Thailand's Minimum Wage Increase of 2013:

Impacts on Foreign Direct Investment

Aikaparb Michael Fuangfoo*

May 2016

Abstract

This analysis investigates possible foreign direct investment (FDI) impacts due to Thailand's 39.5 percent minimum wage increase in 2013. Determining FDI factors and influences after the nationwide policy was implemented is important because wages are a vital component of foreign investment. Thailand holds a certain competitive advantage due to relatively low wages compared to certain countries, which could have an impact on FDI. FDI can be gauged as a measurement for the presence of multinational corporations (MNCs) and may be interpreted as a level of influence in the country; Thailand's economy and long-term growth relies heavily on FDI which could foster increases in technology transfers, infrastructure, and quality of living.

JEL Code: E22, E24, F14, F16, F21, F23, P45

Keywords: Foreign Direct Investment, Minimum Wage, Governance, Multinational Corporations, Technology Transfers, Protectionism, Trans-Pacific Partnership

*Email: aikaparb@gmail.com

I am grateful for the helpful comments from Sudarshan Sampath, Rohena Khan, Christian Kaylor, and Anthony Burgard.

TABLE OF CONTENTS

I Introduction

On January 1st 2013, the government of Thailand initiated a nationwide minimum wage daily rate of 300 THB (Thai Baht), approximately 8.40 USD (U.S. Dollar) per day[1]. Examining the 2013 minimum wage increase of Thailand and its effects is important because it will have profound results on the economy, both regional and international. Thailand is a major producer in the agriculture and manufacturing industries and heavily depend upon workers that are being paid at least 300 THB per day. The 39.5 percent minimum wage increase gave relatively more purchasing power to the average Thai than before January 1st, however, examining basic cultural norms and costs may reveal a different story. Many laborers, such as factory, construction, and agricultural workers, will eat most, if not all, meals at food stalls or cafeterias. Most street food stall items, such as a bowl of noodles, cost approximately 30 - 40 THB. Eating 3 meals a day would leave the Thai worker with about 200 THB (6 USD) after a day's labor. Another gauge of purchasing power is The Big Mac Index; the metric shows how much a McDonald's Big Mac hamburger would cost in a particular country and illustrates how the burger is undervalued or overvalued compared to a McDonald's Big Mac in the United States of America (USA). According to the Big Mac Index's latest data (January 2016), 300 THB per day would purchase approximately 2.67 Big Mac hamburgers.[2]

Manufacturing and agricultural industries do not stand alone in relying on labor force being paid the daily rate; the service (e.g. hospitality, finance) and information technology (IT) industries also largely contribute to their economy.

---

[1] 35.69 THB (Thai Baht) = 1 USD (US Dollar), 2016 May 20

[2] In January 2016, The Economist used the exchange rate 36.22 THB = 1 USD. According to their index, the Thailand's Big Mac is 37.3% undervalued with respect to the USA's Big Mac. In mid-2014, the Thai Big Mac was almost undervalued by 100%.

The aforementioned gives room and incentive for foreign investment to grow, leading to a potential hotbed of activity, technology transfers, and potential long-term growth. One of the driving forces for these industries is foreign direct investment (FDI). From 2014 to 2015, Thai FDI Inflows increased by over 1 Billion USD.

Figure 1 is a stacked bar/column graph showing selected leading country investors into Thailand. The foreign capital is registered in projects that were approved by the Board of Investment (BOI) of Thailand from 2009 to 2014.

Figure 1: Registered Foreign Capital (BOI Approved Projects)

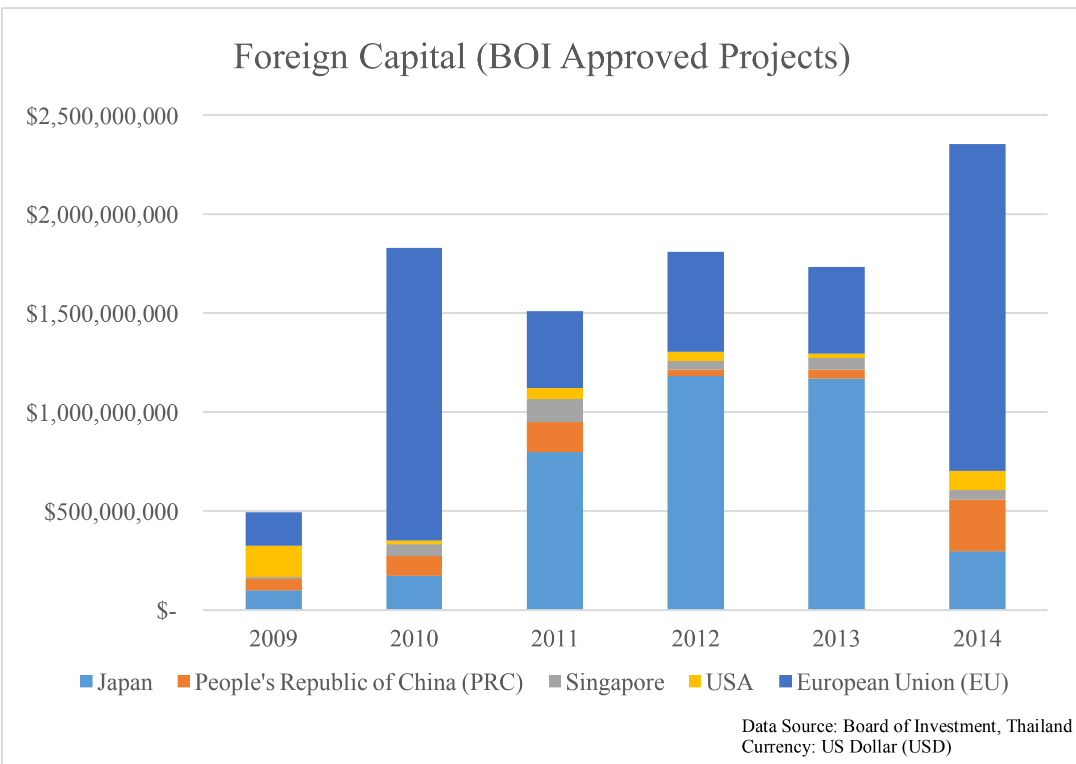


Figure 2: Foreign Direct Investment Inflows by Business Sector

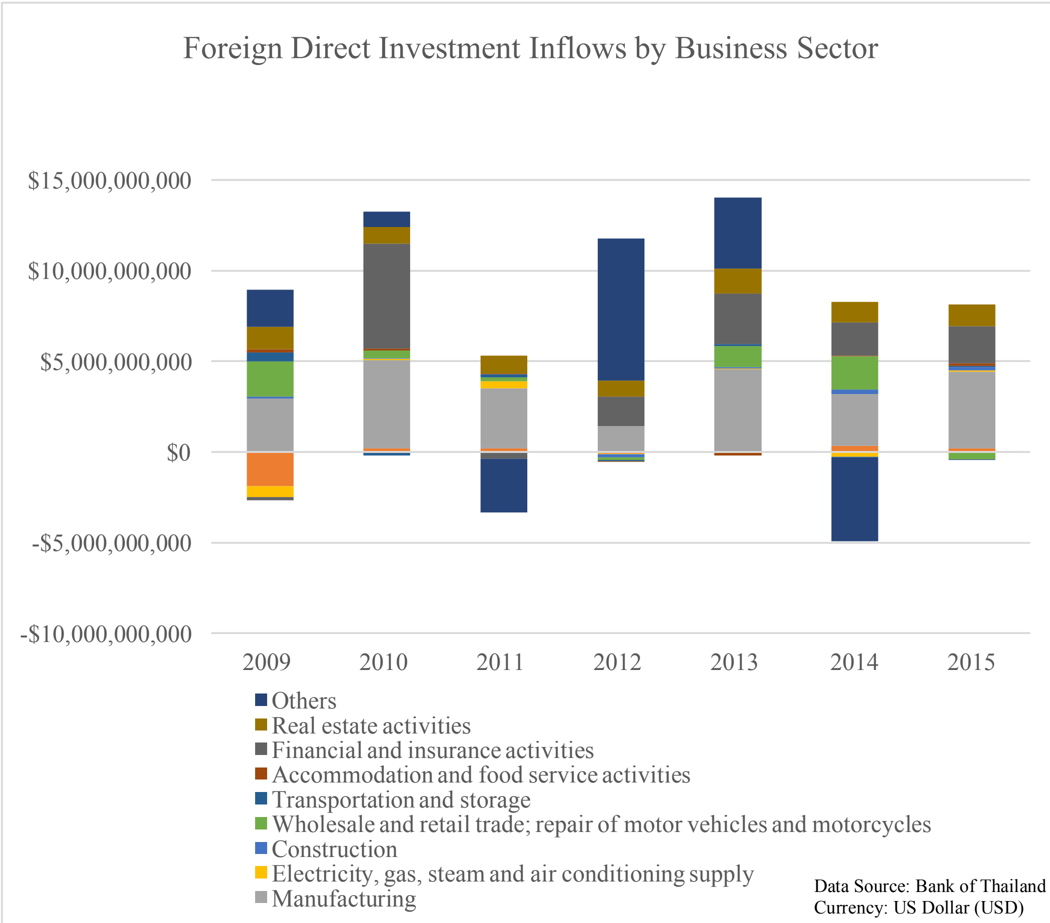
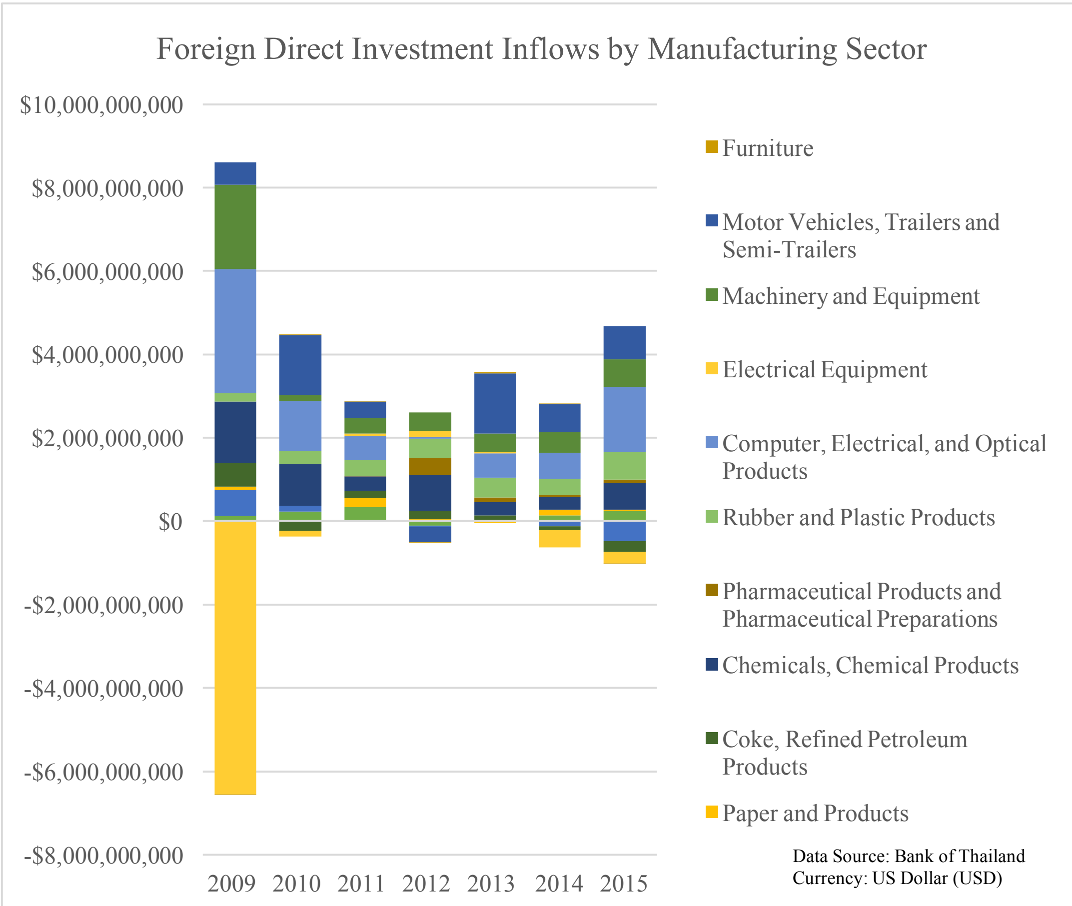


Figure 2 and Figure 3 contain negative values; this means that FDI decreases were greater than increases in the respective classified sector.

Currently, Thailand does not have any government body that is able to screen, evaluate, or endorse FDI inflows. The BOI is the sole agency in charge of fostering investment. In fact, approval from the BOI is not necessary for FDI, as long as proper operating permits are secured. In 2015, Japanese FDI ranked as the highest investor in Thailand, with a total of 426 approved projects worth greater than 144 Billion THB (approximately 4.03 Billion USD[3]) (Fernquest, 2016).

Figure 3: Foreign Direct Investment Inflows by Manufacturing Sector



FDI can be a measure for the presence of multinational corporations (MNCs) in Thailand. Their footprint is quite large, thanks to Thailand's industrial parks and protectionist policies with various benefits (e.g. tax privileges, lower

[3] 35.69 THB (Thai Baht) = 1 USD (US Dollar), 2016 May 20

import/export tariffs, quotas), relatively low labor costs (e.g. wages, overhead) and developed infrastructure amongst its competitors (e.g. internet connectivity, governance, access to services), and strategic locale in Southeast Asia. At the foundation of all these aforementioned factors that affect the global economy is minimum wage. Policymakers, businesspersons, and economists rely on FDI inflows as an economic indicator and the subsequent varying assumptions of how minimum wage increases will affect the economy. Many politicians, economists, reporters, and the general textbook model predict minimum wage increases will negatively affect FDI. However, an increasing understanding of empirical evidence says the contrary.

The economic impacts in relation to minimum wage growth and how it may affect FDI Inflows to Thailand must be studied because farms and factories rely on wages to compensate their workers; in other words, examining these relationships will help better understand how MNCs level of commitment in Thailand may adjust with minimum wage fluctuations. This paper incorporates theories, past case studies, and previous research conducted by other economists that are related to that of FDI, international economics, labor economics and economic impacts of changes in minimum wage. A quantitative study is included to supplement the analyses from past research; the data sampled is from the years 1980 to 2015. The data used for the variable Minimum Wage includes average daily wages from 1980 to 2012 and the 300 THB minimum wage from 2013 to 2015. The purpose of this analysis is to estimate the affect of minimum wage on FDI inflows and examine significant variables that have been withheld in past models.

II Review of Literature

General textbooks will address the effects of minimum wage while relying on the supply and demand model with a single competitive labor market that has homogenous workers. Through theory and empirical works, a minimum wage based on collective bargaining (i.e. unions and associations using combined strength to help set a minimum wage for their members) will have a considerably higher minimum to average wage ratio compared to other scenarios (e.g. government legislated, consultation or government/collectively bargained hybrid) (Boeri, 2009).

Referring to Alfaro-Charlton (2007), Tuan-Ng (2007), and Nnadozie-Osili (2004), they state many factors of foreign direct investment flows are the capital allocations from one location to another. With these capital flows, a reaction is created and develops effects that will either have positive and/or negative outcomes. Spillovers and by-products of these outcomes, due to the original reaction, will sometimes be generated as well. Common observations by many studies have concluded that FDI Inflows cause growth within the given country, in which it may be transferred through economic changes in human capital, skills, employment, export trade, and import trade. FDI flows can also have transfers through institutional changes, market integration, innovations of technology transfer, and spatial agglomerations.

In regards to developing countries, FDI is a major contribution to that of technology advancement due to spillovers; it is a mechanism/catalyst for technological growth within a developing country. FDI, in regards to external effects and spillovers, can create an environment of competition and innovation by upgrading technology and enhancing knowledge. Thanks to a colossus amount of studies and literature, researchers have included popular factors such as production costs, market sizes, agglomeration effects, financial incentives, economic reforms, institutional reforms, and investment environments (Political/Financial/Public).

FDI has shown to have manipulative features in regards to growth and development, such as fostering technology transfers and infrastructure development (Ramstetter, 2009). According to Ramstetter (2009) and current World Bank and BOI data, Japan, People's Republic of China (PRC), European Union (EU) and the United States of America (US) are some of the largest foreign investors in Thailand. Japan is the largest foreign investor and its presence can be seen by their factories (e.g. Honda, Toyota, Mazda, Bridgestone, Asahi Beer) and infrastructure joint-venture projects (e.g. Mass Rapid Transit [MRT] subway system, Bangkok Mass Transit [BTS] sky train).

In Ramstetter (2009), it is stated that there are 10 sets of determinants for Japanese FDI into East Asia, in which two happen to mainly be related to revenue creation and the other eight are more relevant to cost configuration. Also, MNCs can breed competition and wish to search out for new markets and grow current ones. That is why market size, income, and preferential access to local markets are identified to be determinants of general FDI Inflows. If market size and access were absent, it would negate some of the main reasons as to why an MNC would be placed within a host country.

Labor costs have been considered a heavy determinant of FDI flows to host countries. More specifically, labor costs per worker and real GDP per employment are essential. An MNC wishes to reap the rewards of a market in which they have a comparative advantage in an area and this is why the determinants that are stated above are crucial in determining a multinational's placement in certain regions of the world.

Whether a MNCs foreign investment decisions are "horizontal" or "vertical" could effect the entity in a different manner or possibly not at all.[4] However, according to recent studies, variables used in past FDI research are not strong enough to support a much wider set of predicting variables. It is stated that MNCs can breed competition and wish to search out for new markets and grow current ones.

A recent study suggests that past specification have relatively withheld significant factors, such as gravity variables, cultural factors, parent-country per capita GDP, labor endowments, and regional trade agreements for modeling FDI Inflows (Blonigen and Piger, 2011). This is why this analysis incorporates the determinant Governance. Governance (overall) is an indicator maintained by the World Bank, that is a ranking of a particular country for the following categories: Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, Control of Corruption.

There is an increasing consensus that good ratings in Governance foster FDI. Contrary to the general consensus, Adam and Filippaios (2007) state that MNCs have efficiency seeking motives that heavily direct their investment decisions in less liberal developing countries; a relatively low amount of repression of civil liberties and political freedoms is expected to have a positive affect to FDI Inflows. A particular type of FDI can be fostered in countries where civil liberties are relatively repressed, so as to not affect the workforce too greatly (Adam and Filippaios, 2007).

[4] "Horizontal" incentives for FDI represents firms wishing to reproduce their operations in other countries to be closer to consumers and "vertical" incentives for FDI represents firms wanting relatively low cost economies for labor intensive production.

III Empirical Model

This analysis assumes all workers are the same (homogenous) in a single competitive labor market. Contrary to the aforementioned labor market and its imagery of assembly lines making one product, in reality all workers are not the same nor are there identical laborers participating in a single market. However, to better simplify the complexity of today's nuanced labor market, this analysis uses minimum wage rather than income per capita as an independent variable, so the policy shock may be included amongst the other determinants of FDI Inflows.

The selected determinants in this analysis are from Botrić, Valerija, and Skuflić (2005), however, Governance was added to the list of variables in order to incorporate regional and cultural factors.

$$FDI\_INFLOWS = \beta_0 + \beta_1 GDP + \beta_2\, MINIMUM\_WAGE + \beta_3\, POPULATION + \beta_4\, EXPORTS\_IMPORTS + \beta_5\, EXTERNAL\_DEBT\_STOCKS + \beta_6\, INFLATION + \beta_7\, GOVERNANCE + \beta_8\, INTERNET\_USERS + \varepsilon \tag{1}$$

This analysis' empirical model is shown above as Equation (1)[5]. The above model is a level – level model, where if a variable (x_n) changes by one unit, ceteris paribus, then FDI_INFLOWS changes by β_n.

$$\Delta y = \beta_1 \Delta x_1 \tag{2}$$

[5] I originally started my analysis with Equation (1); one of the reasons why I chose a level – level model was because of its simplicity of interpreting the coefficients and their affects on FDI. However, after running a regression of Equation (1), I detected autocorrelation and heteroskedasticity. I attempted to solve for autocorrelation and heteroskedasticity by transforming Equation (1) into a log – log model, labeled as Equation (3).

However, the model has changed to a logarithmic model (log-log), shown below as Equation (3)[6]:

$$
\begin{aligned}
&log\ (FDI\_INFLOWS) = \beta_0 + \beta_1 log\ (GDP) + \\
&\beta_2\ log\ (MINIMUM\_WAGE) + \beta_3\ log\ (POPULATION) + \\
&\beta_4\ log\ (EXPORTS\_IMPORTS) + \\
&\beta_5\ log\ (EXTERNAL\_DEBT\_STOCKS) + \\
&\beta_6\ log\ (INFLATION) + \beta_7\ log\ (GOVERNANCE) + \\
&\beta_8\ log\ (INTERNET\_USERS) + \varepsilon
\end{aligned} \tag{3}
$$

Changing the model to a logarithmic function will transform the variables; this analysis will be hereinafter examining the growth and change of FDI Inflows with respect to the change of the explanatory variables. If we change one of the variables (x_n) by one percent, ceteris paribus, then we should expect FDI_INFLOWS to increase by β_n percent.

$$\%\Delta y = \beta_1 \%\Delta x_1 \tag{4}$$

[6] After transforming Equation (3) as a log – log model, I tested for autocorrelation (serial correlation) and heteroskedasticity and I was forced to accept the null hypothesis that autocorrelation and heteroskedasticity are not present in my model. However, multicollinearity may be slightly still present among a few of the variables.

Figure 4: FDI Model Variables

Variable Names Used In Regression	Description
gdp	Aggregate demand and is the Gross Domestic Product of a particular country.
minimum_wage	The indicator Minimum Wage contains average daily wage data up to 2012. After 2012, 300 THB is used as the daily wage rate.
total_population	Total Population is the total number of people that live in Thailand.
exports_imports	Trade Openness (Exports/Imports ratio) is an indicator that measures the ratio of exports to imports. If the ratio is greater than one, then exports surpasses imports. If the ratio is less than one, then imports surpasses exports.
external_debt_stocks	External Debt Stocks represents how much foreign debt Thailand holds.
inflation	Inflation gauges prices over time.
governance	Governance is an indicator that is an overall average of the following categories: Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, Control of Corruption.
internet_users	Internet Users is measured in per 100 people.

IV Empirical Results

According to the findings in this analysis with respect to the sample data (years: 1980 – 2015), Total Population, External Debt Stocks (Foreign Debt), and Governance are statistically significant in affecting FDI Inflows growth to Thailand. Total Population's coefficient is positive and the variable is strongly statistically significant; within three years of establishing the national minimum wage in 2013, Total Population's affect on FDI Inflows increases by approximately 20 percent.[7.] Minimum Wage and Inflation positively affect FDI Inflows, however, they are not statistically significant. Aggregate Demand (GDP), Trade Openness (export/import ratio), and Internet Users (per 100 people) negatively affect FDI Inflows, but are not statistically noteworthy.

In the 21st century, some people may intuitively think that a trade friendly country will have greater economic prosperity. Many economists and studies point to trade openness hindering economic growth. The definition of Trade Openness (exports/imports ratio) in this analysis means that either increases in imports and/or decreases in exports may decrease the variable's outcome overall, ceteris paribus, thereby causing a negative affect to FDI Inflows. In other words, as a country and/or its people grow relatively wealthier over time, imports will increase and exports will decrease due to changes in inputs (e.g. labor costs) and fluctuations in regional comparative advantage (Ramstetter, 2009).

---

[7] From 2013 to 2015, Total Population's coefficient increased from 10.2021 to 12.1594, meaning that Total Population's impact grew by approximately twenty percent (20%). Total Population has a dramatic positive affect on FDI; if Total Population increases by one percent, ceteris paribus, FDI Inflows will be expected to increase by approximately 12.1594 percent. This relationship can be explained. Going back to a basic supply-demand model, where increases in population or supply of labor will lower production costs. Production costs will be expected to decrease in this scenario because there will be an expected high demand for work, thereby workers are willing to take a lower wage, in turn, employers are able to decrease labor costs. Decreases in production costs have been an attractive characteristic for MNCs to search for in markets.

Table 1: Foreign Direct Investment (FDI Inflows) Impacts, Regression

	Estimated Coefficients	
	[1]	[2]
	1980 - 2012	1980 - 2015
R-Squared:	0.903	0.886
Adjusted R-Squared:	0.870	0.850
Standard Error of Regression:	0.498	0.522
Independent Variables:		
Aggregate Demand (GDP)	-0.6062	-0.7862
	(0.585)	(0.684)
Minimum Wage	1.713	0.3802
	(1.069)	(1.440)
Total Population	10.202***	12.1594***
	(3.853)	(3.603)
Exports/Imports (Trade Openness)	-0.052	-0.8139
	(1.071)	(1.086)
External Debt Stocks (Foreign Debt)	0.178	0.5632**
	(0.203)	(0.275)
Inflation	0.153	0.1694
	(0.110)	(0.105)
Governance	-5.129**	-7.7116**
	(2.225)	(3.249)
Internet Users (per 100 people)	-0.101*	-0.0737
	(0.060)	(0.068)
Constant	-137.095	-159.5689
	(68.306)	(65.675)

Note: Standard errors are in parentheses

* significant at 10%   ** significant at 5%   *** significant at 1%

V Conclusion

This study is significant because the worker lies at the foundation of the economy and labor is an essential component in Thailand's main industries, such as manufacturing and agriculture. In 2013, Thailand's foundation was shaken with a 39.5 percent minimum wage increase that equals 300 THB per day[8]. This analysis examines the impact and relationship between the variables Minimum Wage and FDI Inflows using data from 1980 to 2015. Furthermore, the model incorporates significant factors that previous studies did not include, such as a good governance indicator and internet users.

In conclusion, this analysis found that Minimum Wage does not negatively affect FDI Inflows. The variables Governance, External Debt Stocks (foreign debt), and Total Population are statistically significant in affecting FDI Inflows; Total Population has a positive affect and External Debt Stocks and Governance have a negative relationship to foreign capital inflows. The Governance indicator used in this analysis has a profound negative relationship to FDI Inflow growth. Plainly speaking, the more Thailand's government exhibits voice and accountability, political stability, absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption, the greater FDI Inflow growth will be negatively affected. However, increase in Governance may indicate greater red tape to investors, therefore greater barriers to entry and less incentives.

Thailand faces a case of self-imposed protectionism policies that have shown to hinder investment, but the country is also heavily reliant on FDI, trade, and manufacturing. Injecting foreign capital into the economy may have the ability to manipulate Thailand's infrastructure, industry, and innovation because their government does not have an agency that monitors and evaluates FDI inflows.

---

[8] 35.69 THB (Thai Baht) = 1 USD (US Dollar), 2016 May 20

The BOI's mandate is to promote foreign investment not monitor; in fact, FDI only requires basic operating permits. Due to this gap in FDI due diligence, Thailand may be susceptible to influence.

Future research regarding this analysis should consider incorporating Thailand's regional competitors, such as Malaysia, Philippines, Vietnam, and Indonesia; comparing the variations between each country will allow us to examine the reactions and relationships of the region before and after Thailand's 39.5 percent minimum wage increase. Also, differentiating between the source of FDI inflows would better help us better understand the country specific investor. Thailand is not currently a member of the Trans-Pacific Partnership (TPP). This Free Trade Agreement (FTA) may have profound effects in the region and because Thailand is currently not part of the pact, its affects on the country remains to be unforeseen. Future research should consider incorporating the TPP and other FTAs to better examine and estimate the effects of Thailand's exclusion from the TPP.

VI References

Adam, Antonis, and Fragkiskos Filippaios. 2007. Foreign direct investment and civil liberties: A new perspective, European Journal of Political Economy, 23(4), 1038-1052.

Alfaro, Laura, and Andrew Charlton. 2007. Intra-Industry Foreign Direct Investment. Working Paper. Harvard Business School and NBER. London School of Economics.

Blonigen, Bruce A., and Jeremy Piger. 2011. Determinants of Foreign Direct Investment. University of Oregon

Board of Investment (BOI). 2014. Foreign Investment Projects. Data Table. 2008-2015.

Boeri, Tito. 2009. Setting The Minimum Wage. Discussion Paper No. 4335. Università Bocconi, Fondazione RDB and IZA (Institute for the Study of Labor).

Botrić, Valerija, and Lorena Skuflić. 2005. Main Determinants of Foreign Direct Investment in The South East European Countries. Paper for the 2nd Euro-frame Conference on Economic Policy Issues in the European Union "Trade, FDI, and Relocation: Challenges for Employment and Growth in the European Union?". Vienna, Austria.

Card, David, and Alan B. Krueger. 1994. Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania. *The American Economic Review Vol. 84 NO. 4* (September): 772 – 792.

Fernquest, Jon. (2016, January 16). UPDATE: Foreign investment in Thailand plunges 78 percent, Vietnam sets record, Retrieved from: http://www.bangkokpost.com/learning/work/823592/update-foreign-investment-in-thailand-plunges-78-vietnam-sets-record

Krugman, Paul. 2009. Increasing Returns in a Comparative Advantage World. Princeton.

Mangan, Ben. (2013, December 13). Why the Minimum Wage Fight Rages On, Retrieved from: http://www.linkedin.com/today/post/article/20131209010052-132220-why-the-minimum-wage-fight-rages-on?goback=percent2Enmp_*1_*1_*1_*1_*1_*1_*1_*1_*1_*1&trk=nus-cha-roll-art-title

National Legislative Assembly of Thailand. 1999. Foreign Business Act (FBA), B.E. 2542 (1999).

Nnadozie-Osili. 2004. U.S. Foreign Direct Investment in Africa and its Determinants. UNECA Workshop of Financial Systems and Mobilization in Africa.

Ramstetter, Eric D. 2006. Multinational Corporations in Indonesia and Thailand: Wages, Productivity and Exports. Basingstoke [England]: Palgrave Macmillan.

Ramstetter, Eric D. 2009. Ranking Locations of Japan's Manufacturing Multinationals in East Asia: A Literature Survey and Calculations of Investment Attractiveness. Graduate School of Economics, Kyushu University

The Big Mac Index. (2016 January). The Economist. Retrieved from www.economist.com/content/big-mac-index

Thongtripop, Sasiton. Bank of Thailand (Data, Minimum Wage Rates 1973-2015)

Tuan-Ng. 2007. The Place of FDI in China's regional economic development: Emergence of the globalized delta economies. Journal of Asian Economics 18 (2007). 348-375.

World Bank Database. 1980-2015 Data.
Retrieved from: http://databank.worldbank.org/data/home.aspx

2015. Investment Climate Statement. Embassy of The United States for Bangkok, Thailand. Retrieved from: http://bangkok.usembassy.gov/ics_thailand.html