ECONOMICS 620

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Analysis of the Determinants of FDI:

The Case of India



-Alex Boarts
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India and Determinants of FDI

By

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I hereby recognize and pledge to fulfill my responsibilities as defined in the Honor Code and to maintain the integrity of both myself and the College as a whole.

-Alex Boarts

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Abstract

This paper examines a multitude of economic factors that could possibly determine the amount of foreign direct investment inflows a country receives. The paper specifically looks at, the gdp growth rate, inflation rate, corporate tax rate, ease of doing business index, corruption perceptions index, total labor force, and percent of labor with tertiary education. The aim of this paper is to find factors that do indeed have a significant effect on FDI inflow, and that could help India further increase their FDI inflow. After the analyzing the regression, it was found that the gdp growth rate, total labor force, and levels of corruption were all statistically significant and had effects on FDI inflow.

Chapter 1: Introduction

There is a consensus that Foreign Direct Investment (FDI) has great effect on host countries' economies. I want to research what the key determinants of FDI in leading FDI inflow countries are and see which determinants India could improve upon to help further increase their FDI inflow. This topic is important because, similar to China, India has a huge market with over a billion people. As well as the potential to be a leader in the global economy, like their neighbors. But, China has received over three times the amount of FDI India has. Moreover, India still has some of the poorest populations in the world, so a study on how to potentially aid their economy could be important and helpful to their situation. The ultimate goal of my topic is to discover key determinants of FDI that have a good chance of increasing India's FDI inflow.

This paper begins with an examination of various literature pertaining to India's FDI inflows and determinants of FDI. The articles used in this literature review discuss in detail what determinants are thought be most attractive to FDI and the potential benefits of FDI. As well as what makes India unattractive and a comparison between China and India's FDI inflows.

The amount of FDI a country receives is due to many different factors. This paper attempts to find some of the factors or determinants that most affect FDI inflows. A regression analysis can be used to test which determinants are the most significant and how the affect FDI. The variables chosen to be tested here include: gdp growth rate, inflation rate, corporate tax rate, ease of doing business index, corruption percentage index, total labor force, and percent of labor with tertiary education. After running the regression, the gdp growth rate, corruption perceptions index, and total

labor force came out as the most significant. India happens to be quite strong in some of these categories, but nonetheless, still needs immense improvement in most.

Chapter 2: Literature Review

To start with, Dua and Garg discuss factors that influence FDI and their effects on the host country and the firm. They specifically analyzed FDI inflows to India and the benefits it has to India as well as the investors. They also discuss why firms should consider India for FDI (Dua & Garg, 2015).

Dua and Garg believe the study is important because recently there has been in increase of FDI in the global economy. Also they believe FDI offers one of the highest opportunities for economic growth in a host country, and even more so than foreign portfolio investment (Dua & Garg, 2015).

According to Dua and Garg, market size is one of the main determinants of whether or not a firm should invest abroad (Dua & Garg, 2015). India has a massive market, given that it's the second most populous country in the world, therefore it should be attractive for FDI. It is significant to point out that investors also look at GDP as an indicator of market size. India has a GDP over $2.2 billion, which is the seventh largest in the world, so it would be a great market to invest in accordance to this reasoning. They also observed that there is a positive relationship between FDI and GDP per capita. They argue that countries with a higher GDP per capita will have better investment opportunities (Dua & Garg, 2015). Unfortunately, India's GDP per capita is only $1,500, which is one of the lowest in the world. If FDI were to increase it could help raise the GDP per capita and boost FDI. Dua and Garg suggest that labor costs are also important for FDI. Countries that have a labor surplus and offer cheaper labor can help a firm greatly lower their production costs by not having to pay workers as much, relative to their home currency. India has cheaper labor than most countries and

plenty of available workers, so it would be cost beneficial to produce there. However, they mention how the lower wages could also be a sign of lower labor efficiency and quality. Firms would not want to set up a business in foreign country if the labor is not as efficient and done with less quality. Investing in countries with lower valued and depreciating currencies can be a smart decision though. The depreciating currency lowers wages and production cost in the host country relative to the home country. This would then increase the overall rate of return to the firm (Dua & Garg, 2015). India also has a weak currency compared to most countries. Its currency has also been depreciating throughout this past month. So it seems here, that India again fits the description of an attractive country for FDI. However, a depreciating currency can have some disadvantages for the foreign investor. Dealing with a lower valued currency means that the investors will take less profit back to their home country, than if they were dealing with a high-valued currency.

One critique I have of the article would be that the authors did not go into much detail on how the FDI factors benefit the host countries' economies and specifically India's economy. Furthermore, they could have gone more in depth in their explanations of the factors, most of the factors were only discussed shortly (Dua & Garg, 2015).

This next article goes on to discuss further the idea of labor costs and productivity for attracting FDI, as well as how foreign firms can indirectly help strengthen domestic firms.

In the article Lai and Sarkar mention how many governments today are making an effort to attract foreign investment by introducing certain policies that would make

their country favorable for FDI. These include tax cuts and more property rights enforcement (Lai & Sarkar, 2011). However, Lai and Sarkar argue that India's cheap labor costs should be even more attractive to foreign investors (Lai & Sarkar, 2011). Furthermore, firms should look to invest in India over other countries in the region. India has much lower labor costs than most, and it has an advantage in its geographical location, being near many of the OECD countries (Lai & Sarkar, 2011).

Firms should consider FDI in India because of the country's cheap labor. In India, foreign firms on average are paying higher wages than the domestic firms, but their higher wages are still lower than the wages in their home country (Lai & Sarkar, 2011). Some may worry that high skill or labor-intensive production will be difficult to perform in India. If that's the case, foreign firms can offer work training programs to help get higher skilled labor. With more higher skilled laborers, firms can raise their quality, efficiency, and increase their productivity, which would increase their output. Foreign firms would also eventually have to pay the skilled laborers higher wages (Lai & Sarkar, 2011).

In addition, Lai and Sarkar argue that the presence of foreign firms can have a positive spillover effect on domestic firms in the same industry (Lai & Sarkar, 2011). Having these foreign firms will help increase the quality and quantity of competition in India. This will force the domestic firms to become more competitive and produce better quality products(Lai & Sarkar, 2011). The wages will eventually increase as well stopping employees from leaving to go to foreign firms and to keep up with production of foreign firms. The foreign firms may also bring new technology and knowledge that may spillover to the domestic firms. Overall, it would strengthen the specific industry,

help introduce better products to the consumers, and increases the economic growth in India.

Now, the authors could have included some examples of firms that have invested in India and how it impacted the industry in the host country. It also would have been helpful to see a comparison of India's labor costs to other countries'.

Azad analyzes how FDI plays a significant role in the development of India's economy. He also discussed the history of FDI in India and looks at which countries have the most FDI in the country, as well as how much FDI is in each sector. Azad later compares India's FDI inflows to China's, and explains how and why India has a more attractive environment for FDI than China. He also discusses reasons why firms would be hesitant to invest in India (Azad, 2013).

Another key point host countries like having FDI is because it "is a non-debt creation source of additional external finances" (Azad, 2013). These additional finances in the economy can boost technology growth, employment, and help raise the skill level of labor. This would subsequently boost the output in the sectors with FDI (Azad, 2013). Moreover, FDI allows for the transfer of new technology and knowledge, which can help firms in India expand and improve upon their capabilities. Through the spillover effect, FDI can help diversify domestic firm's exports, and increase their exports (Azad, 2013).

Additionally, this article makes clear how China is a world leader of FDI inflows in the global economy, recently passed the United States as the leading recipient of FDI in the world. China's total inflow of FDI is four times the amount of India's, even though both countries have similar attractiveness and environments for FDI (Azad, 2013). Like

China, India is very populous with over a billion people, and both offer lower labor costs than many other countries. According to the OECD, in 2009, China's index of FDI restrictiveness is twice as high as India's. India's is only 0.220, and China's is 0.457, 0 meaning complete openness to FDI and 1 complete restriction (Azad, 2013). This is due largely in part to the liberalization of India's economy and the recent policies made to promote foreign investment. For instance, nearly all sectors of the Indian economy are now allowed 100% FDI without any government approval . This means there is almost no limit to the amount of FDI India can receive, and that FDI will be able to flow quicker and easier without having to go through the government first.

Additionally, India provides better protection of intellectual property rights than China, which is key determinant of attractiveness for FDI (Azad, 2013). Bhushan does point out, however, that India has poor infrastructure, which is helpful for the setup and success of new foreign businesses. He also mentions how India has more corruption and an inefficient government bureaucracy compared to China, and that China offers the best accessibility to the export market (Azad, 2013).

The organization of the article seemed to be a little scattered and or out of order. The article covered a lot of information and a wide variety of it, which is good in some sense and bad in another. It was good because it offered some insights into many areas that are useful when studying FDI. It was bad because it didn't allow him to go into more in depth on certain topics, and made the structure of the article less clear (Azad, 2013).

Agrawal and Aamir Khan look further into the comparison between FDI in India and China. The article examines the impact FDI inflows have had on China and India's

economies, specifically on GDP. Agrawal and Aamir point out that China has received much more FDI over the past few decades and that China utilizes their FDI better than India. They also go onto to argue that China has a more attractive environment for FDI than India (Agrawal & Khan, 2011).

To being with, Agrawal and Khan start their article by defining FDI and mentioning the different methods of FDI. They then discuss the significant increase of globalization and how it has sparked a large growth in FDI. The authors then start the discussion of FDI inflows to China and India and its effect on their economies. In this discussion, they bring up past research on what attracts FDI in a country and the specific benefits it has to the host country (Agrawal & Khan, 2011).

Not only did both China and India experienced growth in FDI over the span of the 1900's and early 2000's, but it is important to point out that China received much more FDI over that period. China had a larger net inflow of FDI and more FDI as a percentage of GDP (Agrawal & Khan, 2011). According to Agrawal and Khan, China was more attractiveness for FDI than India, and had more factors that promoted economic growth. China had a more skilled labor force and higher labor productivity. Additionally, China encouraged the transfer of technologies and had a higher quality infrastructure (Agrawal & Khan, 2011). Having the transfers of technology and knowledge does help domestic firms and further increases the growth of technology in the host country. This is one of the spillover effects of FDI. Another is that having foreign firms with higher productivity and quality will force the domestic firms to react and increase their quality and efficiency. This subsequently raises the overall competition and quality of the industry. Because of China’s more attractive

environment, and economy that allowed for easier growth, they received an abundance FDI and were able to continually take advantage of its spillover effects (Agrawal & Khan, 2011). Unfortunately, India's poorer infrastructure hurt their attractiveness, and they did not utilize their FDI as well. As a result, India did not have as much of a spillover effect (Agrawal & Khan, 2011).

In the next article, Wei also considers the differences of FDI in China and India. He examines how China has much higher FDI than India and has seen higher GDP growth, even though both countries have a very similar market and size. Wei explores both countries' attractiveness for FDI, and why China's inward FDI is so much higher (Wei, 2005).

It is important to know that in 1980 China and India were just about equal in their GDP, and China's GDP per capita was actually 30 percent lower. But during the 80's and 90's China's GDP and GDP per capita grew twice as fast as India's. This could be partly due to their high FDI growth. In 1980 China's inward FDI was at $0.4 billion and by 2002 it had grown to over $52 billion. Whereas, India's FDI grew from $.07 billion to $2.6 billion in the same time span (Wei, 2005). The manufacturing sector in China received the most FDI, and China's exports due to FDI grew at a very high rate. In 1989 FDI accounted for only 9 percent of exports, in 2002 it was up to half, and in some high-tech industries FDI accounts for over 90 percent of exports (Wei, 2005). FDI in India, on the other hand, did not account for nearly as much. During the 1990s it only accounted for about 3 percent of India's exports, and under 10 percent of manufacturing exports (Wei, 2005).

Wei argues that the primary reason China has been receiving more FDI is because of their larger domestic market and stronger trade ties with OECD countries (Wei, 2005). Also, China has better education, which implies a higher skilled labor force. However, India is geographically closer to most of the OECD countries, so that should help strengthen their ties and increase FDI inflows. Additionally, India still has a large domestic market and offers cheaper labor costs, so it would be a good country to invest in. On top of this, India's stability has largely improved and they often have depreciating exchange rates (Wei, 2005). So, all things considered India is an attractive country for FDI. Another reason for China's FDI success is their relationship and geographical closeness to Hong Hong. Hong Kong has one of the best economies in the world and is located inside China, so it's no surprise that Hong Kong is China's leading source of FDI. In the 1990s Hong Kong contributed almost 50 percent of China's FDI. India's leading source of FDI comes from Mauritius. In 2001-2002 Mauritius contributed over 60 percent of India's inward FDI, the next closest was the U.S. with only 12.2 percent (Wei, 2005). Compared to Mauritius, Hong Kong can offer more and better FDI. Hong Kong's GDP is almost $300 billion and Mauritius' is under $5 billion. Also, Hong Kong is much closer to China than Mauritius is to India.

Lastly, China's FDI may actually not be worth as much as assumed. China is involved in an abundance of round-tripping, especially through Hong Kong (Wei, 2005). The World Bank estimated that 20-30 percent of China's FDI was through round-tripping (Wei, 2005). This greatly over values China's FDI inflows. Now, India on the other hand, is involved in almost no round-tripping. Their round-tripping is estimated as low as 2-3 percent (Wei, 2005). This again shows India's attractiveness.

Park examines what promotes FDI inflows to India and how FDI can benefit India's economy. This article helps show why India is an attractive location for FDI. Park specifically examines Hyundai Motors and how successful their FDI was, both for India and themselves. He points out that focusing on Industrial clusters is key for successful FDI and economic growth in India (Jongsoo Park, 2004).

India has been constantly increasing its openness to FDI in the past three decades. Perhaps one of the biggest steps in India's liberalization occurred in 1991 when the government made changes to regulatory policies in the structural adjustment program (SAP). Their revisions allow for more FDI inflows and puts an emphasis on attracting a lot of foreign capital (Jongsoo Park, 2004).

Ever since this new regime, India has seen a large increase of foreign investment in the service industry. Within that sector India primarily received FDI to the telecommunications, power generation, and consulting services. The share of FDI inflows in the service sector was at 5.2 percent in 1990 and rose to 58.7 percent in 1997 (Jongsoo Park, 2004). This makes India attractive for firms involved in the services industry.

That being said, India's economy can benefit immensely from an increase in FDI, especially an increase in investment in industrial clusters. Park defines industrial clusters as "geographic concentrations of interconnected companies and institutions in a particular business field" (Park, 2004). Many benefits countries receive from FDI are from the spillover effects it offers. FDI brings in new technology and knowledge that can be transferred or spillover to the domestic firms, thus raising the competitiveness and efficiency of the industry. The beneficial way for India to see those positive effects is to

have the inflows in industry clusters. The closeness and interconnectivity of the companies in the cluster allow for technology and knowledge to be transferred much more effectively and efficiently (Jongsoo Park, 2004).

Hyundai Motors is a good example of a foreign firm that has been successfully operating in India. Hyundai either had joint ventures with other Indian firms or set up greenfield investments in automobiles. Hyundai actually developed industrial clusters in India, with four that supplied automobile parts. They received about 60 percent of their parts from 46 different suppliers in 50 km radius of each other (Park, 2004). This enhanced the transfers of technology in the automobile industry, and helped create more jobs and increase competitiveness. Park argues that, “industrial clusters are an indication of the sophistication and competitiveness of a business environment” (Park, 2004). Hyundai has cut down on costs greatly and are producing much more efficiently, on top of fueling economic growth in India. More firms should choose to invest in India because they can help the Indian economy and still benefit themselves, much like Hyundai has.

Joshi and Mudigonda study the idea of offshoring in the IT services industry. They look at the specific reasons why and why not a firm would or would not want to invest abroad, and discuss the factors of attractiveness for FDI in a host country. The authors created a framework to help firms choose a location for offshoring. In this they consider why one should choose to invest in India, and why not to invest in China (Kailash Joshi & Srikanth Mudigonda, 2008).

To start with, the world is in a new revolutionary era. First there was the agricultural revolution, then the manufacturing revolution, and now this information new

informational age is seen as the third industrial revolution (Kailash Joshi & Srikanth Mudigonda, 2008). This information age has seen an increase in offshoring in the service-sector, from developed countries to cheaper locations. Specifically IT services have seen a large growth in offshoring. Most firms now have to offshore, in order to stay competitive.

Selecting an offshore location to invest in is a decision whose importance should not be underestimated. Switching to an offshore location can be expensive and takes up a lot of time. So, picking the right location is important. The wrong location may not be as cost effective or may be less attractive in the future. When making this decision firms should examine the attractiveness of a country's environment for FDI (Kailash Joshi & Srikanth Mudigonda, 2008). Some different attractive aspects include: easy communication of information and technology, stable government and regulation in favor of FDI and property rights, and having a good judicial/legal system. If these aspects were not present then that country would hold many risks for offshoring. Other risks of offshoring include, global delivery risks, transportation and communication costs, and geopolitical, social and economic risks (Kailash Joshi & Srikanth Mudigonda, 2008).

Thankfully, Joshi and Mudigonda, came up with a framework to help firms choose a location for their offshoring. The framework consists of three parts. First the primary motivating factors, then the inhibiting factors and risks, and lastly the facilitating factors (Kailash Joshi & Srikanth Mudigonda, 2008).

The primary motivating factors for offshoring are divided into three advantages. Cost advantage, human resource advantage, and overall primary advantage. The cost

advantage looks at the cheaper labor costs, lower taxes or tariffs, and less costly regulation. Human resources advantage consists of management quality, business experience and skill, education and competence levels, and experience with western business practices. The overall primary advantage just involves the overall size of the population or market and the growth of technically trained workers. Now, the inhibitors of offshoring include, but are not limited to, political instability, foreign policy issues, stability of currency, and a country susceptibility to disruptions. Lastly the facilitating factors help with the initial entry into the market, and makes doing business easier in the host country. It helps the initial entry process run more smoothly and easily. This mainly includes, having a supporting ecosystem, which involves the quality of infrastructure, business/economic environment, vendor landscape, and government environment (Kailash Joshi & Srikanth Mudigonda, 2008).

From this framework, India should be seen as an attractive location for offshoring. India offers a great cost advantage, and has extremely low labor costs, and their salaries for experienced workers is one of lowest in the world. The country has a very competitive initial start up cost and compliance. With regards to the human resource advantage, India is again an attractive location for FDI. Contrary to popular belief, India actually has a well educated and skilled workforce. India has the largest amount of applicable graduates. They also have a high level of English fluency and are very adaptable to western business practices. Finally, they have a huge advantage given that they have the second highest population in the world, and a continually increasing number of technically trained graduates (Kailash Joshi & Srikanth Mudigonda, 2008).

Most importantly, India should be considered a more attractive location than China. India has a large comparative advantage over China for IT services. Also, China has been seeing a shortage of talented workers and an increase in wages (Kailash Joshi & Srikanth Mudigonda, 2008). India has an advantage over China again because they have better adaptability to western business practices. Thus, it's apparent that India is better choice for FDI, and especially in IT services.

In conclusion, after reviewing several articles about FDI inflows in India and China, I believe that a composition on why India is a better choice for FDI than China, would be highly insightful to any who read it. Each article has it's own benefits to my future research.

Chapter 3: Regression Analysis

Below is the regression that will be used to determine whether or not these variables are determinants of FDI inflows. The summary statistics of the regression are also listed below. I did a cross-sectional analysis of the data, which was collected from 50 different countries. All the data gathered is from the year 2015, except for ease of doing business index, which is 2016. Most countries did not have an ease of doing business rank in 2015, that is why I had to use 2016. Furthermore, all data outside of the corruption and ease of doing business indices were gathered from the Databank of the World Bank[1]. The corruption index was data was collected from Transparency International[2] and the ease of doing business was collected from the Doing Business page of the World Bank[3].

log(fdiinflowtot) = □ + □$_1$ (gdpgrowth) + □$_2$ (infl) + □$_3$ (tax) + □$_4$ (bus) + □$_5$ (corruption) + □$_6$ (laboredu) + □$_7$ log(labortot) + □

Log(fdiinflowtot) **- Total Foreign Direct Investment Inflows**

Gdpgrowth **- GDP growth rate**

Infl **- Inflation rate**

Tax **- Corporate profit tax**

Bus **- Ease of Doing Business Index (1-195), 1 = Most ease 195 = Least ease**

Corruption **- Corruption Perceptions Index (1-100), 1 = Completely corrupt 100 = No corruption**

Laboredu **- Percentage of the Labor Force with Tertiary Education**

[1] http://databank.worldbank.org/data/reports.aspx?source=2&series=BX.KLT.DINV.CD.WD&country=
[2] http://www.transparency.org/news/feature/corruption_perceptions_index_2016
[3] http://www.doingbusiness.org/rankings

Log(labortot) **- Total Labor Force**

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. summ
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Variable	Obs	Mean	Std. Dev.	Min	Max
country	0				
fdiinflowt~l	50	3.81e+10	6.86e+10	7.21e+08	3.79e+11
gdpgrwth	48	3.507058	4.134027	-3.847363	26.27606
infl	43	2.794571	4.514839	-2.096998	17.14507
tax	40	15.71	8.526153	0	35.4
bus	47	60.14894	48.31193	3	181
laboredu	33	31.25455	11.8357	8.5	56.3
labortot	48	5.17e+07	1.34e+08	266117	8.06e+08
corruption	48	52.8125	22.01514	15	90
lfdiinflow~l	50	23.4945	1.264694	20.3962	26.66195
llabortot	48	16.49065	1.550321	12.49169	20.50821

Figure 3.1 - Summary Statistics

Dependent Variable

FDI Inflow Total

The dependent variable in the regression is the total foreign direct investment inflows (BoP, current US$).

Independent Variables

GDP Growth Rate

GDP (Gross Domestic Product) is often used as an indicator for a country's economic status. GDP is the value of all goods and services produced within in a country, so having a high GDP usually indicates high economic activity and a larger market. Therefore, if a country is seeing high GDP growth, it means their economy is growing and becoming more active. A country with a high GDP growth rate is more

attractive to foreign investors because an active growing market suggests growth in one's investment as well as greater and faster returns (Onyeiwu & Shrestha, 2004). Moreover, if a country has a high GDP growth rate, but a low GDP and FDI inflow, it could possibly be an opportunity for investor to gain a first mover advantage. This would allow the foreign investor to achieve higher and more sustained growth. It is for these reasons, I predict that the GDP growth rate will have a positive coefficient.

Inflation Rate

Inflation means the price of goods and services in a country are rising. Consequently, it means the currency in that country is simply not worth as much as it used to be. High inflation may signify to foreign investors, that starting a venture and conducting business in that country will be more expensive and difficult than in a less inflated economy. Additionally, high inflation may also be an indicator of poor economic and political policy, or of an unstable economic environment, which again would make a country less attractive for FDI (Onyeiwu & Shrestha, 2004). As a result, the inflation rate should have a negative effect on FDI inflows.

Taxes

Tax policy is important for countries to consider when thinking about their FDI inflows, especially the profit tax. If a country has a high corporate profit tax, foreign investors will end up losing more of their earnings. Investors looking to set up business abroad may think twice if they see that their business will have to give up a larger portion its earnings. A high tax can hinder growth in a foreign a firm. A lower tax would

allow the firm to keep more of its money and use it where it most needed for growth and success. Thus, a higher tax rate should negatively affect the FDI inflows of country.

Ease of Doing Business

The World Bank has made an “ease of doing business” index to help determine which countries have the best, or worst regulatory environment for conducting business (Doing business.2017). This index takes under consideration many indicators that are often used to determine how open or strict countries on investment. The index consists of, the ease of starting a business, construction permits, registering for property, paying taxes, protecting minority investors, access to electricity, getting credit, enforcing contracts, as well as international trade. All of these may play an important role in determining a country's openness to FDI. Especially access to electricity and property rights. Many people today may take for granted their electricity. It would be extremely hard conduct modern business efficiently without electricity, and it would be much more difficult to start one’s business if registering for property is huge hassle. With the ease of doing business index, the lower the number the more open the regulatory environment is. So, in the regression a negative coefficient would mean ease of business increases FDI inflows and positive coefficient would mean it lessens inflows. Based on this, I believe the ease of doing business index will have a negative coefficient (Doing business.2017).

Corruption

Economic and political corruption is a pressing issue in many countries, and an issue that makes country less attractive to foreign investment. In corrupt economies, government officials can often be bribed to allow for businesses to engage in unfair or illegal practices, including child labor. This is unethical to many, and gives corrupt firms an advantage over non-corrupt foreign firms. Furthermore, corrupt politicians often make it difficult for firms to start up and see success. Some corrupt countries have very strict business laws and the only way to survive or succeed is to pay bribes to the politicians or have some connection with a politician (Zurawicki & Habib, 2010).

Transparency International created an index to determine the corruption levels in each country. The index ranges from 1-100, 1 being completely corrupt and 100 being no corruption. The highest rated countries are Denmark and Finland, with 91 and 90, the lowest scored are Somalia and North Korea, both with 8 (Corruption Perceptions Index, 2016). Considering this information, I would imagine corruption would negatively affect a country's FDI inflows.

Total Labor Force

An issue some multinationals face investing abroad is the lack of hirable employees. Firms need employees in order to succeed and exist. Countries that have a large labor force should be seen as more attractive to foreign investors. A larger labor force gives the firm more options and allows them to pick better employees that best fit their firm. It also ensures the firm that will not have to worry about having a shortage of employees. A large labor force also often implies a large population and possibly a

large GDP, which are usually seen as determinants of FDI as well. So, the total labor force of a country should have a positive coefficient (Agrawal & Khan, 2011).

% of Labor Force with Tertiary Education

Some foreign firms may require higher-skilled labor, so they might be looking to hire workers with higher education. This variable looks at the percentage of workers who have had post-secondary education. It is a good indication of how skilled a labor force may be. A country with a high percentage of workers having tertiary education should attract FDI because it indicates that the country has a large portion of skilled laborers. In addition, an increasing presence of new foreign firms should incentivize more people to get higher education, and ultimately raise the skilled workforce. Which may, in return, attract more FDI.

Figure 3.2 - Correlation

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. corr lfdiinflowtotal gdpgrwth infl tax bus corruption laboredu llabortot
(obs=26)
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	lfdiin~l	gdpgrwth	infl	tax	bus	corrup~n	laboredu	llabor~t
lfdiinflow~l	1.0000							
gdpgrwth	0.3141	1.0000						
infl	-0.2718	-0.0239	1.0000					
tax	-0.2312	0.0090	0.3334	1.0000				
bus	-0.5159	0.0027	0.6642	0.2083	1.0000			
corruption	0.7008	-0.0285	-0.4658	-0.3514	-0.7183	1.0000		
laboredu	0.5392	0.0868	-0.4352	-0.7002	-0.4983	0.6918	1.0000	
llabortot	-0.0435	-0.2012	0.3092	0.4873	0.1411	-0.3315	-0.5422	1.0000

The table above expresses the correlations between all of the variables. To begin with, the table shows that GDP growth rate is positively correlated with FDI inflows, however it is only moderately correlated with a value of 0.31. This means that when the GDP growth rate or FDI inflows increase, the other variable often sees an increase as well. Now, the inflation rate has a weak, negative correlation with FDI inflows. It's correlation was valued at -0.27. So, when there is a rise in the inflation rate, it is sometimes accompanied with a decrease in FDI inflows. Taxes, like inflation, are also negatively correlated with FDI inflows and similarly have a weaker correlation with FDI. Taxes correlation value was -0.23. The ease of business index however, has a stronger correlation with FDI than tax and inflation, and is also negative. The index has a correlation of -0.52, which is much larger than the last two. Therefore, when a country's ease of doing business worsens, FDI inflows often experience a downturn as well. This is also similar to the correlation between FDI inflows and corruption. Corruption has the strongest correlation out of the independent variables. It's correlation reads 0.70. It is a positive value because in the Index that was used to

measure corruption, 1 = most corrupt and 100 = least corrupt. According to the results, increases and decreases in a country's corruption index are strongly correlated with changes in FDI inflows. The percentage of labor force with tertiary education is another variable with a strong correlation. It has a positive correlation of 0.54, which happens to be much higher than total labor force's. The positive correlation was expected and its strength shows the importance of a skilled labor. This points out that an increase or decrease in education of a labor force is paralleled to increases or decreases in FDI inflow. Total labor force, on the other hand, did not show the expected results. It ended up with a negative correlation, it was weak however, only -0.04. This assumes that there is very little correlation between total labor force and FDI inflows.

Figure 3.3 - Scatter Plot of log(FDIinflowstotal) vs Laboredu

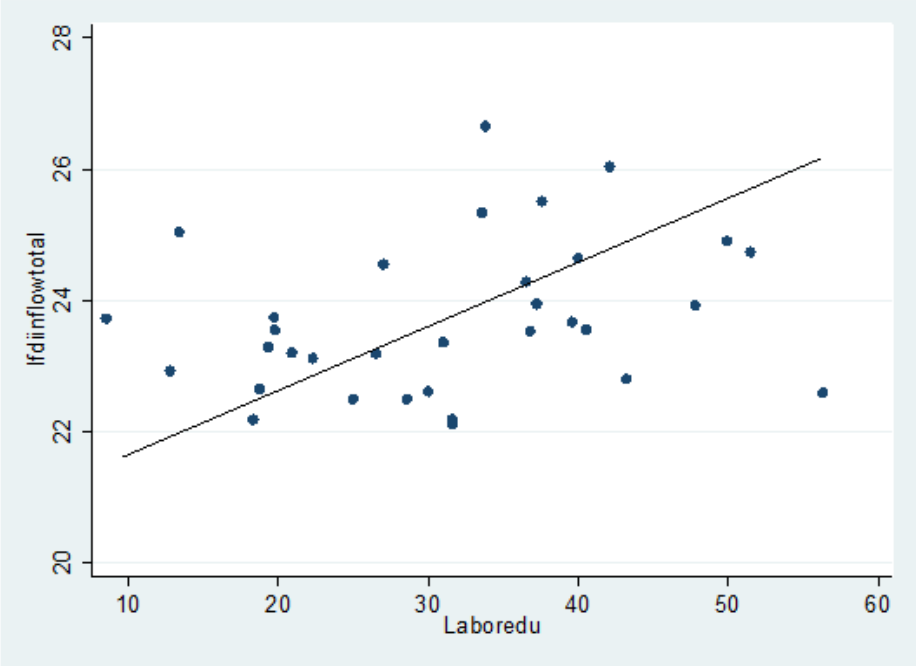


Figure 3.3 is a scatter plot that is expresses the relationship between the log of total FDI inflows and the % of labor force with tertiary education. This graph shows that there is a positive relationship between the two. Based on the graph, a high percentage of educated workers tends to align with a larger amount of FDI inflows.

Figure 3.4 - Scatter Plot of log(fdiinflowtotal) vs Corruption

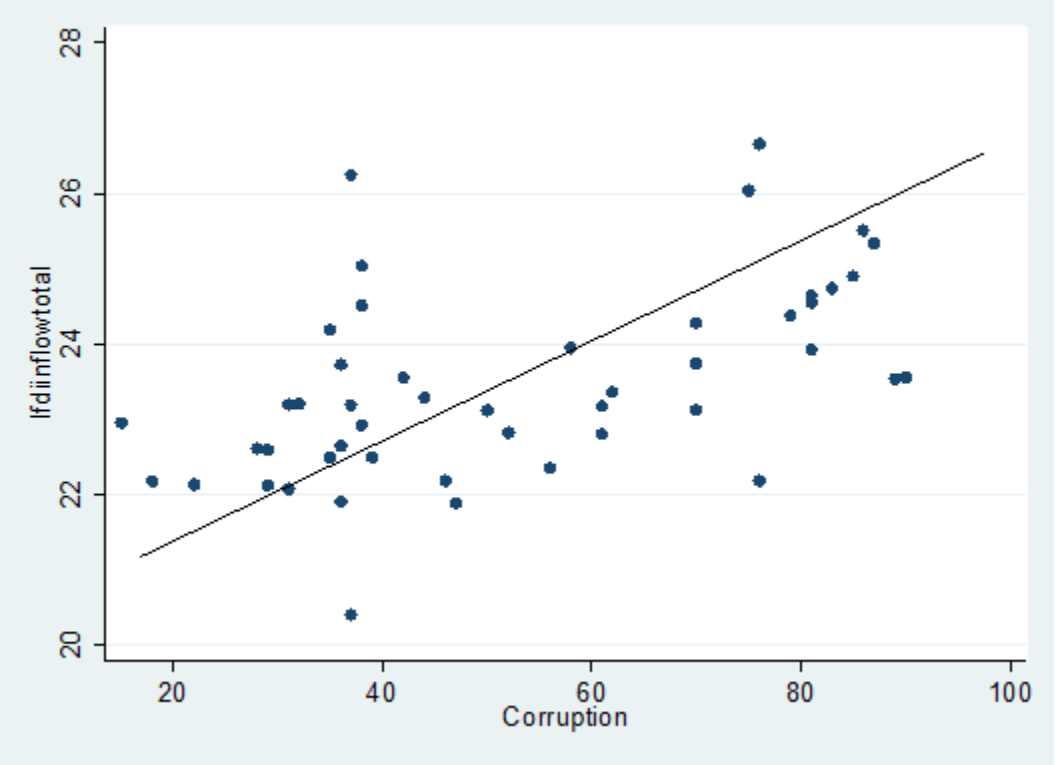


Figure 3.4 shows the relationship between the total FDI inflows and Corruption for each country. In this scatter plot, for corruption, 1 = completely corrupt and 100 = no corruption. This presents a useful visual representation of how less corrupt nations tend to receive more foreign direct investment.

Figure 3.5 - FDI Inflow and Corruption Table

Top 10 Countries	***FDI Inflows (US$)***	***Top 10 Countries***	***Corruption Index (1-100)***
1. United States	379,434,000,000	1. Denmark	91
2. China	249,858,920,111	2. Finland	90
3. Ireland	203,463,366,382	3. Sweden	89
4. Hong Kong	180,844,260,229	4. New Zealand	88
5. Switzerland	119,713,934,409	5. Netherlands	87
6. Netherlands	101,789,068,412	5. Norway	87
7. Brazil	75,074,564,670	7. Switzerland	86
8. Singapore	65,262,633,426	8. Singapore	85
9. Canada	55,685,384,262	9. Canada	83
10. United Kingdom	50,438,642,479	10. United Kingdom Germany Luxembourg	81

The table above lists the top ten FDI inflow countries and their respective FDI inflows, as well as the top ten least corrupt countries according to the Corruption Perceptions Index (CPI). As one can see, 5 of the top ten least corrupt countries are also in the top ten for FDI inflows, Netherlands, Switzerland, Singapore, Canada, and the United Kingdom. The United States, China, and Hong Kong are also highly ranked in CPI, being the 16th, 17th, and 18th, least corrupt countries (Corruption Perceptions Index, 2016).

```
. reg lfdiinflowtotal gdpgrwth infl tax bus corruption laboredu llabortot

      Source |       SS       df       MS              Number of obs =      26
-------------+------------------------------           F(  7,    18) =    6.41
       Model |  21.0498189     7  3.00711699            Prob > F      =  0.0007
    Residual |  8.44792232    18  .469329018            R-squared     =  0.7136
-------------+------------------------------           Adj R-squared =  0.6022
       Total |  29.4977413    25  1.17990965            Root MSE      =  .68508

------------------------------------------------------------------------------
lfdiinflow~l |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    gdpgrwth |   .0876986   .0292556     3.00   0.008     .0262349    .1491622
        infl |   .0116279   .0682918     0.17   0.867    -.1318478    .1551036
         tax |  -.004419    .0314959    -0.14   0.890    -.0705894    .0617514
         bus |   .001765    .0085966     0.21   0.840    -.0162958    .0198259
  corruption |   .037543    .0118721     3.16   0.005     .0126006    .0624853
    laboredu |   .0254903   .0255211     1.00   0.331    -.0281274    .0791081
   llabortot |   .3251788   .1306213     2.49   0.023     .0507536     .599604
       _cons |     14.938   2.704717     5.52   0.000     9.255597     20.6204
------------------------------------------------------------------------------
```

Figure 3.6 - Regression Results

The regression has an R-squared value of 0.71. It was expected that the GDP grow rate would have a positive coefficient. This prediction turned out true. GDP growth had a positive coefficient of .0877, and is also statistically significant, due a t-value of 3.00 and P>| t | of 0.008. As a result, this shows that an increase in the GDP growth rate has a significant and positive affect on the FDI inflows of a country.

The inflation rate on the other hand, did not yield the expected results. It was assumed that the higher inflation rate would make a country less attractive to FDI thus, resulting in a negative coefficient. However, the inflation rate had a positive coefficient of .0116. Although, it is not statistically significant so the result does not hold as much

value. Similar to the inflation rate, higher taxes were predicted to negatively affect the FDI inflows of a country as well. The regression shows that the tax coefficient is negative, with -.00442 But, again like inflation rate, it was not statistically significant. It's P>| t | value is 0.890, and t is -.014.

The ease of doing business in a country was expected to have a positive sign, which is what the regression shows. The ease of doing business had a positive coefficient valued at .0017 However, like the previous coefficients, this one is not statistically significant. Next there is the corruption index, it was thought that less corruption in a country leads to more FDI inflow. The regression results supports this claim. With the corruption index, a higher number indicates less corruption, so a positive coefficient would mean that less corruption is associated with more FDI. Corruption's coefficient had a positive sign, reading .0375. This coefficient is also statistically significant with a t value of 3.16 and a P>| t | value of 0.005. This means that an increase or decrease in a country's corruption index rating, should increase or decrease the amount of FDI inflows.

Having a high skilled labor force is also expected to have a positive effect on FDI inflows. The percentage of labor force with tertiary education is used to measure the skill of each of country's labor force. It did in fact have a positive sign, but the variable did not turn out significant. It only had a t value of 1.00 and a P>| t |of .331. Initially I thought laboredu would have a larger coefficient and be more significant than labortot, but that was not the case. Like the educated labor, the total labor force had a positive coefficient as predicted. Labortot's coefficient was .325, which is greater than laboredu's coefficient of .0255. Additionally, total labor force was statistically significant,

it had a P>| t | value of 0.023. Also, the constant variable had large coefficient of 14 and was very significant with a P>| t | value of 0.00 and a t of 5.52.

Figure 3.7 - Multicollinearity Test

Variable	VIF	1/VIF
laboredu	3.92	0.255185
bus	3.26	0.306331
corruption	3.19	0.313805
tax	2.30	0.435303
infl	2.06	0.485240
llabortot	1.66	0.603859
gdpgrwth	1.09	0.917173
Mean VIF	2.50	

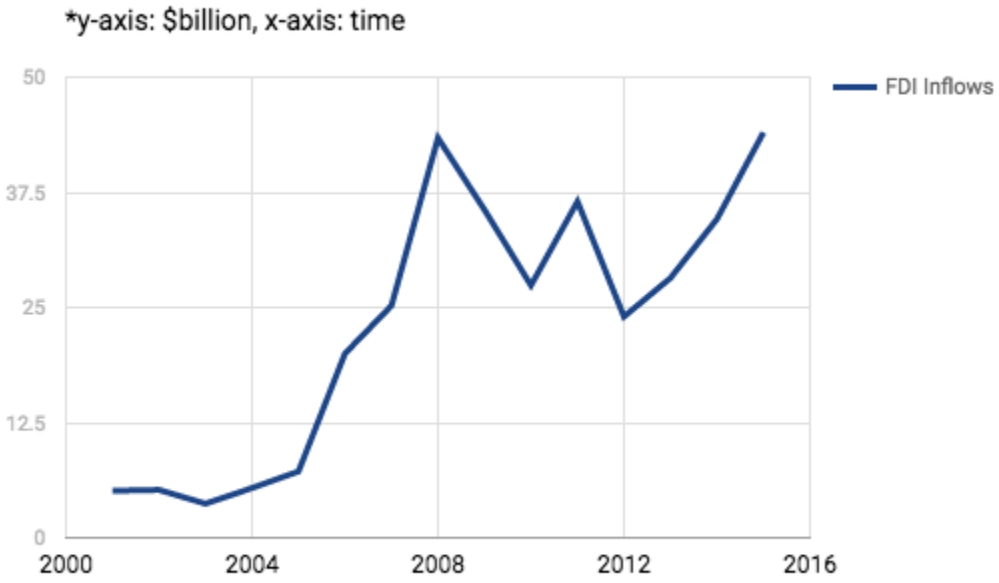
Figure 3.7 shows a 2.5 mean VIF, which clears my test of any multicollinearity. All of the VIF scores are far below 10, and the inverse VIF scores are all greater than 0.1. The test not having multicollinearity means that the independent variables are not directly correlated with each other. If two of the independent variables were correlated, then the variables would not be directly correlated with FDI inflows. They first be correlated with each other, which would skew the value of the variables. Consequently, leading to skewed and inaccurate results on their effect on FDI.

Chapter 4: Analysis of India

In this chapter I'd like to analyze India's FDI inflows from 2001 - 2015. As well as discuss why India might not be receiving as much FDI as it could. More specifically, discussing which of these tested variables India could improve on and how that may

help India increase their FDI inflow. As well as briefly explore the economic benefits associated with these determinants, and the benefits of a high FDI inflow growth. Below is a graph depicting India's FDI inflows over the 15 year time span.

Figure 4.1 - India's FDI Inflows, 2001 - 2015_



India has had an intriguing history of FDI inflows. There is no data from World Bank on India's net FDI inflows earlier than 1975, but from 1975-77 India was actually recorded having a negative net FDI inflow. Their inflows ranged from $(-)10 million to $(-)36 million in that time period. Finally, in 1978 India started having positive FDI inflows. By the late 90's and early 2000,s India was receiving around $2.5 - $5 billion in FDI inflows, but was not experiencing any real growth. However, in 2006 India's FDI inflows rose sharply. Their FDI inflows went from $7 billion in 2005 to over $20 billion in 2006. India almost tripled their levels of FDI in one year. This sudden spike in FDI

inflows may have been due to new FDI policy that India was putting in place. In 2005 India offered a new revised FDI policy that was much more lenient. This revision allowed for %100 foreign equity in housing, built-up infrastructure, and construction projects (Chalapati Rao & Dhar, 2011). This opened up India immensely for FDI. It was also beneficial because these areas of focus assist India's infrastructure, which is something India needed and still needs improvement on. Then, from 2005-2008 India's FDI inflows continued to grow at a fairly fast pace, peaking at $43 billion in 2008. Unfortunately, over the next few years their FDI inflows lowered close to their 2006 levels. India did not return to their 2008 level of inflow until 2015 when they reached $44 billion. $44 billion in FDI is a relatively high amount of FDI inflow. However, India has such a massive population that $44 billion is not as beneficial their society, as it would be to a smaller populated country. Furthermore, in 2015, China who has a similar population in size to India, received almost $250 billion, that's 5 times India's FDI inflows. And Ireland, who has a miniscule population compared to India, had over $200 billion in FDI inflows (Data bank, world development indicators.2017). India is still liberalizing their FDI policy today, they're continuing to allow for more FDI in various sectors. India is just now back where they were in 2008-2009 in terms of FDI inflows, and it's clear that they have room to receive much more FDI. Hopefully India will be able to continue to increase their FDI and at a faster pace.

Now, there are many factors involved in determining how much FDI a country receives. Some of the key factors in determining a country's FDI inflow have been identified in the analysis. These include, a country's GDP growth rate, inflation rate, tax laws, labor size and skill, level of corruption, and overall ease of doing business. Based

on the coefficients of the variables in the regression, GDP growth, labor size, and corruption ended up being the significant variables. These variables may help explain why India has had struggles with their FDI and how India can further increase their FDI inflow growth.

In 2015, India had a GDP per capita of $1,598, which is one of the lowest GDP per capitas. For comparison, the United Kingdom's GDP per capita was $43,000. So again, India's economy has room for improvement, and rise in FDI Inflows could help spur more economic growth. According to the test results, GDP growth rate is significant and positively affects FDI inflows. India actually has a very high GDP growth rate, in 2015 it was 7.56 percent. This is good indicator for an attractive environment for FDI. If the economy is growing at a fast pace, investors will be interested because their business could grow along with the economy and help the economy grow even more. India should try to continue maintaining this high growth. In addition to GDP growth, India has an impressive total labor force. They have the second largest population in the world and a massive total labor force of 496,960,163. The regression results display that total labor force has a positive coefficient and is statistically significant. This portrays the importance of labor size in increasing FDI inflows. India's large labor force has probably been assisting them in their FDI inflow and it should continue to help them attract more. There are however, many areas where India needs improvement if they want to see a large increase in FDI.

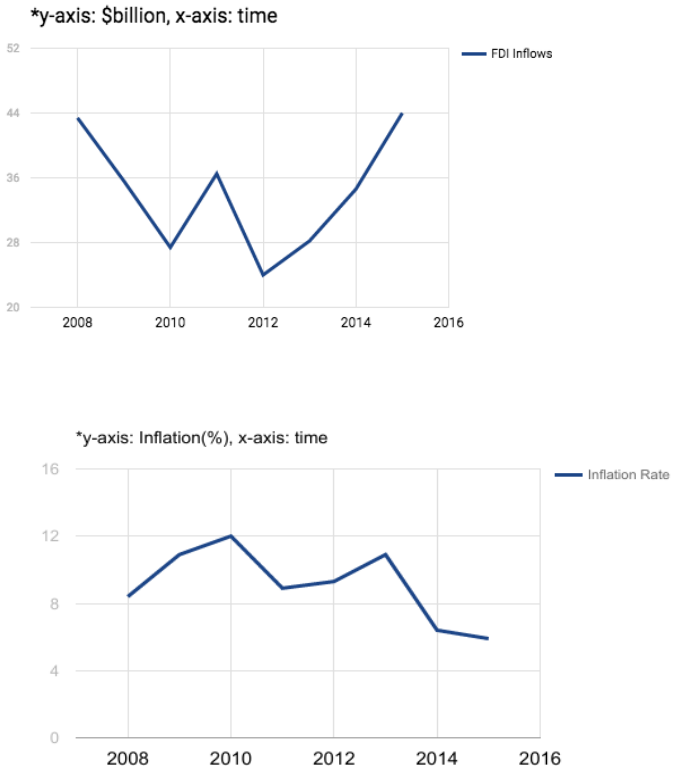
Figure 4.2 - India's Inflation Rate, 2001 - 2015



For instance, India needs to keep in mind its inflation rate as well if it want to increase FDI inflows. The graph above displays the inflation rate from 2001 - 2015. For the most part has had sporadic inflation rate during this time period, but has still been fairly high from 2006 on. Also, according to the correlation table (figure 3.2), inflation is negatively correlated with FDI inflows. High inflation only makes conducting business more difficult, although there inflation has been decreasing Their inflation rate was 5.87% in 2015, which is the 9th highest out of the 50 countries that were used in the test. If India is able to lower their inflation rate, it could attract more FDI inflows. It may signify to investors that they have a more stable economy and a friendlier environment for FDI. In addition, from examining figures 4.1 and 4.2, the inflation rate seems to be inversely related to FDI inflows from year 2008 - 2015. When inflation rate increased, FDI inflows decreased, and vice versa. Figure 4.3 shows this inverse relationship, the

top graph is FDI inflows and the bottom graph is inflation rate. India's worse FDI inflow years happened to coincide with some of their highest inflation years.

Figure 4.3 - Inflation Rate vs FDI Inflows, 2008-2015



India has high levels of corruption as well, which hinders its growth of FDI. Based on the regression and correlation results, levels of corruption is one of the key determinants of FDI inflows, and this is an area where India is struggling. India has a low CPI (Corruption Perceptions Index) score, the CPI ranges from 1-100 (1 = completely corrupt, 100 = almost no corruption). India's score is only 38, and as Figure 3.5 shows, most of the leading FDI inflow countries have CPIs in the 80s (Corruption

perceptions index 2015.2016). Corruption has recently been a major issue for India. The Indian government had to emplace a currency ban on their larger bills in order to lessen the corruption. The higher currencies were heavily counterfeited to be used in the black market and by terrorist organizations. These bills were also often used to pay bribes (Geeta Anand & Hari Kumar, 2016). As one can see, it's clear that corruption is unfortunately a problem India has to deal with. Figure 3.2 shows that corruption is strongly correlated with FDI inflows, so the corruption India has endured must have hurt their levels of FDI. Thus, if India is able to gain control over its corruption, it could possibly lead to a rise in FDI inflows.

Now, tax policy is another key determinant that is negatively correlated with FDI. 8 of the 50 countries used in the regression did not have data on their corporate profit tax from the World Bank, but out of the 42 countries that did, India had the 2nd highest profit tax at 34%, in the year 2015. This high tax rate is appealing to foreign investors because it just cuts away at their profits. This cannot be helping India's FDI inflows. If India's policy makers attempt to lower the tax rate, it may attract more foreign business.

Another determinant India is struggling with is its ease of doing business. India happens to be ranked very poorly in its ease of doing business. The range of rankings is from 1-190, 190 being the worst, and India is ranked 131st. This means that India has a lot of room for improvement. The rankings are based off scores from 10 different categories. Some of the categories include: construction permits, electricity, registering property, getting credit, protecting minority investors, trading across borders, enforcing contracts. India actually scored quite well on getting electricity, getting credit, and protecting minority investors, but scored poorly on the rest. They were ranked 185/190

for dealing with construction permits. This is a very poor rank and an area where India should put a lot of focus. Construction is necessary for setting up business, and if it is an extreme hassle it will make India a less enticing location for FDI. In order to set up a business and sell a product one has to register property as well. India scored poorly here too. Their rank was 138 for registering property. This must imply that is very difficult to register, as well as the process itself. Again like construction permits, India should shift focus on their enforcement of contracts. They were ranked even worse in this category with a score of 172. All of these aspects are crucial for starting up and maintaining a successful business.

If India is able to steadily increase their FDI inflows, it could immensely benefit their economy and society as a whole. The spillover effects associated with FDI alone should render some economic growth. The arrival of foreign firms may cause a spillover effect that allows for transfers of technology, knowledge, and R and D from foreign firms to domestic firms (Lai & Sarkar, 2011). Furthermore, this will domestic firms grow, and the new competition of foreign firm, along with transfers of knowledge, will force domestic firms to become more competitive. Ultimately, raising the overall quality of the Industry and its products (Agrawal & Khan, 2011). Additionally, the presence of new firms and growth in incumbent firms will help increase employment.

Chapter 5: Conclusion

Initially I thought India would be a world leader in FDI inflows, considering their market size and huge population. However, that was not case. Although they have a decent FDI inflow, they still have a lot more room to grow, especially if they want to see serious economic development.

There are many factors that influence the levels of a country's FDI inflows. The test results in this paper show that the GDP growth rate, corruption perceptions index, and total labor force are among three of the factors that have a significant effect on FDI inflows. India had good GDP growth rate in 2015 of around 7% and impressive total labor force of almost half a billion. It was found that corruption might have the most significant effect on FDI inflows, and this is an area where India is experiencing troubles. India has had and still does have, high levels of corruption. In 2015 they had a low CPI of 38, and are improving at a slow rate. From 2012-2015, India's CPI only increased from 36 to 38 (Corruption perceptions index 2015.2016). If India can continue to improve upon their corruption but at faster pace, they should see similar improvements in their FDI inflows.

Hopefully FDI continues to be viable option for investment and is used to improve underdeveloped economies. If so, one day India could rival China in levels of FDI.

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