international trade they were forced into the category of a periphery country completely reliant upon the export of their natural resources and dependent upon developed countries to support their industries.
**Intellectual Property Rights**

In 2013 the Honduran government redesigned the Honduran constitution to include such reforms as the Zones for Employment and Economic Development (ZEDE) designed to decentralize the system. One mode of development included scrutiny of land right violations. The Honduran government was introduced to Factom/Epigraph a U.S. based company using a blockchain application system. An “immutable register would lower the number of property disputes moving forward, providing respite to a region’s judicial system to work through the backlog of disputes” (IPRI 2016 case study). Although this U.S. based blockchain system is helping to reduce the land right disputes it also proves the reliance that the Honduran government has on technological advancements outside of their own country and economic means. It is apparent that the corrupt system that was used prior was not sufficient, yet they did not have the IP capable of producing a system like that of Factom/Epigraph on their own due to a lower level of economic and technological development, nor would they have an IPR system stable enough to protect the land registry. Honduras is not the only country that seeks the intellectual aid\(^\text{10}\) of developed economies. Although this aid is well received, it is promoting the economic dependence that these countries have even for basic economic and political functionalities.

“The World Bank’s Doing Business Index ranks Honduras at the 88th place worldwide for registering a Property. According to the Index, it takes 6 procedures, 22 days and a cost of 5.7% of a property’s value in order to get it registered.” (IPRI 2016, Honduras). Not only is the intellectual property rights system nearly impossible to enter, most Honduran citizens focus their efforts...

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\(^{10}\) In this context intellectual aid refers to the technological and intellectual resources available in a developed economy that are able to aid a less developed economy incapable of producing the intellect or technologies on their own terms as a result of economic underdevelopment.
energy and time towards obtaining sustainable needs, such as food, rather than fighting for IPR protection.

The technology exists, and the political connections have been established however, a blockchain system of land registry will not cure the problem of corruption that is still prevalent in Honduras, nor will it decrease the economic dependency that Honduras now has on this U.S IPR protected blockchain system. It is also important to recognize the use of an American based technology company that is protected under a U.S. IPR regulation. It is apparent that Honduras was unable to create a functioning land rights registry without the help of a U.S. technology transfer. Honduras needs to be autonomously sustainable or there will not be sufficient development. The blockchain system is supports the development of the Honduran land registry. However Honduras needs to be able to have state autonomy and capacity as well. In the short term the blockchain system is a good idea but Honduras will need to develop well enough to support its own IPR system for it to be completely sustainable.

Imports/Exports of Peru

According to the OEC\textsuperscript{11} Peru is in the top percentile of exporting economies and ranked 59\textsuperscript{th} in the world for exports. At $39.8 billion in exports and $42.3 billion in imports Peru ended 2014 with a trade deficit. Peru is considered to have an upper to middle class economy according to the World Bank. Peru’s main exports include Copper ore, gold, refined copper, and animal meal and pellets. The top imports of Peru include refined petroleum, crude petroleum, cars, broadcasting equipment, and computers. The exports of Peru are based overwhelmingly on crude natural resources while the imports consist of advanced technologies that are protected under Intellectual property rights from developed countries. Peru is rich in resources and therefore

\textsuperscript{11} Observatory of Economic Complexity
specializes in exporting to developing countries such as the United States, China, Switzerland, Canada and Brazil. Although Peru has a middle-income economy, it is the perfect example of a country that is economically dependent upon the developed world for the functionality of their economy. FDI from the U.S. in Peru totaled $6.5 billion in 2014 based in the mining, and manufacturing industries and non-bank holding companies, according to the USTR. This high level of FDI investment in Peru is another key indicator of the economic dependence that Peru has on the United States and its other trading partners. Peru has a low level of Intellectual Property Rights with a score of 4.6. This is further evidence that Peru is an export-oriented country due to their lack of intellectual property right protection, enforcement, and acceptance.

**Democracy**

Democracy is another variable that is contingent to explain economic dependence, as it is a good reference for a country to have a strong and stable political and economic system. After 16 years of a dictatorship under the rule of General Augusto Pinochet Ugarte, Chile will return as a democratic state. Chile had previously been a democracy before this dictatorship rule and the democratic political culture survived this reign. The second reason for a smooth transition is its secure economic stability, focusing largely on international commerce and trade. Chile has a corruption perception index score of 66 in 2016 ranking it 24th out of 176 countries. Chile also has an IPR score of 6.6 in 2015 the highest score out of the entire Latin American region. This high ranking for intellectual property rights means that Chile has a strong and stable political environment capable of administering, enforcing, and regulating a proper IPR system. Chile has a stable and growing economy, one of the best in Latin America. Due to little corruption in the political system Chile is able to focus more attention on advancement and development.
Another supporting factor to show that it is the political system that has allowed for economic growth in Chile is its geographical location. Chile is a very long country spanning 756,000 km with a coast lining the Atlantic Ocean. Lining the other side of the country is the Andes mountain range, and on the southern most borders is a treacherous sea to sail around. These geographical restrictions limit the trade feasibility of Chile, yet it is still the most advanced economy in Latin America. Chile has a wide range of economic sectors that although are internationally connected are not economically dependent.

This variable is included in the analysis and is important to the relationship of intellectual property rights and economic dependency as it changed the significance of other variables after it was deleted in the second regression.

Together the control variables incorporate different measures for economic dependence. This can be attributed to the overall role that these factors have in the international economic system. I posit that FDI and imports/exports will have the biggest significance in the regressions for showing economic dependence. This is due to their overall correlation with international trade and investments. Trade related aspects that are also considered and included in the analysis include barriers to entry. This is due to the fact that developing countries face many barriers to entry, explained by the control variables, entering into the service sector and technology advancement industries causing them to be stuck in the cycle of economic periphery.

**Chapter IV: The Theory To Be Tested**

As this paper is an interdisciplinary work from the fields of economics and political science it is important to cover a few core assumptions and operating rules that will help to
define the parameters for my research program. The core assumptions are supported and briefly discussed in the literature review. This section will make clear their importance to this paper.

First Core Assumption

The first core assumption that will be covered draws from the field of economics. As discussed in the literature review one of the most studied topics in terms of intellectual property rights is their negative effects on development in less developed countries specifically those in Latin America. Since scholars in this field of study have widely agreed upon this correlation, it will be used as a core assumption in the role of intellectual property rights regulations in this research.

The other core assumption of this research is derived from a political science perspective and explains the lasting effects of economic dependency on less developed countries in Latin America, as a result of the imperial era and later Latin America’s closed trade policy of import substitution industrialization. A final assumption that holds true of all actors in the international system is that of national sovereignty, a force that dictates the whole international environment as it allows for complete autonomy of states.

Second Core Assumption

A theory that explains the core assumption of economic dependence can be referred to as the Dependency Theory or the World Systems Theory. In short this liberalist theory explains the ideas of Marxism on an international scale in which the U.S. sought to maximizes economic utility as well as strengthen and expand political power. During this time the United States and other developed countries expanded their economic means beyond their own continental borders to take advantage of natural resources and human capital. One region in which the United States greatly expressed their economic dominance in search for imperial goods was in South America. Although the countries in South America had already declared independence from their imperial
powers (in the late 18th century and early 19th century) and created sovereign states, the U.S. is still a great economic and political influence.

The U.S. not only supported their political independence, but also continued to assert political influence through funding political coups such as the Iran Contra Affair\textsuperscript{12} in Nicaragua, and was also a dependent resource to their economies as consistent trading partners. As a result of the disparity between the economies however, the U.S. was able to take advantage of these comparatively underdeveloped economies without much resistance from the developing nations. This little resistance and unfair manipulation resulted in a dependence that continues today. The United States used their own ordained membership in international institutions and organizations such as the World Trade Organization, the International Monetary Fund, the World Bank, and most important to this research the World Intellectual Property Organization as a means of manipulating international economic power to favor their economies. This power disparity and international influence, combined with the already established economic dependence that Latin American countries have on the United States blend to incorporate the second core assumption of this paper which is the continued economic dependence of less developed or industrializing countries on those that are already developed.

Taking these two core assumptions into account, this next section will discuss the operating rules of this thesis, the hypothesis to be tested, linkage among common variables, and an explanation for why there should be a positive correlation in the findings to this hypothesis.

The main area of focus in my research concerns the correlation between IPR and economic dependency. A key-operating rule that I will be following is the global phenomenon of sovereignty and its affect in the interaction between actors of disparity. If this correlation is

\textsuperscript{12} U.S. historical event during the administration of President Ronald Reagan in the 1980s designed to help fund the Nicaraguan contra rebels by selling arms to Iran.
proven to be positive then intellectual property rights are a proxy to the economic dependence of less developed countries, such as those in Latin America, on highly developed countries, such as the United States. As a result of the two core assumptions described above the hypothesis for this paper focuses on the effects that intellectual property rights have as a contributing factor to the dependency of less developed countries in Latin America on a highly developed country such as the United States.

This research will use quantitative means of analysis through a multiple regression function to test this hypothesis for a positive correlation. Intellectual property right regulations will be the dependent variable being tested since intellectual property right regulations are dependent upon the level of development of the country in question and the level of dependency that these countries have on the United States for economic purposes. The independent variable is therefore the economic dependency of the Latin American countries. This hypothesis will be tested through several control variables, which include regime type (specifically if the country is democratic), foreign direct investment, Gross Domestic Product and Gross Domestic Product per Capita, international economic aid, imports and exports, and membership in international institutions and trade agreements (such as the OECD). With these variables outlined, I expect foreign direct investment to have the biggest significance in the model due to its all-encompassing association with both economic dependence and intellectual property rights. Essentially this theory is using intellectual property rights as a measure of economic dependency through analyzing the level of foreign direct investment and trade a country gives or receives. Trade and investment with the United States forces developing countries to adopt IPR systems that are disadvantageous to the level of development and autonomy a developing country is capable of successfully operating.
This paper proposes a positive correlation in the analysis as both the independent and dependent variables have been proven to cause underdevelopment specifically in Latin America. Therefore if intellectual property right regulations are contributing to underdevelopment, then it is plausible that they can also be contributing to the continuous economic dependency on the United States. As a result of this economic dependency, the Latin American countries are stuck in a cycle of continuous underdevelopment, as they are unable to grow and survive without the aid of the United States.

Chapter IV: The Research Design and Methodology

Now that the theory and hypothesis have been described, I can discuss the methodology behind testing this hypothesis and future implications. This research paper will rely on quantitative methods of research through a series of multiple regression analysis of the dependent and control variables, intellectual property rights and economic dependency consecutively. A basic formula to describe the correlation between intellectual property rights as contributing to the economic dependence and continuous underdevelopment of the Latin American countries is shown by: Intellectual Property Rights = economic dependency, democracy, FDI, GDP/capita, GDP, USAID, imports and exports; measured the base year 2015, and specifically comparing the following countries: Chile, Brazil, Peru, Honduras, and Venezuela. The base year and case countries have been chosen with respect to the availability of information, the level of economic development, and their intellectual property right rating. A multiple regression analysis will be used to predict the correlation between intellectual property rights based on the values of economic dependence and the other control variables listed above. This regression is an extended version of simple linear regression, however it takes into account
several other control variables in addition to the independent variable of economic dependence allowing for an in depth analysis of this correlation. The regression includes all countries with available data information, not just countries in Latin America or specific case countries.

The data from these variables is derived from several available database sources. The most important database for intellectual property rights is the intellectual property rights index of 2015. To relate the scores of IPR with underdevelopment I will compare statistics about the GDP/GDP per capita and other developmental statistics published by the IMF, and the World Data Bank. Other sources in gathering this data include the world competitiveness report, and the power distance index. These calculations along with the first core assumption listed in chapter three and supported in the literature review (that intellectual property rights are widely accepted to cause underdevelopment) are grounds for establishing this relationship.

Another important factor to consider is the current and relevant trade agreements and treaties that support Intellectual Property right regulations especially the most recent of the Trade Related Aspects of Intellectual Property rights agreement (TRIPS) set forth by the WTO. The TRIPS agreement sets minimum standards for regulations on intellectual property in member countries. All member countries have been included in the data for the multiple regression analysis especially those countries of focus in Latin America: Brazil, Chile, Honduras, Peru, and Venezuela. In terms of economic dependency, trade agreements, foreign direct investment, and USAID are all factors that will be tested and, if this hypothesis holds true, are assumed to have a positive correlation to underdevelopment.

If a positive correlation holds true in this regression then intellectual property rights are a contributing factor in economic dependence for countries in Latin America. This positive correlation will then lead to an examination of power influences in the intellectual property rights
The role of disparity in IPR institutions, such as the WIPO, as a source of negative influence and continuous cause of underdevelopment. This power influence will be measured through the same control factors as listed above in addition to regime type (specifically looking at democracy). The quantitative data will then be compared with case studies from the established countries\textsuperscript{13}. The combination of a multiple regression analysis combined with the case studies will provide an economic, cultural, and political evaluation of the correlation in a concise and credible manner.

The countries that will be examined in further detail include Chile, Brazil, Peru, Honduras, and Venezuela. These countries were chosen on the ranking of their Intellectual Property Rights system scores, and access to information. As the United States is one of South America’s largest trading partners, has a developed IPR system, and is a prominent proponent for stronger International IPR regulations, it will hold the role of the developed country in this research. These case countries will provide individual level data for a particular rank of intellectual property right system in comparison with the level of development of those countries.

In testing the regression an aggregate level of analysis will be used in order to compile the statistics for all of the control variables. The data that will be used within the regression in terms of the control variables will include cross-sectional samples for each of the countries. This combined with the background information on the case sample countries will provide enough data to quantify the level of development and dependency.

In the adverse case that a negative correlation appears then this hypothesis has two possible conclusions: 1) it would be proven false, and intellectual property rights are not a contributing factor in economic dependence of these countries, and in fact these two variables

\textsuperscript{13} See chapter 2: variables in context section
are separate entities in relation to underdevelopment, or 2) there are other better suited variables that should have been included in this research. This could mean that there is either a better way to test these variables, that a key variable in testing this correlation was missing, or that correlation does not implicitly lead to causation. If the correlation is in fact false then other factors should be examined, as possible contributors to this disadvantageous economic cycle. Intellectual property rights are only one factor that contributes to underdevelopment. It is also important to recognize that a direct correlation of economic dependence as a factor of underdevelopment has not been established. In that case, further research could be included to test the correlation between economic dependence and underdevelopment. In the case of this hypothesis however both the dependent and independent variables have been proven in their own distinct research to cause underdevelopment. This hypothesis attempts to show the correlation between these two factors, and point to intellectual property rights as a contributor to the already existing economic dependency of these countries, which therefore leads to continuing underdevelopment. For the purpose of this paper, and by the broadly accepted terms of these core assumptions, this paper will assume the first conclusion to be unlikely.

By means of quantitative methods of a multiple regression analysis I will test the dependent variable of intellectual property right regulations against the independent variable of economic dependency by the agency of several control variables in order to determine if there is a correlation. This correlation will be evaluated differently based on whether the findings are positive or negative. If the findings prove to be positive this is an indication that changes should be made within the international IPR system such as the functionality of the WIPO or within the mentality of member governments. If the correlation is negative then this hypothesis will be proven false and the likelihood for change in the IPR system is improbable.
Chapter VI: Findings

This section includes a detailed description of the regression model findings and their importance to the hypothesis of the correlation between intellectual property right systems and their contribution to economic dependence in relation to the continuous underdevelopment in Latin America. Each of the main variables will be broken down in an analysis of their corresponding relationship to the model as a measure of economic dependence, as well as by the importance of their results to the model. The variables will be further analyzed and supported through examples from Chapter III: variables in context. Future implications of these results will then be discussed in the conclusion of this paper.

Figure 1.

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Coefficient Final</th>
<th>Coefficient Original</th>
</tr>
</thead>
<tbody>
<tr>
<td>newipri</td>
<td></td>
<td></td>
</tr>
<tr>
<td>log(nimporst)</td>
<td>1.173*** (0.427)</td>
<td>1.07247</td>
</tr>
<tr>
<td>log(nexports)</td>
<td>-0.854** (0.377)</td>
<td>-0.79279</td>
</tr>
<tr>
<td>log(ngdppc)</td>
<td>0.755*** (0.102)</td>
<td>0.79944</td>
</tr>
<tr>
<td>b2lnfdi</td>
<td>0.056** (0.024)</td>
<td>0.04670</td>
</tr>
<tr>
<td>Constant</td>
<td>-3.286*** (0.915)</td>
<td>0.01246</td>
</tr>
</tbody>
</table>

Coefficients:

| Estimate | Std. Error | t value | Pr(>|t|) |
|----------|------------|---------|---------|
| (Intercept) | -3.31664 | 0.93241 | -3.557 | 0.000571 *** |
| log(nimporst) | 1.07247 | 0.43973 | 2.439 | 0.016458 * |
| log(nexports) | -0.79279 | 0.39089 | -2.028 | 0.045150 * |
| log(ngdppc) | 0.79944 | 0.09922 | 8.057 | 1.54e-12 *** |
| newlnfdi | 0.04670 | 0.02798 | 1.669 | 0.098199 . |
| newdem | 0.01246 | 0.02519 | 0.495 | 0.621886 |

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Signif. codes:  < 0.001 ***  0.001 **  0.01 *  0.05 .  0.1    1

In this regression, I estimate the association between several variables of economic dependence and the index of
intellectual property rights. In the model I control for imports, exports, GDP per capita, and democracy (polity score). The regression estimates indicate that there is a substantive correlation between FDI and intellectual property rights. The logged variable FDI, according to the regression, showed an increase by twice the factor of .056 for every point increase of IPR. The estimate is significant at the 100-percentile level of confidence, as seen in Figure 1. The significance of this regression has shown to vary depending on the variables included in the regression model. However, we can say that the general pattern we see in the case studies is moderately confirmed by the regression 14.

Diagnostic analysis shows that these results are stable. I excluded and included the variables in the model and their exclusion/inclusion had an appreciable impact on the coefficient for FDI especially in testing for the variable democracy. I also removed troublesome cases; their inclusion/exclusion does not have an impact on the stability of the results.

Each of these control variables is a value that contributes in explaining the independent variable of economic dependence. The results explain empirically the relationship of economic dependence for the 216 countries tested. There are several economic determinants that the control variables are associated with, the overall outcome leading to economic dependence. These factors include: barriers to entry (technology advancements) in markets, administration and enforcement problems within IPR systems, and inability to educate the public on IPR usage due to corruption and lack of funding. Barriers to entry into a market cause extensive economic dependence as it eliminates a countries ability to expand into an industry. In comparing the countries of context it is also

14 See Appendix I for full regression
important to consider scale. The U.S. has substantial land area with a correlating large population and therefore has a wide geographical terrain, and diversity in labor skills for many different industries and sectors compared to that of Latin American countries, many of which are much smaller and are specialized per industry accessibility and resources. Therefore it can be very difficult for Latin American developing countries to enter into an industry in which innovation is the main focus. Barriers to entry also cause a country to be dependent upon another country for the industry that they are unable to enter, which in the case of Latin America are most service sector and technology industries.

Imports/Exports

Imports showed a relatively significant coefficient of 1.17310 at the thousandth percentile. This coefficient relates that as IPR increases imports also increase by a factor of approximately 1.2. This means that with a strong IPR system a country is more likely to have imports entering the economy. There are several means to analyze this fact. A developed country is more likely to have an increased number of imports entering the economy due to its stable economic situation. These imports take the shape of outsourced products returning to the developing country as consumer goods to retrieve profit. They may also take the form of international finished goods or resources entering the developing country with a returning profit to the developed country. High levels of imports entering an economy is a sign of a developed and stable economic system, which in today’s society is correlated with having a strong service sector, progressive technological advancements and domestic means for further advancements, and a desire to protect economic and
technological innovation; the main source for generating national profits. These are all factors that show economic independence.

This last point helps explain the positive correlation with Intellectual Property Rights as developing countries wish to protect the innovation responsible for bringing profits to its citizens. This is supported in Chapter II: Literature Review as the first argument for developed countries to support stronger IPR regulations. For a developing country in Latin America such as Peru this would preclude breaking away from export specialization of natural resources. The IPR advantage that developed countries, such as the United States, have over middle-income countries, such as Peru, is responsible for keeping the periphery at an economic standstill in terms of innovative advancements. IPR regulations serve as a barrier to entry into the service and technology sector for developing countries. Even over the last couple of years Peru’s trade surplus with the United States has decreased by 5.9% since 2014 (USTR). With little to no legal means of entering into the technology sector intellectual property right regulations are not a major priority for countries, such as Peru, who are economically dependent upon importing technology products from countries who have proper access, protection, and administration of technology advancements.

In terms of exports, this regression showed a relatively significant negative coefficient with a rate of -0.85371. This negative relationship demonstrates that as IPR regulations increase a country’s exports decrease. This follows that with a strong IPR system a country is more likely to face a trade deficit due to their rising level of income\textsuperscript{15} and ability to import more than they export. For example, the United States is a developing

\textsuperscript{15} Also supported in the model from GDP/capita
country with a strong economy based on service and technology industries. These industries require a strong IPR system to ensure profit on innovative and technologically advanced goods in these sectors. The United States is also a founding member of the World Intellectual Property Organization and an international proponent of stronger IPR regulations. The United States is the second largest exporting economy in the world however it has counterbalance trade deficit of $731 billion in 2014. The United States’ IPR rank is 7.6 relatively high compared to most of the periphery Latin American countries. The regression indicates that since the US has high IPR ratings that their exports are decreasing. This makes sense since the U.S. has a higher rate of imports than exports. Since the U.S. has a high IPR rating and a trade deficit indicating a developed economy its economic dependence decreases. This is to say that exports as a factor of economic dependence decreases due to increasing IPR furthering U.S economic autonomy.

**GDP/capita**

GDP showed the highest significance of a coefficient at 0.75499 in the thousandth percentile. This can be explained as IPR increases GDP/capita increases. This means that with a strong IPR system a country is more likely to have a high rate of GDP/capita. This strong correlation is an intuitive relationship. Strong Intellectual Property Rights are an indicator for a developed economy, as is a high rate of GDP/capita. Stronger Intellectual Property Rights allow for more continuous and free innovation from citizens and increases technological advancement furthering the level of development of an economy. This is a continuous pattern as technologies continue to advance. The United States is a perfect example of a country with a high GDP/capita of $54.6K and an IPR rating of 7.6. These are
two relatively high scores resulting in a developed, stable, and successful economic system suitable to promoting further advancements and development.

The reverse is true of a developing country. In general the lower an IPR rating the lower a country’s GDP/capita. This is also intuitive in this model as an IPR system promotes development and a strong economic system. A country such as Venezuela with a low intellectual property rights score of 2.7, and a GDP/capita of $18,400 in 2014, which declined to $15,100 in 2016. This decrease in GDP and low IPR rate is entirely explained by Venezuela’s comparative advantage and specialization structured economy completely dependent upon the export of oil.  

This is a perfect example of a country’s economic dependence on international system and how this dependence can be fatal to a country’s development indicated by Venezuela’s low GDP/capita. Venezuela has a low IPR score due to the orientation of its economy. With a global drop in oil prices in 2014 Venezuela’s GDP/capita plummeted. This model explains this relationship; Venezuela has a low IPR rating because it had little need for intellectual property right in its oil based export economy; the oil crisis of 2014 made it clear the economic dependency that Venezuela relied upon for its economy. The Venezuelan oil crisis is also a great explanation for the relationship between IPR and FDI in the regression, although the relationship is not as strong as previously thought.

FDI

The first regression in which democracy was included showed a weak significance in relation to FDI and IPR with a coefficient of 0.04670. After democracy was deleted from the regression the significance increased to the hundredth percentile with a coefficient of

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16 See Chapter III: Variables in Context, case study on Venezuelan oil price crisis
0.05557. This coefficient was logged in the regression. As intellectual property rights in increases foreign direct investments increased at a rate of .05557 by a factor of 2. The relationship between FDI and democracy in this model should be researched further due to the change in significance that deleting democracy had on the model. For the purpose of this paper I will make the assumption that eliminating democracy from the equation increased the importance that foreign direct investment has on growing economies even without a stable democratic regime to stimulate an inflow of investments.

FDI may be invested in a monetary form, physical form, or through technology transfers from companies within a developed and stable economic system looking for cheaper costs of production, resources, or labor. Technology transfers are the most common representation of IPR in which the IPR would represent the rights of the developed country. Therefore although the expecting country is introduced to the technology the capital from the technology is still returned to the IPR protected country. This would lead to a slight increase in IPR obtainability due to FDI however the developing country would still be slightly economically dependent upon the FDI donor for further advancements, updates, and funding for development.

This model is described by the relationship that if there is a stronger IPR system there is likely to be a small, yet relevant increase in FDI likewise if there is a weak IPR system there is a slight decrease in FDI. In running the regression, I had originally thought that FDI would have the most significant correlation to IPR due to its tight relationship with the availability of funds in a country and the ability to innovate. The results make sense because of the close proximity of these variables and their interconnected ties with economic dependency. A country that has a lot of FDI has a relatively stable and risk
friendly economic environment such as Chile. Chile had approximately $22,001,680,000 as of 2014 (World Bank) and an IPR rating of 6.6 the highest in the region. A country with a lot of FDI inflow is a good indicator of an economically dependent country meanwhile a country with FDI outflow is a good indicator of an economically developed country. Therefore, as intellectual property rights increase it is logical for foreign direct investment to also increase as the core-developed countries are outsourcing funds to develop a periphery country and spread their economic influence outward.

As explained above as well as in Chapter III, Venezuela is a country rich with resources that are a major stimulus for the Venezuelan economy, which prompted an influx of foreign direct investment. The oil crisis of 2014 caused not only a crash in the Venezuelan economy but also a rapid exodus of FDI investments contributing even more to the accelerated decline of their economy. This is a perfect example not only of Venezuela's economic dependence on FDI but also to the perils of this dependency for a developing economy. In 2013 Venezuela’s FDI equated $2,039,000,000 but plummeted to $1,024,000,000 in 2014 after the start of the oil crisis. Without funding from FDI Venezuela also loses many of the IPR protected benefits such as technology advancements that aided in their economic development and move towards stability.

Brazil is a country that has high rates of investments for FDI as well as a moderately high IPR rate of 5.1. This fits the model that as IPR increases FDI has a slight increase as well. Brazil is a relatively industrialized economy and attracts FDI due to its large population and extensive coverage of land. However, the debt deficit in Latin America has caused a slower rate of FDI investments. The more Brazil develops the higher its ability to obtain intellectual property rights and the lower the necessity for FDI. Brazil’s economy is
diversified and therefore the stagnant growth in FDI investments has a lower net effect on the economy as a whole compared to that of Venezuela. The higher the rate of FDI inflow to Brazil will result in higher levels of intellectual property rights due to the transfer of technology or funding for technological and industrial advancements. One problem that Brazil still faces however, like many other countries, is the problem of corruption.

**Democracy**

This section is included for the purpose of the first regression that was tested. Although the results came back with a weak significance in the model, when removed it caused a stronger significance for the variable of Foreign Direct Investments and exports.

The results of this model show a weak significance for the relationship of democracy as a factor to the level of intellectual property a country has with a coefficient of 0.01246. This can be described by the relationship that as IPR increases the likelihood of a country being a democracy increases slightly as well. Although this is a weak significance it is important to understand this relationship as its pertinence in increasing the significance of FDI in the model. Democracies are more likely to have a stable political and economic environment with the ability to promote a regulated IPR system. A democratic country due to its responsive and stable environment is also more likely to be more developed. There are several explanations for this weak correlation, the largest factor being the level of corruption within a democratic state.

The 1980 democratization of most of the Latin American regimes was thought to decrease the level of corruption in these countries. The 2014 corruption perception index proves this philosophy to be false. All of the Latin American countries including Mexico and
Central America were moderately to extremely corrupt. Venezuela and Paraguay proved to be the most corrupt with scores higher than 150 out of 175; meanwhile Chile and Uruguay were the least corrupt with a score lower than 30. Most of the countries fell between a score of 60-120 (Transparency International).

In general, a democracy that has a stable and developed political and economic environment makes IPR an attractive commodity. The other Latin American countries however, have moderately high levels of political and economic corruption. Not only are the governments not stable enough to regulate IPR systems, but also the corruption within these countries acts as a repellent for foreign investors. Corruption also elicits unsuccessful educational systems leading to minimal service and technological sectors.

Corruption in a democratic system leads to a lack of education, irresponsible allocation of funding, and an unstable political and economic environment, making Intellectual Property Rights a scarce commodity in Latin American countries. However, without these factors countries fall back on their economic dependence on foreign markets and a stagnant rate of development due to their specialization in exports of natural resources. These low percentile scores of IPR and high rates of corruption support the results of this model. Although democracy as a theoretical concept should deduce higher rates of IPR, in some cases corruption overpowers the ability of a democratic state to perform in its proper manner.

Latin American countries are a perfect example of such a scenario. Latin American countries, although many project a democratic regime, are overstepped by corruption, which inhibits their potential for stable growth. Without political and economic stability
these countries are reliant upon developed countries that have high rates of IPR success and export this knowledge through trade, FDI, or political aid.

**Overall Outcomes**

To summarize these results, there is a relatively significant correlation in this model for several of the factors tested. This regression does show several variables to have relative significance. Although it is important to recognize that as certain variables were excluded from the regression there was a change in the significance of the other coefficients. This was especially true when democracy was eliminated as a variable, increasing the relative significance of foreign direct investment. GDP/capita is the result with the largest significance due to stronger protection on innovation, which stimulates further advancements, increased income, and overall development. I had originally perceived FDI to have the strongest correlation although the regression proved this assumption to be false. Foreign Direct Investment did show a positive significance although not as strong as GDP/capita or imports. Exports along with FDI had a positive significance in the hundredth percentile. These results show that there is a relative significance in the correlation between the control factors and intellectual property rights. Due to the variability in the results this model should be tested further to get a more accurate, and accountable representation of this relationship. The level of significance that this model showed proved the results to be conclusive with the findings, and was further supported from the case studies.

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17 See appendix II for regression model plots and diagrams
In the second round of testing the regression I eliminated democracy as a control variable. This increased the significance of foreign direct investment in the model. This was an interesting finding because democracy had a weak significance in the model yet changed the overall significance of other variables. This leads to speculation that foreign direct investment and democracy have a strong correlation. This relationship should be tested further in future research on this topic. The combination of the control variables and their significance are used as the measurement for economic dependency. Since the variables tested showed relevant significance it is fair to conclude that there is a significant correlation between economic dependence and intellectual property rights. This claim should be followed up by further research on this theory.

Chapter VII: Conclusion

This paper is designed to evaluate the correlation between intellectual property rights as a proxy to measure economic dependence in the Latin American region. The hypothesis of this paper proposed a positive correlation between these two factors inducing further underdevelopment in the region. The importance of this research study is to signify a cause of economic underdevelopment in the region and theorize outcomes from different policy implications on Intellectual Property Rights, their effect in the international system, and solutions if appropriate.

Intellectual Property Rights help stimulate innovation and progress due to the protection that they provide encouraging creative thinking and contributing to domestic revenue and further development. Although IPR’s are good to protect and stimulate innovation this is contingent upon having a strong IPR system supported by a stable
economic and political environment such as that of the developed U.S. The significance of this research is to show that intellectual property rights, although good for a developed country, cause more economic dependence for less developed countries in the international system. This is due to the fact that IPR are only progressive for a country that has the economic means available to dedicate to development. Developing countries such as those in Latin America although democratic states by theory face too much corruption to be economically or politically stable enough to promote a strong IPR system. Therefore they are forced into the category of a periphery country dependent upon their natural resources and the success of exports in the international system, or on unreliable foreign direct investments due to risk in their economic environment.

There were several different arguments analyzed on both intellectual property rights as well as economic dependence and their resulting correlation discussed in the findings section. The arguments surrounding intellectual property rights were based on three core assumptions; that stronger regulations on IPR systems have been attributed to causing underdevelopment in less developed countries, the lasting effects of imperialism on developing countries in Latin America and their resulting economic dependence on core countries, and the role of sovereignty in the international system as an overarching influence on national relationships. These three assumptions are used to formulate the main argument of this paper that intellectual property rights not only cause underdevelopment in Latin America but also contribute to a level of economic dependence that inhibits national proprietary development.

In testing this correlation I ran a series of statistical regressions. In this statistical analysis intellectual property rights served as my dependent variable while economic
dependence served as my independent variable. Economic dependence is represented by several control variables that include foreign direct investment, GDP/Capita, democracy, and imports/exports. These variables are all measures of economic or political development as indicators of state capacity and autonomy and therefore a state's relative economic dependence/independence.

The results of the regression showed an overall positive correlation defending the hypothesis that intellectual property rights contribute to economic dependence. The coefficient that showed the largest significance was GDP/capita. Although this finding is compatible with the model, it was not the variable that I would have thought to have the greatest significance. I originally assumed foreign direct investment to have the largest impact on this model however after running the regression it shows a positive significance, yet not the strongest. This may be due to the returning funds from FDI investments causing money to leave the economy. The IPR of a periphery country receiving FDI only increases if the FDI is permanently sent to a periphery country, or if the IPR is registered within that country. So although there is a slight increase, it may be temporary. This relationship still reflects economic dependency for the FDI that periphery countries receive and is included in the other economic variables measured.

The significance for this variable increased substantially with the elimination of democracy in the second regression. This correlation is a factor that should be tested further in future research. In future research I would start by testing the correlation between foreign direct investment and democracy. This leads for speculation that there is a stronger relationship between FDI and democracy than previously anticipated or inferred and may have substantive influence in future findings of this model.
The results of this model have several lasting implications for the hypothesis. One implication is that as Intellectual Property Right ratings increase in a developing country so does the economic dependency of that country. This model can be thought of in terms of both developing and developed countries. In terms of the developed country as IPR increases they are more economically dependent upon the intellectual property rights for continuous growth. If the IPR is sent overseas then that country is dependent upon the developing country for a return on their investments.

In terms of a developing country in Latin America, as intellectual property right ratings increase their economic dependency on the developed country also increases due to the origin of the intellectual property and the access to developmental aid that the intellectual property brought into the country. A developed country wishes to increase IPR regulations for further protection on profit returns. The more a developed country advances through IPR the more dependent a developing country becomes due to the gap in advancement and development knowledge. If this pattern continues the international political system will remain unchanged continuing to increase the gap between the developed and developing. However, development will become increasingly harder for developing countries without aid. The economic system is so interconnected a change in roles is unreasonable.

The relationship of continuing economic dependency is thoroughly demonstrated in the example of Venezuela. Venezuela suffers from a great deal of corruption with a correlating low GDP. The international oil crisis of 2014 crushed the Venezuelan economy, as oil is their primary export commodity. The recession in their economy caused a steep outflow of FDI furthering the economic recession. Venezuela's allocated oil economy was
not suited for an IPR system and therefore had little economic means for domestic advancements depending fully on the international market and their export oriented economy.

This research is not designed to claim that Intellectual property rights are the main cause of economic dependency in the international system, however it is meant to establish intellectual property rights as a factor that causes economic dependence. This insight may have significant policy implications for the future role of the United States in international IPR institutions such as the WIPO. One problem that may exist is the level of influence that developed nations such as the United States has over the WIPO and other international institutions. If the influence is high then it is unlikely that progress will be made in monitoring regulation requirements, as the United States is unlikely to forfeit sovereign power or decrease their sphere of influence in the WIPO. Although international political change is unlikely, economic dependency occurs mostly between corporations and businesses in today’s society.

Another question that can be considered now is whether economic dependence is a negative attribute for a developing country. Are these countries satisfied with the level of development that they have maintained or do they indeed wish to continue to grow their economic sphere and close the gap between developed and developing. We know that IPR affect the level of dependency that Latin American countries have. Would these developing countries be in favor of a policy change that decreased IPR regulations allowing for more autonomous development in Latin America? The answer to this question can most likely be deduced to cultural relativism, another factor that should be researched in more detail. To test the popular satisfaction of this policy change a referendum within the WIPO would
have to be initiated. Another means to test this would be through lobbying for a change in policy and obtaining conciliatory percentage of Latin American countries to be in favor.

Due to the prevalent corruption within Latin America there are two possible scenarios that may evolve. Lower measures for IPR would resolve the pressure Latin American countries are forced into for their development. This would eliminate the economic dependence that is arising due to intellectual property right regulations. One important factor to consider is that intellectual property rights are only one cause of economic dependence resulting in stagnant development in Latin America.

Apart from only slightly increasing IPR regulations, another solution that may allow for better autonomy in Latin America while still allowing for the parameters of the international system is that of implementing social entrepreneurship programs. This would allow for developed countries to continue their economic growth while also promoting sustainable developmental growth in Latin America through strictly overseen education and experience in advanced industries. Educational experience will help to evolve the economy, while providing the skills needed for future autonomous inclusion of these industries into their economy. This solution would also allow for development and a decrease in economic dependency at the rate at which Latin American countries feel prepared. This may be a better scenario than relying on a policy change that may not occur, or occur at a rate inappropriate for Latin American development.

This paper sought to answer the research inquiry of how Intellectual property rights contribute to the level of economic dependence that a developing country has on a developed country. The research conducted in this paper answered this question through a series of regressions that showed a moderate-significant relevance for several of the
variables tested. The results from this regression were then compared with the countries examined in the Variables in Context section. This combination of the two forms of analysis suffices as concrete evidence to support the hypothesis.

Gathering data for this research took much longer than previously anticipated, even with sufficient warning. The work although accurate, would be even better supported if other variables were considered in terms of representing economic dependence. It would also benefit to include more detailed data on institutional regulations of IPR and how influential the regulations are on IPR usage in developing countries. This thesis did not go into depth on the WIPO institution or the related international IPR agreements. If empirically measured this could be another concrete form of evidence in supporting the claim that developed countries such as the United States play an influential role in these institutions. A policy change to dissolve the economic dependence of developing countries would be postulating on a complete restructuring of the parity in the international system.

This research raises several hypotheses that can be further investigated, it is not designed to try to convince towards a restructuring of the system, as this is very unlikely. Instead it is meant to highlight intellectual property rights and its role in affecting the level of economic dependence of developing countries in Latin America on a developed country the United States. For change to occur it would have to happen at a microeconomic, individual, or state level rather than at a systems level. This explains the current uncomfortable position of developed countries trying to increase regulations while experiencing a push back from developing states.
Appendix I: Regression Models

Appendix II
World Intellectual Property Organization:

Also known as the WIPO, this organization is the international institution for the regulation of intellectual property rights. It is a global forum for IPR related services, cooperation, policy, information, and cooperation of member states. In this paper the WIPO serves to define Intellectual Property rights, their function in the international system and the importance of their authentic protection and regulation.

Trade Related Aspects of Intellectual Property Rights

Also known as TRIPS, this is an international trade agreement set forth by the world trade organization in order to set standards for many forms of intellectual property regulations as it applies to the citizens of WTO member states. This agreement entered into effect January 1st, 1995.

“In addition the Agreement provides for certain basic principles, such as national and most-favoured-nation treatment, and some general rules to ensure that procedural difficulties in acquiring or maintaining IPRs do not nullify the substantive benefits that should flow from the Agreement. The obligations under the Agreement will apply equally to all Member countries, but developing countries will have a longer period to phase them in. Special transition arrangements operate in the situation where a developing country does not presently provide product patent protection in the area of pharmaceuticals.” (World Trade Organization)

This treaty allows for member states to create stronger IPR regulations nationally if they wish to. This agreement allowed developing countries longer periods of time in order to incorporate the stronger regulations, however to date even stronger regulations are being enacted
into action and developed countries such as the United States are pushing for the incorporation of these regulations for all member countries. The Latin American countries that are part of the case study for this research are all signatories of this treaty along with the United States.

**World Trade Organization**

Also known as the WTO, is the only international institution that establishes and manages rules of trade for all member nations. Its main function is to oversee fluid trade across international borders and results in assurance of international trade. The multilateral trading system makes up the legal ground rules of international trade.

**United States Trade Representative**

Also referred to as the USTR, is an executive office of the president and is the main office in charge of foreign trade policy. In this paper the USTR serves as a strong proponent for stronger IPR regulations in order to protect U.S. based economic interests.

**2016 Special 301 report USTR**

This report is produced by the USTR as a means of establishing the United States position on Intellectual Property Right enforcement and regulations. It provides a list of all of the trading partner of the United States as well as their position on the IPR watch list, or priority watch list. These are all countries whom the United States sees as IPR threats due to IPR theft, counterfeiting, and piracy. These rankings are used in the case studies for the research of this paper.
Intellectual Property Rights Index of 2010 and 2016

The IPRI provides statistical data on the intellectual property rights systems of 128 countries. This system is measured based on legal and political environment, intellectual property rights, as well as physical property rights. For the sake of this paper I focused mainly on the LPE, and the IPR ratings. This organization also provides case studies and examples of IPR regulations and systems in use. Within each report the IPRI examines each country in terms of their economic status and development according to the IMF, World Bank, and other economic institutions that measure development and economic stature. It also lists relative trading memberships of each country.

Global Competitiveness Report

This report is an in depth examination of the economic competitiveness of 138 international economies. This report is published by The World economic forum, which is the organization for public-private cooperation. This report measures competitiveness through population size, GDP, GDP (PPP) and (per capita), and based off of 12 pillars. The 12 pillars include: institutions, infrastructure, macroeconomic environment, health and primary education, higher education and training, goods market efficiency, labor market efficiency, financial market development, technological readiness, market size, business sophistication, and innovation. It further provides a scale that ranks the most problematic factors of doing business with each country. This proves to be a great indicator as to countries that also take advantage of IPR theft.

Power Distance Index
This index by Geert Hofstede measures power distance on an international scale through individualism, masculinity, long-term orientation, and uncertainty avoidance index. Each of these data points correlates with the national ideology of a country in relation to their perception of inequality. Individualism refers to the whole versus the individual in relation to whether people strive to look after themselves, or collectively grow in groups. Masculinity refers to the distributions of roles in terms of gender in a society. The uncertainty avoidance index measures how a society deals with uncertainty and ambiguity. Long-term orientation refers to the difference in thought between the global east and west. Most Latin American countries scored relatively low for individualism, high for masculinity, and high for uncertainty avoidance index meaning that they did not like ambiguity and uncertainty.

**Economic Commission for Latin America and the Caribbean**

This organization was founded by the United Nations as a project for economic development in Latin America, and reinforcing economic ties within member countries and with among other nations in the world. For the purpose of this paper this commission serves as a method of regulated trade between the United States and the Latin American countries.

**United States Agency for International Development**

USAID is a governmental agency whose goal is to work on eliminating global poverty. Reducing the poverty in Latin America is one of their regions of focus. For this paper USAID serves in describing countries with underdeveloped economies. It also establishes the parameters that the United States sees as underdeveloped based on the monitoring country progress report that analyzes development progress based on economic reforms, governing justly and democratically, macroeconomic performance, investing in security, and peace and security.
Case Studies

Chile:
- IPR score in
  - 2010 = 34th at 6.4
  - 2016 = 6.7, 28th of 128 countries tested and 1st of 22nd regionally tested.
- Global competitiveness score
  - 35th of 140 at 4.6
- Ranking on U.S. IPR theft watch list
  - Priority watch list
- Power distance index
  - 63 on scale of 120

Brazil:
- IPRI score in
  - 2010 = 64th at 5.1
  - 2016 = 5.1, 64th of 128 countries tested and 7th of 22nd regionally tested
- Global competitiveness score
  - 75th of 140 at 4.1
- Ranking on U.S. IPR theft watch list
  - Watch list
- Power distance index
  - 69 on scale of 120

Honduras:
- IPRI score in
  - 2010 = 75th at 4.6
  - 2016 = 4.7, 83rd of 128 of countries tested and 13th regionally tested
- Global competitiveness report
  - 88th of 140 at 4.0
- Ranking on U.S. IPR theft watch list
  - Not ranked on list
- Power distance index
  - No information provided

Peru:
- IPRI score in
  - 2010 = 88th at 4.3
  - 2016 = 4.8, 76th of 128 countries tested and 9th of 22 regionally tested
- Global competitiveness report
  - 69th at 4.2
- Ranking on U.S. IPR theft watch list
- Watch list
  - Power distance index
    - 64 on scale of 120

Venezuela:
  - IPRI score in
    - 2010 = 121st at 3.2
    - 2016 = 2.7, 128th of 128 countries tested and 22nd of 22 regionally tested
  - Global competitiveness report
    - 132nd of 140 at 3.3
  - Ranking on U.S. IPR theft watch list
    - Priority watch list
  - Power distance index
    - 81 on scale of 120

Annotated Bibliography

Disadvantage of property rights


Auriol, Emmanuelle, Sara Biancini, and Rodrigo Paillacar. "Intellectual Property Rights Protection in Developing Countries." (2012). Accessed 3 March, 2016 <http://www.etsg.org/ETSG2012/Programme/Papers/396.pdf>. This paper focuses on the incentives of less developed countries to adopt IPR in relation to their development and population size. When markets of less developed countries are relatively small they choose not to protect IPR. Advantages of intellectual property rights.


This paper argues both the advantages and disadvantages of imposing IPR vs. light regulation on less developed countries and its possible affects.


Froman, B.G. Micheal. “2016 national trade estimate report on foreign trade barriers”. Office of United States Trade Representative, 2016, accessed 18 September 2016. <https://ustr.gov/sites/default/files/2016-NTE-Report-FINAL.pdf> This report provides an estimate of the decrease in trade barriers for US exports in international economies. Using this report and the standards by which the United States government measures trade barriers I will be able to diagnose the countries that have a hard time letting down trade barriers and the factors contributing to this.

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"Global Services for Protecting IP." WIPO. N.p., n.d. Web. 14 Sept. 2016. Will serve well in finding case studies and legal information. This website provides an overview of all of the systems relevant to protecting intellectual property rights. Advantages of IPR.


Hwang, Hong, Jollene Z. Wu, and Eden S. H. Yu. "Innovation, Imitation and Intellectual Property Rights in Developing Countries." Review of Development Economics 20.1 (2016): pg. 138-51. 15 February 2016. This paper examines the switch of developing countries from imitation to innovation as it develops and shows that the
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"IPRI 2016." IPRI 2016. Property Rights Alliance, 2016. 14 Sept. 2016. This index will serve as one of my main quantitative data analysis sources for country specific analysis. Using the analysis of countries such as Bolivia, Colombia, Argentina, and Peru. This index measures the availability and ease at which countries are able to obtain IPR. This will be useful when comparing them to the underdevelopment and the dependency that less developed countries have on developed economies.


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Pouris, A. "Patents and Economic Development in South Africa: Managing Intellectual Property Rights." SOUTH AFRICAN JOURNAL OF SCIENCE 107.11-12 (2011): 24-33. Accessed 15 February 2016. This paper examines the role of the United States of America and their imposition on the regulation of IPR internationally. This paper also focuses on a different region, South Africa, and will prove helpful in comparing those findings with that of South America. It will prove useful in evaluating the role of he U.S. in IPR institutions and their overall international influential power.

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America emphasizing the promotion of education, research and other public access interests. Advantage of IPR.

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