How Minimum Wage and Labor Skill affected Thailand Direct Investment Abroad (TDI)

during 2010–2019?

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จุฬาลงกรณ์มหาวิทยาลัย
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An Independent Study Submitted in Partial Fulfillment of the Requirements

for the Degree of Master of Arts in Business and Managerial Economics

Field of Study of Business and Managerial Economics

FACULTY OF ECONOMICS

Chulalongkorn University

Academic Year 2020

ค่าแรงขั้นต่ำ ทักษะแรงงาน ส่งผลกระทบต่อการออกไปลงทุนโดยตรงในต่างประเทศของผู้ลงทุนที่มีถิ่นฐานในประเทศไทยหรือไม่ ในช่วงระหว่างปี พ.ศ. 2553–2562

น.ส.แพมาลา น้ำแก้ว

สารนิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาศิลปศาสตรมหาบัณฑิต
สาขาวิชาเศรษฐศาสตร์ธุรกิจและการจัดการ สาขาวิชาเศรษฐศาสตร์ธุรกิจและการจัดการ
คณะเศรษฐศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย
ปีการศึกษา 2563

Independent Study Title	How Minimum Wage and Labor Skill affected Thailand
	Direct Investment Abroad (TDI) during 2010-
	2019?
By	Miss Paemala Namkaew
Field of Study	Business and Managerial Economics
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Accepted by the FACULTY OF ECONOMICS, Chulalongkorn University in Partial Fulfillment of the Requirement for the Master of Arts

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แพมาลา น้ำแก้ว : ค่าแรงขั้นต่ำ ทักษะแรงงาน ส่งผลกระทบต่อการออกไปลงทุน โดยตรงในต่างประเทศของผู้ลงทุนที่มีถิ่นฐานในประเทศไทยหรือไม่ ในช่วงระหว่าง ปี พ.ศ. 2553–2562. (How Minimum Wage and Labor Skill affected Thailand Direct Investment Abroad (TDI) during 2010–2019?   ) อ.ที่ปรึกษาหลัก : รติดนัย หุ่นสวัสดิ์

ปัจจุบันผู้ลงทุนที่มีถิ่นฐานในประเทศไทยมีแนวโน้มการออกไปลงทุนโดยตรงใน ต่างประเทศเพิ่มขึ้น ในขณะที่การลงทุนโดยตรงจากผู้ที่มีถิ่นฐานในต่างประเทศในประเทศ ไทยนั้นมีปริมาณเพิ่มขึ้นและลดลงในช่วงระหว่างปี พ.ศ. 2553–2562 อย่างไรก็ตามการ ลงทุนโดยตรงของผู้ลงทุนที่มีถิ่นฐานในประเทศไทยในต่างประเทศยังมีปริมาณที่น้อยมาก เมื่อเทียบกับประเทศญี่ปุ่นและสิงคโปร์ นอกจากนี้ประเทศไทยยังเจอกับสภาวะการขาด แคลนแรงงานที่มีทักษะ เนื่องจากทักษะของแรงงานไทยนั้นไม่ตรงกับความต้องการของ นายจ้าง รวมถึงค่าแรงขั้นต่ำในประเทศที่สูงขึ้นเมื่อเปรียบเทียบกับประเทศเพื่อนบ้าน ดังนั้น การศึกษานี้มีวัตถุประสงค์เพื่อศึกษาความสัมพันธ์ของค่าแรงขั้นต่ำ แรงงานทักษะ และ ปัจจัยอื่นๆรวมถึงปัจจัยภายในและภายนอก ว่ามีผลกระทบต่อการออกไปลงทุนโดยตรงใน ต่างประเทศของผู้ลงทุนที่มีถิ่นฐานในประเทศไทยหรือไม่ โดยการศึกษานี้ได้ประยุกต์ใช้การ วิจัยเชิงปริมาณ ด้วยวิธีกำลังสองน้อยที่สุดต่อข้อมูลอนุกรมเวลาในช่วงระหว่างปี พ.ศ. 2553–2562

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สาขาวิชา	เศรษฐศาสตร์ธุรกิจและการจัดการ	ลายมือชื่อนิสิต ....
ปีการศึกษา	2563	ลายมือชื่อ อ.ที่ปรึกษาหลัก ....

6284132629 : MAJOR BUSINESS AND MANAGERIAL ECONOMICS

Paemala Namkaew : How Minimum Wage and Labor Skill affected Thailand Direct Investment Abroad (TDI) during 2010-2019? . Advisor: RATIDANAI HOONSAWAT

Nowadays Thailand experienced with an upward trend for direct investment abroad (TDI) while there is an upward and downward trend for foreign direct investment (FDI) into Thailand. However, the amount of outward flows for foreign direct investment in Thailand still far behind other developed countries in Asia such as Japan or Singapore. Moreover, Thailand also facing with labor shortage for skilled labor since there is a mismatch between the worker's skill that company required, and the skills possessed by the workers. Furthermore, with the increasing rate of Thailand's minimum wage rate makes the country has higher minimum wage when compared to other neighboring countries. Therefore, this study would like to determine whether the minimum wage, skilled labor, and other related factors (internal and external factors) create an impact to Thailand's outward direct investment abroad or not. Thus, this study applied the quantitative method by using time series data during year 2010-2019 with Ordinary Least Square (OLS) to explain and determine the outward foreign direct investment in Thailand.

Field of Study:	Business and Managerial Economics	Student's Signature ....
Academic Year:	2020	Advisor's Signature ....

ACKNOWLEDGEMENTS

จุฬาลงกรณ์มหาวิทยาลัย
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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY

1.Introduction

The international investment position（IIP）is the balance sheet that shows country's asset and liability to the rest of the world.The investment classification of IIP comprise of portfolio investment, direct investment, financial derivatives, other investment（abroad and into Thailand）and assets reserve（BOT,2020）.According to the data found that in year 2019, net international asset is around 1,637 million dollar (asset > liability) increasing from net international liability at 5,784 million dollar (asset < liability) in year 2018 as shown in figure1.

Figure 1 : Thailand's International Investment Position

Source : Bank of Thailand

The International Asset at the end of year 2019 is around 545,161 million dollar step up from the previos year 55,586 million dollar (figure 2)mainly from the increasing in reserve assets , portfolio investment, and direct investment abroad. Interestingly, the main source of direct investment abroad comes from the investment in equity and investment fund shares（around 87,452 million dollar）owned by other sectors[1],other depository corporations[2],and general government respectively.Moreover, the International Liability at the end of year 2019, the value increase from 495,359 million dollar in year 2018 to 543,524 million

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[1] Other sectors comprise of Nonfinancial corporations and Other financial corporations households, and Non-Profit Institution Serving Households.

[2] Other depository corporation comprises of Finance Company, Commercial Banks including International Banking Facilities, Others of Other Depository Financial Institutions and Other Depository Special Financial Institutions.

dollar （figure 3 ）which mainly from the increasing in direct investment and portfolio investment,other investment ,and financial derivatives into Thailand. Addtionally, the direct investment in term of equity and investment fund shares also comes from other sectors in oversee.

Figure 2 : Transition of Thailand's International Asset
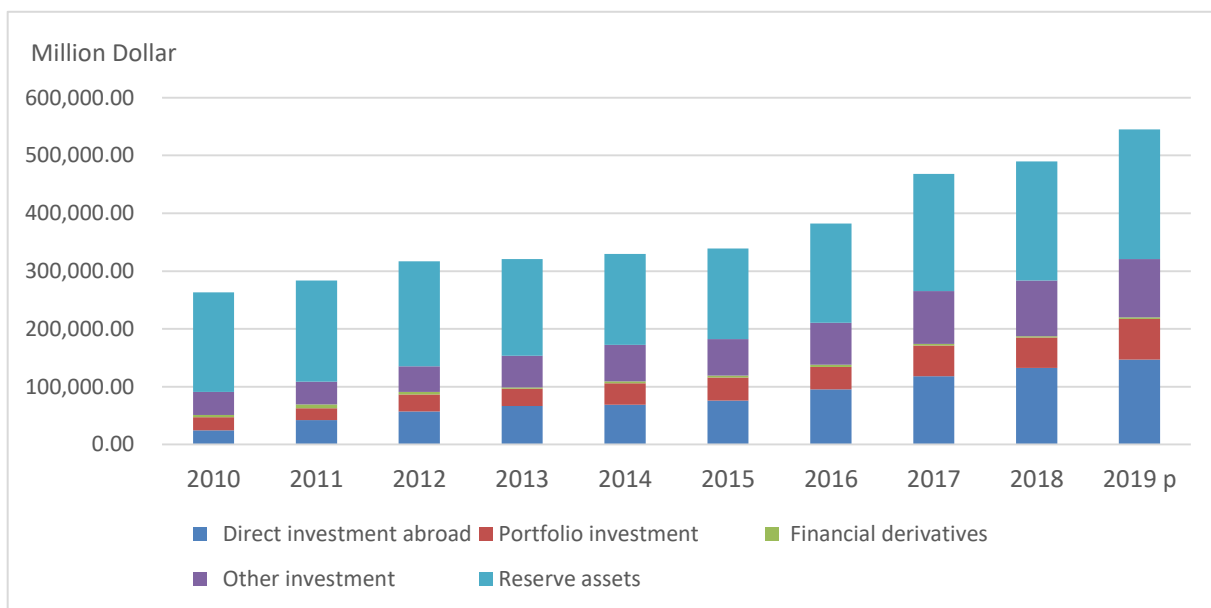
Source : Bank of Thailand

Figure 3 : Transition of Thailand's International liability
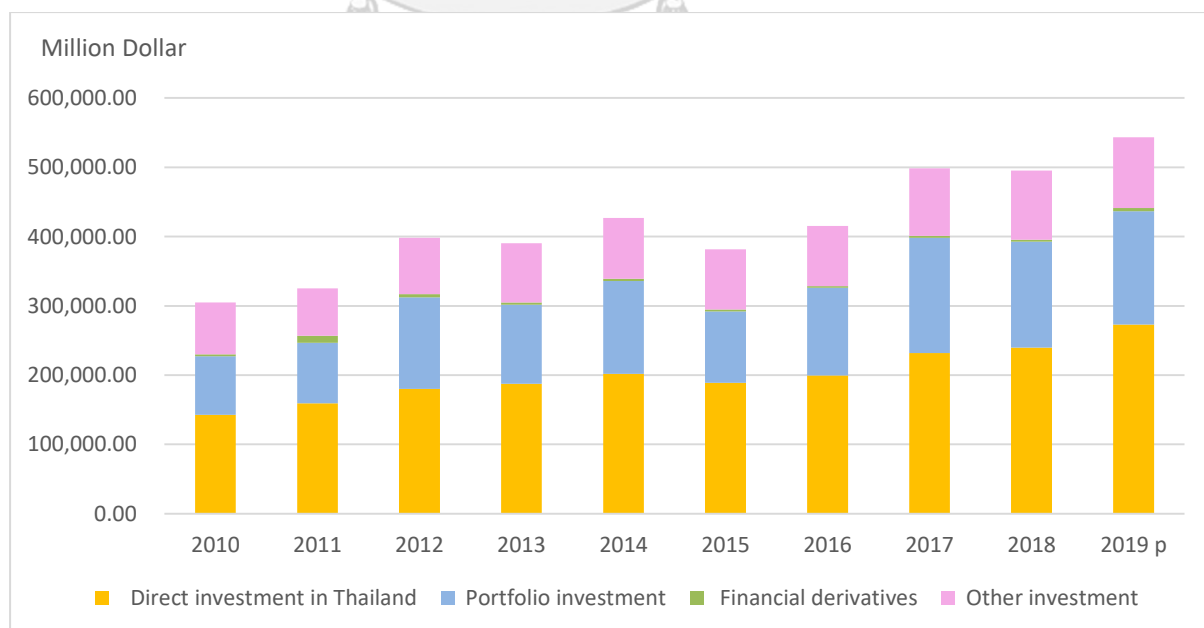
Source : Bank of Thailan

Since, the proportion of both direct investment abroad (figure 2) and direct investment in Thailand (figure 3) has an important to the international investment position (IIP) of Thailand. Therefore, this paper will focus more on this kind of investment especially with Thailand direct investment abroad (TDI).

Thailand direct investment abroad (TDI) means a person or juristic person allowed to invest in foreign business whose shares must hold by Thai company (resident) not less than 10 percent as well as allowed to lend for non-related business entities in abroad up to USD 50 million per year (BOT, 2010). Apart from the outward flow, the country also experienced with the inward flow calls foreign direct investment (FDI). FDI is the inward flow of investment which reflect a long-controlled interest and relationship by non-resident entity in one economy to an enterprise resident in another economy (World Investment Report,2007). FDI is a key drive of international economic integration, having a right policy will further promote financial stability, economic development and improve the well-being to the society (OECD,2008). Both FDI and TDI are under the balance of payment in the section of capital and financial account which shows all the capital movement (inward-outward flow) made by resident and non-resident within Thailand.

The outward foreign direct investment in South-East Asia was mainly from Singapore, Malaysia, Thailand, Indonesia and Philippine.

Figure 4 : Five major outward foreign direct investment in South–East Asia during 2010–2019
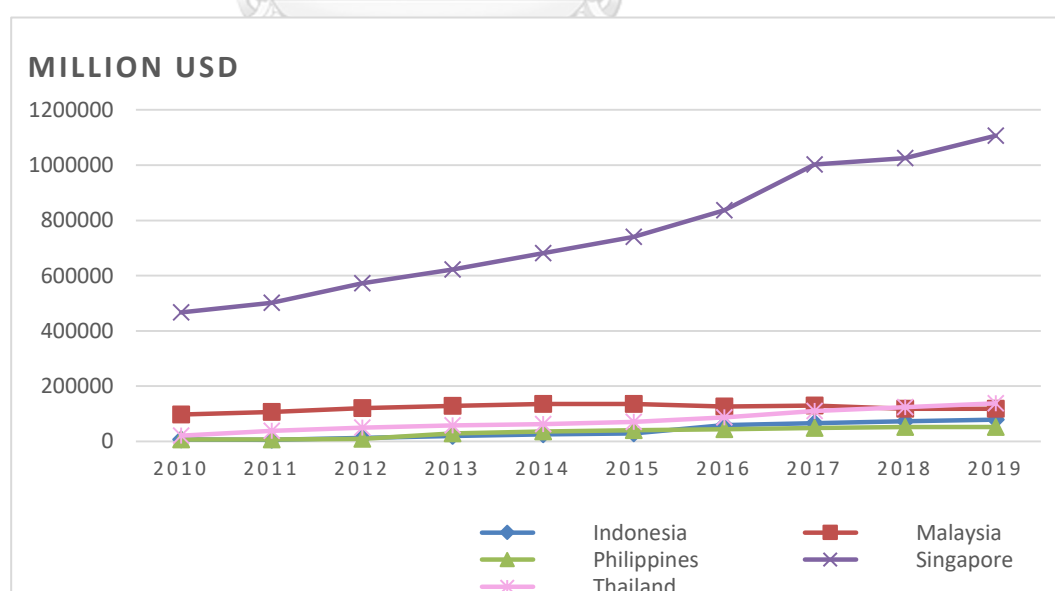
According to the data between year 2010 to 2019 (UNCTAD, 2020) found that the flow of foreign direct investment (FDI) into Thailand and direct investment abroad (TDI) is in the upward trend. However, there is an upward and downward trend for FDI in some year while the number of TDI flow still increasing in every year, which mainly comes from the investment of private sector.

Figure 5 : Direct investment abroad (TDI) and Direct investment in Thailand (FDI) during 2010–2019
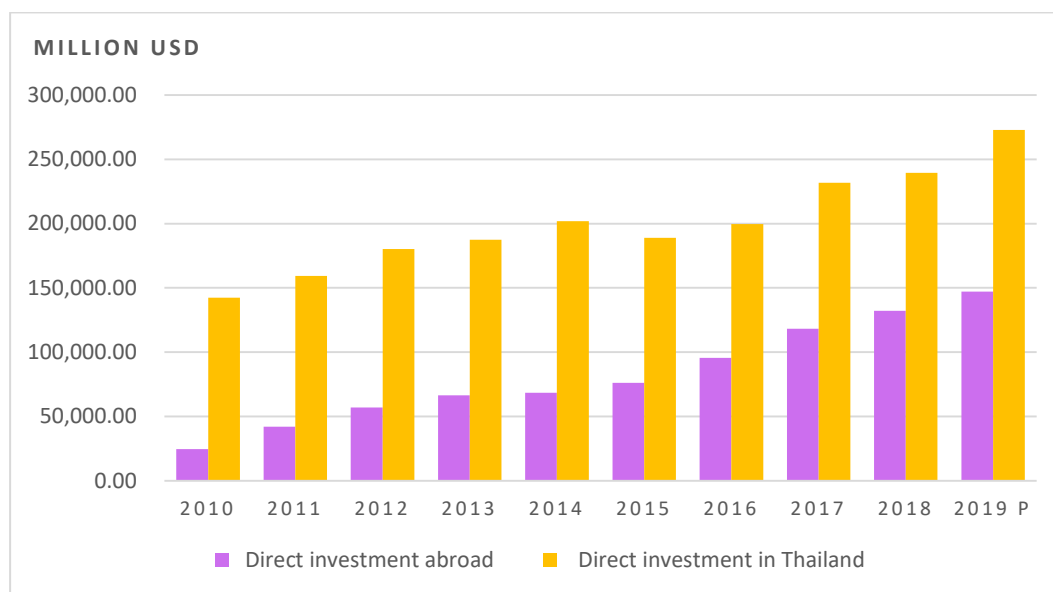
Source : UNCTAD

Moreover, Thailand also facing with labor shortage for low skilled labor, especially Myanmar is now substituting for low skill nationals (Puangyoykeaw & Nishide,2015) as well as lack of skill shortage since there is a mismatch between the job skills that employers required and the skills that possessed by the workers. In Thailand, the schools and universities tend to emphasize on general education instead of vocational training, engineering, and science (EIC,2015). Furthermore, the average minimum wage in Thailand has increased (BOT,2019), which means it can appear to induce some gains and losses (Lathapipat and Poggi ,2016). Since, Thailand direct investment can create many advantages such as balance the capital inflow-outflow, build a competitiveness within the country, etc. Therefore, this paper would like to examine whether the minimum wage can create a positive impact while skilled labor creates a negative impact to TDI during year 2010-2019 or not.

The importance of this study can be divided into two parts. The first part will study on TDI level comparing to other South East Asian countries as well as analyze the behavior and pattern. Second, is to focus on the two main important factors which are the minimum wage rate and skilled labor in Thailand whether they are the important factors that can influence TDI or not. Moreover, the study also considers

other related factors (both internal and external factors) which may has a probability to impact the TDI. Thus, by knowing the efficiency of factors that influence TDI will help the government for further policy development resulting to boost up TDI at the end. This paper used the Ordinary Least Square (OLS) Regression to find the relationship of minimum wage rate ,skill of Thai's labor, and other related factors toward TDI by gathering the data from many sources such as, The Bank of Thailand (BOT), Department of Skill Development ,Office of the National Economic and Social Development ,Ministry of Commerce ,Office of the Election Commission and United Nations News ,The Organisation for Economic Co-Operation and Development (OECD.stat) which provided publicly.

There are three main objectives for this research. Firstly, is to study minimum wage rate and labor skill in Thailand during year 2010 - 2019 as well as conduct a literature review whether are there any the case that similar with Thailand or not. Secondly, is to study Thailand's direct investment flow level comparing to other countries and looking at which industry and countries that Thai people/business prefer to invest most during the specific of time. Lastly, is to study the benefits and efficiencies of outward flow direct investment (TDI) whether this activity really help the country more competitive and encourage the potential growth in long term by operating a risk diversification, maintaining, and expanding market share, seeking cheaper law materials and resources as well as promoting technology advancement or not.

This paper is organized into five further sections. Section 2 summarizes the previous an empirical and theoretical evidence. Section 3 build up a conceptual & empirical framework. Section 4 data analysis. Section 5 estimation result. Section 6 draw the main conclusions and policy implication.

2.Literature review

In Eclectic Paradigm theory or OIL framework (Dunning,1977) states that there are three main motives of FDI comprised of Ownership Advantage(O) , Internalization Advantage(I) ,and Location Advantage(L) . The Ownership Advantage(O) is the competitive advantage that firm own both tangible and intangible asset compare to other firms. Next, Internalization Advantage(I) means the firm use their own core competencies to make them more compatitive by operting a diredt investment rather than licening or selling the technology to other firm.Last, Location Advantage(L) is the competitiveness for country's destination in term of location such as, resouces quality, labor skill, transportation expenditure, political stability,etc. Therefore ,if the firm lack all these comparative advantage,

firms will not go invest in abroad but will instead use other strategies to enter into the foreign markets, such as licensing or exporting. The theory related to this research topic since it shows that the country that want to gain a competitive advantage need to meet three things as mentioned above. Thus, this helps for better analysis on the pattern of TDI when considering all the OLI framework of the host country.

The theory of competitive advantage (Porter, 1990) states that each countries has to know their own industry's strength, weakness, opportunity, and threat comparing to the competitors. Therefore, to achieve an international competitive success need to consider four main important things by using the Diamon model which comprises of factor conditions, demand condition, related and supporting industries, and firm strategy and rivalry.First, factor condition related to the nation's position in factor of production such as skilled labor, land,infrastructure, and national resources ,all these are considerd as cost of the firm. Second, demand condition means how much the market share owned by firm or the demand of consumer regards to the industry's product.Third, related and supported industries means the business need to consider all the related party within firm's supply chain such as the relationship between firm and supplier both domestic and international.Forth, firm strategy and rivalry means how firm can apply their strategy and structure with current business situation, which help the firm has more competitive advantage compare to the competitors. This theory helps to knows how to analyze the country's competitiveness by looking at industry's strength, weakness, opportunity, and threat. Therefore, the country that has high competitive advantage will attract more FDI, finally become an outward direct investment player (Dunning ,1981).

Ismail & Yussof (2003), researched on the competitiveness of labor market and foreign direct investment in Malaysia, Thailand, and Philippines.This article try to study whether the labor market competitivesness affected to the foreign direct investment (FDI) inflow in to Malaysia, Thailand and Philippines or not.This analysis applied the ordinary least sqaure (OLS) model (data from 1985 to 1999) and all variables are in the natural logarithms.The FDI, GDP,export,import and interest rate gathered from the International Financial Statistics Yearbook (IFSY) and International Monetary Fund (IMF).Moreover, the manufacturing sector wage and labor force gathered from The World Development Indicators,World Bank,Key Indicators of Developing Asian and Pacific Countries and the IFSY. Furthermore, number of professional ,techical, administrative and managerial workers obtained from the Yearbook of Labour Statistics and International Labour Office (ILO).Next, the R&D expenditure comes from the Statistical Yearbook, UNESCO ,World Development Indicators and World Bank. The main result of this paper found that the

manufacturing wage rate has a positive impact on FDI flows to Malaysia﹙at 10% level﹚ while create an insignificant negative impact to Thailad and Philippines.Interestingly, the size of labour force has a significant positive impact to FDI in Thailand while the number of professional and specialized workers create such negative impact to FDI in Malaysia, Thailand, and Philippines.This rearch is very useful because the rearch tends to focus on how labor market such as wage and professional&technical workers﹙high skill worker﹚affected to FDI. Therefore, with the result mentioned above helps to knows that the increasing in wage rate and the number of professional& specialized workers create a negative impact to FDI in Thailand.

Kyrkilis & Pantelidis﹙2003﹚, conducted the research on the macroeconomic factors that determined outward FDI.The main objective of this paper is to identify the main determinants of outward FDI for five European Union﹙EU﹚members and non-European Union countries.This rearch applied the Phillips-Perron unit root test method to deal with time series data for each country seperately with an annual basis.The source of data comes from five European Union﹙UK,France,German, Netherlands,and Italy﹚and four non-European Union﹙Argentina, Brazil, the Republic of Korea, Singapore﹚during year 1977 – 1997. The FDI, real GNP , exchange rate, interest rate, export and import variables gathered from IMF.The main source of technology and human capital variables for EU countries comes from OECD Main Science and Technology Indicators while for non-EU countries comes from the United Nation Statistical Yearbook. The main result of this paper is that the real GNP is the most important variable that determine the outward FDI especially with European Union members. Moreover, the exchange rate is also one of another factor that influence outward FDI but in some case is not directly connected with outward FDI in France, Brazil and Singapore.Interestingly, the EU members are more specialise in human capital intensive than non-EU countries while the non-EU countries are specialise in technology intensive.This research helps to knows what factor is the most significant to outward FDI as well as better unstand the result of the determinant of outward FDI will difference in each country regarding to the country's characteristics.

Akkarakul, Paitoonpong ,and sukaruji﹙2005﹚researched on the minimum wage-fixing system in Thailand.This study tends to focus the analysis on the minimum wage system in Thailand .This research applied a descriptive method using quantitative data between year 1998-2005. The main data and sources are the minimum wage rate in Thailand, Minimum Wages in Bangkok Metropolitan Area (BMA), and Minimum Wage-fixing System in Thailand gathered from TDRI, Thailand Economic Information Kit, and Thailand Development Research Institute. Moreover,the result of this study found that the current minimum wage system has a few problem. First, the Provincial Sub-committee on Minimum Wage﹙PSMW﹚is biased since it weakens the power of worker but rather favor to the employers , the reason is because at the provincial level there is a small number of unions compare

to the national level.Second, the appointment of representative of worker in PSMW is not transparent. Third, the PSMW does not have an authority to determine the minimum wage in provincial. More importantly, since the objective of the increasing in minimum wage is for unskilled labor but the government still does not have a strong or clear policy to protect those workers as Thailand has an influx of immigrant worker from neighboring countries. The research is useful because it focuses on the structure and how Thailand set up a minimum wage that really helps when analyzing the trend and pattern of Thailand's minimum wage which is one of most important independent variable in this study.

Wee（2007）, conducted a research question on the determinant of Thai enterprises regards to outward foreign direct investment. This article try to analyze the main drive, the impact on the competitiveness of Thai enterprise ,policy framework, measurement of institutional support ,and the obstacles regarding to Thailand outward FDI.The descriptive method using quantitative data was applied in this paper.The main data in this research（during 1980-2005）are OFDI stock in Thailand and emerging economices,M&A sales by Thai enterprise abroad, Thai Overseas Development Assistance（ODA）qualified loans which gathred from UNCTAD, Bank of Thailand（BOT）, M&A database,and Ministry of Foreign Affairs of Thailand and United Nations Country Team in Thailand.The conclusion of this study are as follows, first, the desire to grow for market expanding and channels distributing are the main drive for Thai outward FDI.Second, the outward FDI is not always create a competitivess to the firm as their might have some unexpeted situtaions occur such as during the financial crisis which means some firm has to sales their asset abroad due to the excessive debt obligation regards to high currency fluctuation.Third, the main obstacles to Thai FDI comes from the difficulties of policies and regulations in the host countries which lack of indepth information on host country markets, a few Thai government incentive support Thai firm to invest overeas, and lack of skilled human resouce to work abroad.Fourth, there are many institutions including government that support Thai OFDI such as the Board of Investment（BOI）, EXIM Bank, Ministry of Finance（MOF）,etc. For example, on 17 August 2004, the government was approved a tax liability waived for Thai companies regards to the repatriation of profit from aborad. The reseach quite useful to this topic since the result point out on skilled human resouce has an affect to Thai OFDI as well as focusing on the main foctors that drives Thai OFDI which can helps for further model development.

Wailerdsak（2008）, conducted the research on the impact of the Association of South East Asian Nations（ASEAN）on human resource management and labor market in Thailand.Since Thailand has to prepared for entering as a part of ASEAN Economic Community（AEC）in 2015 then the development of human resouce has been the first topic that this reseach mainly focus. Moreover, this paper applied a descriptive method by using quantitative data during year 2000-2009. The data are

the employment by major economic sector, output per worker in ASEAN compare to China and India, and immigration and emigration in ASEAN which gathered from the International Labour Organization (ILO) and International Orgaization for Migration (IOM). The main results are first, the output per worker in ASEAN is lower than China but still higher than India and Thailand is in the third rank in ASEAN countries followed Singapore and Malaysia. Second, while export competitiveness is important for futher growth, Thailand has to focus not only pursuing a low cost labor but rather focus on the produticvity improvement such as invest in skill, technology, and education. Third, since AEC has become one of the motivation for Thai company to invest abroad . In the future, Thai Multinational Enterprise (MNE) has to accept a diversity of human resource with owing more inflow of ASEAN staffs as well as sending the executives to work abroad.This research is useful because it points out that the low cost of labor alone will not make the country's export competitive therefore, the country should focus more on labor skill and productivity improvement.Morover, the research also mentioned about the classification between skill and unskill labor, which helps this study better classify these types of labor.

Cheung & Qian (2009), researched on the outward direct investment of China.The main objective of this research is to focus on the determinants of China's outward direct investment (ODI) for both developed and developing countries. This paper used the feasible generalized least square procedure method with 31 observation countries (developing countries equal to 21, developed countries equal to 10) during year 1992-2006.The main data and sources in this research are ODI of home country in logs gathered from Editorial Broad of the Almanac of China's Foreign Economic Relations&Trade, ratio of host country's nominal GDP gathered from World Bank , ratio per capita GDP of host country was gathered from World Bank, real GDP growth rate of host country gathered from World Bank , political risk of host country gathered from The international Country Risk Guide, ratio of average annual wage of host country gathered from the UN International Labor Organization, Geneva and International Financial Statistics ,etc. Moreover, the result of this paper can divided into two parts. The first part is about factors that influence ODI for developing countries , which can conclude that for the country GDP, real per capita GDP (RGDP),and real GDP (GDPG) of host country have a negative insignificantly relationship to ODI while the wage and raw material variable have a significant impact to ODI.This means that China will invest in developing countries because of low cost seeking reason not for the market seeking reason.The second part will be the result of factors that affected to ODI for developed countries which is quite difference from developing countries.First, the GDP has a positive relationship to ODI while the RGDP has a significant and GDPG has insignificant impact to ODI. Furthermore, both wage and raw material variables are significantly positive to ODI. All these can conclude that China go invest in developed country because of the advance technology and management know how seeking rather than the low cost

seeking reason.This reseach is related to the topic since it's point out on the factors that influence the outward direct investment (in this case is China) to both developing and developed countries which helps for better undertand about the trends and pattern, resulting to a deeper analysis when applying for Thai context.

Boonprakaikawe and Cheewatrakoolpong (2015), had a research question regarding to the factors that influence the outward foreign direct investment in Thailand compared to Malaysia and Singapore. The objective of this paper is to study why there is a low level of outward FDI in Thailand as well as analyzing factors that explain the low level of Thai OFDI compared to Malaysia and Singapore. This research applied two methods which are panel regression and Oaxaca-Blinder decomposition method. First, panel regression method used to analyze factors that influence OFDI of Thailand to CLMV countries. Second, Oaxaca-Blinder decomposition method used to study factors determining the difference between OFDI of Thailand compare to Malaysia and Singapore. Moreover, the data that this research used are OFDI (Thailand, Singapore, and Malaysia), import, export, GDP, inflation, real exchange rate, labor force, and total factor productivity during 1980 - 2012. The main source of data are Bank of Thailand, Global Trade Atlas, and World Bank. Then, after applied the above method, found that GDP is the most important factor that influence outward FDI of Thailand to CLMV countries. Moreover, the gap between two countries' income level (335.11 percent) and trade openness (20.69 percent) are the most explanatory variables that impact to the difference between outward FDI of Thailand and Singapore. Furthermore, the difference of FDI promotion policy (78.03 percent) and national income level (22.75 percent) are also the variables that affected to the difference between outward FDI of Thailand and Malaysia. The research helps this study better understand what factors can influence Thai OFDI and knows that the income level variable is one of the most important variables which can affected to the outward FDI in Thailand, Malaysia, and Singapore.

Almsafir & Al-Shawaf (2016), studied on economic globalization regards to the role of outward FDI and inward FDI with an economic growth in the case of Malaysia. The main objective of this study is to focus on inward and outward FDI in Malaysia and determine the relationship with economic growth. This research used an annual data during 1984-2013 by applied an autoregressive distributed lag (ARDL) model which all variables are transformed into natural logarithms. The data consist of inward FDI, outward FDI, and the economic growth where state as GDP gathered from UNCTAD and World Development Indicator (WDI) Online. The main result of this study can divide into short-run and long-run. Firstly, GDP has a direct relationship to both outward FDI and inward FDI, while the outward FDI also has a relationship with inward FDI which the error term of coefficient is equal 14 percent, meaning in the short run relationship of inward FDI and GDP will move to the long

run equilibrium by 7 years. Secondly, the inward FDI has positive relationship to GDP while the outward FDI creates indirect relationship to GDP in long-run. Therefore, Malaysian economy will benefit from inward FDI in long-run as this can helps to boost up country's GDP and lead to a further increase in outward FDI at the end. This research paper relevant to the topic in term of both inward and outward FDI view. Especially, for the outward FDI that has no direct relationship to GDP in the long-run in the first place but still affected GDP at the end.

Annonjarn and Subhanij (2016), conducted a reseach requestion regards to the horizontal ,vertical and conglomerate on outward FDI,in case of Thailand.The paper tends to focus on the distribution of Thailand OFDI in each types of investment strategy as well as analyze the trends, patterns and determine the OFDI by using macro economic factors and firm's FX transaction during 2005-2013.Moreover,this research also used the methothodology calls an augmented gravity model which is widely used for an international trade. By using this model, the authors can be able to assess whether what macroeconomic factors can drive Thai firms' investment abroad. The main source of data for OFDI, horizontal, vertical, conglomerate outflow, wage, GDP in home country and FX was gathered from the Bank of Thailand. While, the GDP in host country came from IMF World Economic Outlook Data Base. Furthermore, the main result of this paper found that Thai OFDI are driven mainly by both home and host country's GDP. Moreover, the vertical investment is driven by natural resource, horizontal investment is driven by the desire to gain market share, and conglomerate is driven by market size or relative factor. The article is relevant to this research topic because it tries to explore the factors that can influence OFDI as well as analyze the OFDI pattern which can help the regulator for further policy development.

Mohanty & Sethi (2019), had a research question on human capital, economic growth, and outward FDI in BRIC countries. This paper aims to examine the impact of outward FDI on human capital and other economic factors of BRIC counties (China, India, Russia, and Brazil) both short run and long run. The study uses OLS pooled regression technique with 33 years (panel data from year 1985 to 2017) for BRICS countries. The data variables are outward FDI, GDP, Gross capital formation (GCF), school enrolment, trade, real effective exchange rate, and consumer price index (CPI) gathered from UNCTAD and World Development Indicator (WDI) .The conclusion found that by using a long panel data series can summarize as follows, first, according to VECM results indicate that there is a short run relationship among the variables and shows a strong positive effect to OFDI on economic growth in long run however, the relationship between OFDI and human capital occur in the short run only. Second, the pairwise panel causality test found that there is a relationship of outward FDI and human capital, means that if there is an improvement for skill labor

will resulting to an increase or expand the outward investment in abroad. Moreover, this research also suggest that the policy maker should consider the important of OFDI outflow in the process of economic development regards to the improvement in term of quality of education. This research quite similar to the research topic because it uses the human capital (skill labor) as an independent variable that affects to outward FDI (dependent variable). More importantly, the result also helps further analysis regarding to the relationship of human capital and OFDI on both short run and long run.

3.Conceptual & Empirical Framework

The widely used economic theory to explain outward foreign direct investment position of countries is an Eclectic Paradigm theory or OIL framework (Dunning,1977, comprise of Ownership Advantage (O), Internalization Advantage(I) ,and Location Advantage(L). This theory was developed to suit with the economic changes and come up with the recent theory regards to four main motivated to invest abroad or theory of competitive advantage (Porter, 1990) which are:

Figure 6 : The determining factors of Porter's diamond model
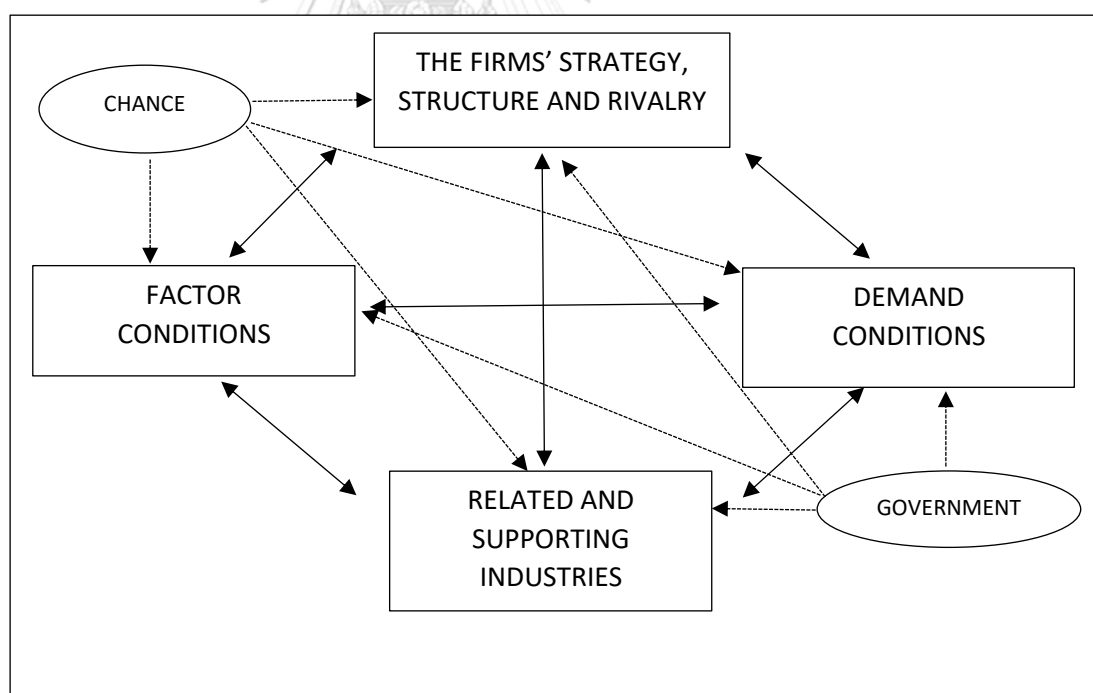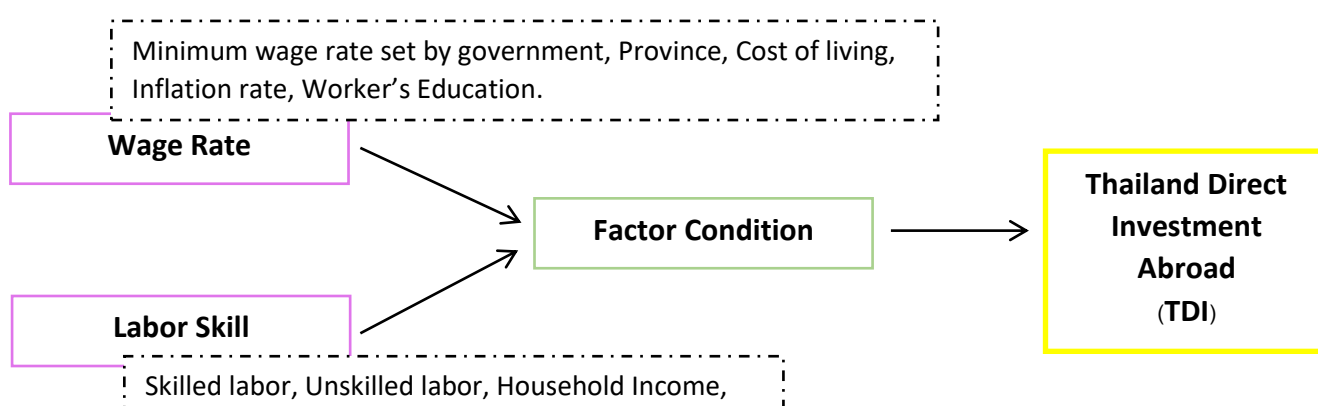

Source : Sakratanaumporn, 2015

This model (figure 6) uses to analyze the comparative advantage of the industry or country by considering four main factors which are the factor of conditions, demand condition, related and supporting industries, and firm strategy, structure and rivalry. These four factors are affected with each other, meaning that

the change in one factor will impact the other three factors. First, the factor of conditions related to human resource, physical resource, natural resource, climate, geographic location, low skilled labor, capital, and advance factor of production, all these are considered as cost of the firm. Moreover, for the advance factor of production comprises of a modern infrastructure and high skilled labor. In the past, the FDI motivation is to find a cheaper labor cost but nowadays, seeking a skilled labor is one of the most important factors regards to investment decision abroad (BOT FAQ,2012) . Second is the demand condition, this mainly involve with the innovation and competitive advantage of the investor's market will increase the ability to access foreign market when comparing to the competitors. At the same time, the country who already has a large market share will attract more FDI from oversea. Third, the related and supporting industries means the industry or country that has many related industries and suppliers will encourage more MNEs to invest in the industry that they rely on, especially with the service industries and supplier industries. The fourth is firm strategy, structure and rivalry, this factor related to the competition within the country causing firms operate a unique corporate culture to complete with each other. Therefore, with the extremely competitive in domestic will affect to the innovation development and market seeking internationally. Moreover, there are another two important factors that also affected to industry or country's competitive advantage which are the government and chance. The government factor can create an impact to the competitiveness both positive and negative way by many channels such as, setting up a regulations or policies. Last is the chance factors, means that any situation or events can occur without industry or country's control such as, war, pandemic, political crisis, etc.

Many researchers such as Boonprakaikawe and Cheewatrakoolpong (2015) found that an income variable is one of the most important variables that affected to the outward FDI in Thailand, Malaysia, and Singapore. Interestingly, Cheung & Qian (2009), conducted researched on The outward direct investment in China, found that China will invest in developing countries because of the low cost seeking not for the market seeking while, goes invest in developed country because of the advance technology and management know how seeking rather than the low-cost seeking reason. Therefore, as theoretical mention above, this study can apply into Thai context as follows:

3.1 Conceptual Framework

Figure 7 : The Conceptual Framework – Moving from theory to proposition

Minimum wage rate set by government, Province, Cost of living, Inflation rate, Worker's Education.

Wage Rate

Factor Condition

Thailand Direct Investment Abroad

(**TDI**)

Labor Skill

Skilled labor, Unskilled labor, Household Income,

The above conceptual framework focused on two main variables which are labor skill and wage rate that related to the factor condition (factors of diamond model by Porter) resulting to affected Thailand direct investment (TDI) at the end. For the first variable is the labor skill that was influenced by skilled labor, unskilled labor, the ability to support tuition fees (household income), job training, and government subsidy regards to education support. Next, the minimum wage rate set by the government, difference provinces, cost of living, inflation rate, and worker's education are the key factors that affected on how to set wage rate in Thailand which consider as a second main variable in this conceptual framework. Since, this research will mainly focus on how the minimum wage and labor skill affected Thailand Direct Investment Abroad (TDI). Therefore, the details of conceptual framework are as follows:

3.2 Empirical Framework

Figure 8 : The Conceptual Framework – Moving from proposition to conceptual framework
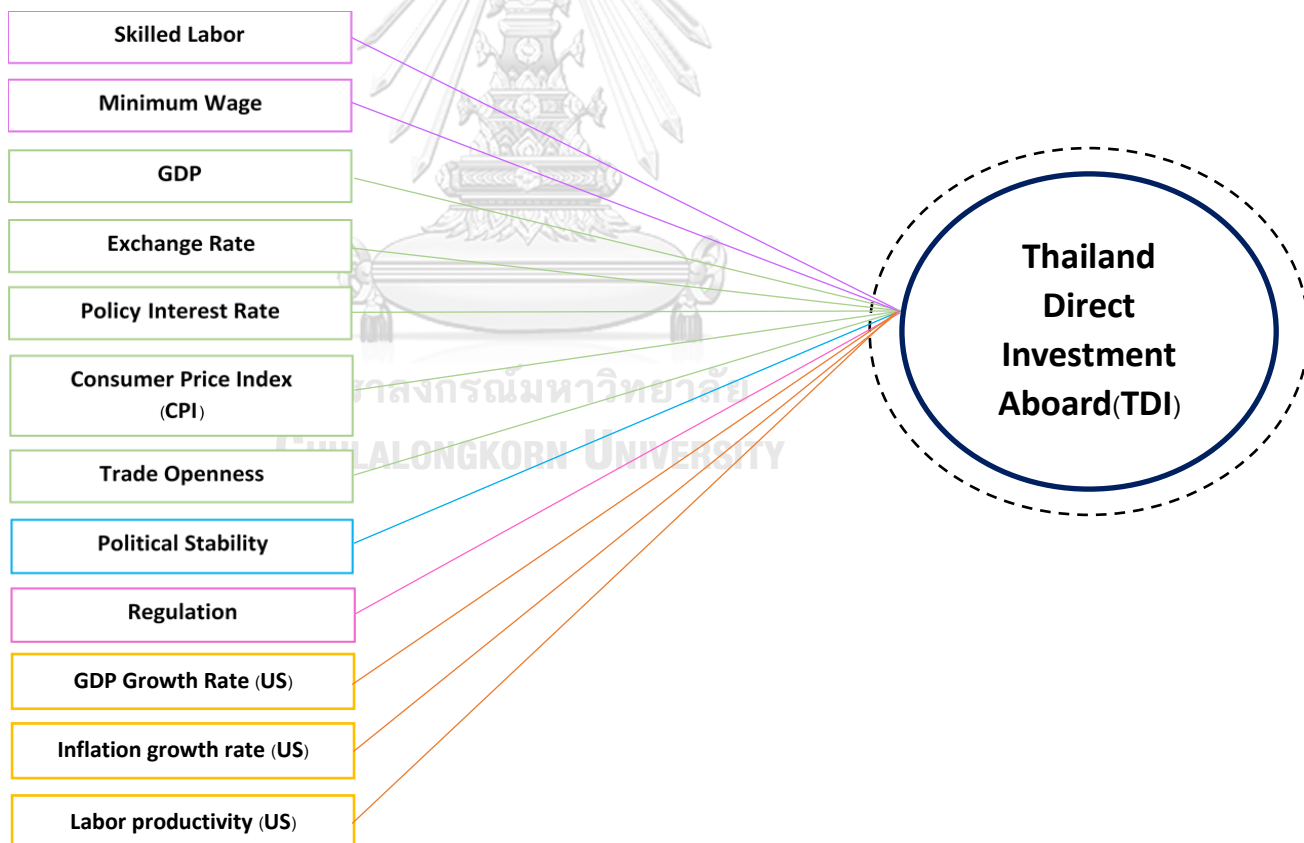
The conceptual framework aforementioned (figure 8) involve the effect of skilled labor and minimum wage towards Thailand Direct Investment (TDI). According to Competitive Advantage Theory, the cost of firm and seeking skilled labor are one of the most important factors regards to investment decision abroad.

However, apart from skilled labor and minimum wage, there are many independent variables that can influence TDI comprise of both economic and non-economic factors. The economic factors are first, Gross Domestic Product (GDP) is the level of the output produces in an economy which the inflation rate is unchanged (OECD,2014). Second, the exchange rate variable means when the home country currency appreciates, there will be a lower capital requirement resulting to more investment in abroad (Aliber ,1970). Third, the policy interest rate, is the rate determined by the Central Bank. Thus, the adjustment of policy interest rate will impact to the interest rate of money market and commercial bank. Therefore, when the policy interest rate is lower, there will be more economic activities stimulation and higher inflation (BOT,2021). Forth, is the variable that measure the aggregate overall retail price level of product and service in an economy in this conceptual framework states as consumer price index (CPI). Fifth, the degree of trade openness comes from country's import plus export and divided by the GDP (Tiandum and singto,2014). This variable uses to measure how much the country is open for trading of goods and services. Furthermore, there are two main non-economic variables which are the political stability in an economy and the regulation. Then, the country that has high political stability will generate more outward direct investment (Anwar, Hasse, Rabbi, and Fazli,2008). Moreover, for the regulation variable will be considered as another independent variable since the relaxation of regulation regards to the outward investment of Thailand will create an impact to the TDI. Apart from Thailand variable (internal variable) mentioned above, this study also focusing on other variables that can influence the TDI (external variable) of the host country, in this research is United State (US), i.e., the GDP growth rate, inflation growth rate, and labor productivity (real GDP per hour work). The reason that this research considering US factors because US is one of the most powerful country in the world, which having 21.43 percent of share of the world output or GDP while other countries such as China, Japan or Germany have the share of world output only 16.34, 5.79, and 4.4 percent (World Bank,2019). Moreover, US is also being the first top FDI inflows country (host destination) with 246 billion of dollars comparing to China and Singapore that only has FDI inflow around 141 and 92 billion of dollars in 2019 (UNCTAD, WIR 2020).

There are many researches used ordinary least square (OLS) to determine the factors that influence the outward direct investment. Therefore, this research is applied the OLS method to determine the relationship of how minimum rate, labor skill, other factors affected Thailand Direct Investment Abroad (TDI) during year 2010-2019. Thus, the model function can be summarized as follows:

$$TDI = F(MW, LS, GDP, EXR, PIR, CPI, TO, PO, REG, GDPU, INU, LPU)$$
$$\quad\quad\quad + \quad - \quad + \quad + \quad - \quad + \quad + \quad + \quad + \quad + \quad + \quad +$$

The left-hand side of this model is a dependent variable which state as Thailand Direct Investment (TDI). For the independent variables on the right-hand side are comprise of first, an Average Minimum Wage in Thailand (MW), this variable has a positive relationship to TDI because the minimum wage is considered as cost of the firm. Then, with the low-cost seeking purpose will lead to an outward direct investment (Porter, 1990). Second is the Number of Labors Received Skill Development in Thailand (LS), this variable has a negative relationship to the TDI since seeking labor skilled is of the reason regards to the investment decision abroad (Porter, 1990). Third, the model also includes Gross Domestic Product in Thailand (GDP) as another independent variable, which create a positive impact to TDI. The reason is because with a larger market size, firms can reach an economy of scale by having a specialization (Kyrkilis & Pantelidis ,2003) and having a comparative advantage. Hence, when home country has an increasing in income, Thai companies will invest more in abroad (Annonjarn & Subhanij ,2016). Forth, the Average Exchange Rate in Thailand (EXR) also has a positive relationship to the outward direct investment of Thailand since when the country currency is appreciated. Then, there will be more outward direct investment activity (Froot & Stein,1991). Fifth, there is a negative relation between TDI and Average Policy Interest Rate in Thailand (PIR). The reason is because when the country's interest rate is decrease, there will be more investment abroad activity (Wei & Alon ,2010). Sixth, the Consumer Price Index in Thailand (CPI), this variable is use to measure the aggregate overall retail price level of product and service in an economy. Therefore, the higher CPI creates positive relationship to outward direct investment (Mohanty & Sethi ,2019). Seventh, for the Trade Openness Index (TO), is approximated by the total export and import over the GDP in Thailand. This variable also has a positive relationship with TDI since the degree of country's liberalisation can motivate the outward direct investment (Kyrkilis & Pantelidis ,2003). Eighth, the Political stability in Thailand (PO), in this case state as dummy variable. The value of 1 means there is no such a political situation occurs in that period, while the value of 0 means there is an election or political reform in that period.This variable has a positive relationship to TDI, the reason is because when the country that has high political stability will generate more outward direct investment abroad (Anwar, Hasse, Rabbi, and Fazli,2008).Next, The relaxation of regulation in Thailand (REG), in this case also state as a dummy variable. The value of 1 means there is a relaxation regards to the outward investment during the period, while 0 means there is no relaxation during the period. Then, the more regulation support will motivate more investment outside Thailand (Wee ,2007).Moreover, the market demand and inflation of country's destination will influence the outward direct invest (Boonprakaikawe & Cheewatrakoolpong , 2015). Then, the growth rate of real GDP in United State

(GDPU) and Inflation growth rate in United State (INU) create a positive relationship to TDI.Last, the Labor productivity (real GDP per hour work) in United State (LPU) has a positive relationship to TDI since there is an evidence found that the labor productivity in host country will create a positive impact to outward FDI from home country (Driffield and Chiang ,2009).

Then:

The regression model are as follows

$$
\begin{aligned}
TDI_t = {} & \alpha_0 + \beta_1\, MW_t - \beta_2\, LS_t + \beta_3\, GDP_t + \beta_4\, EXR_t - \beta_5\, PIR_t + \\
& \beta_6 CPI_t + \beta_7\, TO_t + \beta_8\, PO_t + \beta_9\, REG_t + \beta_{10}\, GDPU_t + \\
& \beta_{11} INU_t + \beta_{12} LPU_t + \varepsilon_t
\end{aligned}
$$

(1)

$$
\begin{aligned}
ln\,(TDI_t) = {} & \alpha_0 + \beta_1\, ln(\,MW_t) - \beta_2\, ln\,(LS_t) + \beta_3\, ln\,(GDP_t) + \beta_4\, ln \\
& (EXR_t) - \beta_5\, PIR_t + \beta_6 CPI_t + \beta_7\, ln(TO_t) + \beta_8\, PO_t + \\
& \beta_9\, REG_t + \beta_{10}\, GDPU_t + \beta_{11} INU_t + \beta_{12} LPU_t + \varepsilon_t
\end{aligned}
$$

(2)

The above two models were estimated by the ordinary least square (OLS) to determined factors that can influence TDI during year 2010-2019. Therefore, to smooth, reduce the variation and be able to describe the coefficient in term of percentage. The natural logarithms were applied in model (2).

4.Data Analysis

4.1 Data collection

This research used time series data from year 2010 - 2019 in quarterly basis from many sources which provided publicly. The Data of Thailand Direct Investment (TDI), Average Minimum Wage (MW), Average Exchange Rate (ER), Average Policy Interest Rate (PIR), Trade Openness Index (TO), and Regulation (REG) were gathered from The Bank of Thailand (BOT). The Skilled Labor (LS) was obtained from the Department of Skill Development while the Gross Domestic Product (GDP) obtained from Office of the National Economic and Social Development. Moreover, the Consumer Price Index (CPI) was gathered from Ministry of Commerce and Bank of Thailand. Furthermore, the Political Stability of the country were gathered the information from the Office of the Election Commission and United Nations News. For the data of the growth rate of real GDP in United State (GDPU), Inflation growth

rate in United State (INU), Labor productivity (real GDP per hour work) in United State (LPU) were collected from The Organisation for Economic Co-Operation and Development (OECD.stat) . Therefore, the details of data variable types, symbols, descriptions, units, signs and sources were explained and summarized in table 1 as below, in order to measure how minimum wage and labor skill affected Thailand Direct Investment Abroad (TDI).

Table 1: Description of data variable types, symbols, descriptions, units, signs, and sources

Variable Types	Symbol	Description	Unit(s)	Sign	Source
Dependent variable	TDI	Thailand Direct Investment	Million Baht		Bank of Thailand (BOT)
Independent variable	MW	Average Minimum Wage	(Baht per month / person)	Positive	Bank of Thailand (BOT)
Independent variable	LS	Number of Labors Received Skill Development in Thailand	Person	Negative	Department of Skill Development
Independent variable	GDP	Gross Domestic Product	Million Baht	Positive	Office of the National Economic and Social Development
Independent variable	EXR	Average Exchange Rate	(THB/USD)	Positive	Bank of Thailand (BOT)
Independent variable	PIR	Average policy Interest Rate	Percent	Negative	Bank of Thailand (BOT)
Independent variable	CPI	Consumer Price Index (Quarter on Quarter)	Percent	Positive	Bank of Thailand (BOT) / Ministry of Commerce
Independent variable	TO	Trade Openness Index[3] (Sum of export and import over GDP)	Percent	Positive	Office of the National Economic and Social Development / Bank of Thailand

---

[3] Trade Openness Index $= \frac{Export + Import}{GDP}$

Source: Tiandum and singto,2014

					(BOT)
Independent variable (Dummy)	PO	Political Stability 1 = There is no political situation occurs. 0 = There is an election or political reform.		Positive	Office of the Election Commission / United Nations News
Independent variable (Dummy)	REG	Regulation 1 = Relaxation 0 = No Relaxation		Positive	Bank of Thailand (BOT)
Independent variable	GDPU	The growth rate of real GDP in United State.	Percent	Positive	Organisation for Economic Co-Operation and Development (OECD.stat)
Independent variable	INU	Inflation growth rate in United State.	Percent	Positive	Organisation for Economic Co-Operation and Development (OECD.stat)
Independent variable	LPU	Labor productivity (real GDP per hour work) in United State.	Unit	Positive	Organisation for Economic Co-Operation and Development (OECD.stat)

After collected the data of both internal and external factors during year 2010 – 2019 in quarterly basis, the descriptive statistics in term of mean, median, standard deviation, minimum, maximum, and observations were shown in table 2. The average of Thailand direct investment (TDI) is around 631,122 million baht. However, in year 2010, the value of TDI is decrease to 56,207 million baht in quarter two. Interestingly, the maximum value of TDI reach at 958,141 million baht in quarter four of year 2013 due to high outward direct invest in manufacturing and other sector in Singapore and United State. Next, for the average minimum wage in Thailand, the statistic found that the highest average minimum wage is at 14,354 baht per month in quarter two of year 2019 while the lowest average minimum wage is at 8,743 baht per month in quarter one of year 2010. Furthermore, the

number of labors received skill development in Thailand (skill's worker) on average is around 60,627 persons which the highest number is at 174,685 persons (maximum) in quarter four of year 2012 and decrease to 20,096 persons (minimum) in quarter four of year 2019. For the gross domestic product (GDP) in Thailand on average is approximately 3,441,677 million baht, which the lowest value of GDP is 2,650,523 million baht in quarter two of year 2010 and highest value is 4,334,846 million baht in quarter four of year 2019. Apart from internal variable, the result of statistic for external variable such as GDP growth rate, inflation growth rate, and labor productivity (real GDP per hour work) in United State also shown in the below table. Such the average growth of GDP in United State is at 0.57 percent and lower to negative 0.3 percent in quarter one of year 2014. Then, higher to 1.40 percent growth rate in quarter two of year 2014.

4.2 Descriptive Statistics

Table 2 : Descriptive statistics in Mean, Median, Standard deviation, Minimum, Maximum, and observations.

Variables	Mean	Median	S.D.	Min	Max	Obs.
Dependent Variable						
Net Thailand Direct Investment (Million Baht)	631,121.73	686,110.61	207,548.54	56,206.31	958,140.67	40.00
Independent Variable (Thailand)						
Average Minimum Wage (Baht per month/person)	12,463.07	13,355.59	1,739.33	8,743.34	14,353.55	40.00
Labor Skill (Person)	60,627.33	54,257.00	30,745.96	20,096.00	174,685.00	40.00
Gross Domestic Product (Million Baht)	3,441,676.85	3,370,364.00	500,781.92	2,650,523.00	4,334,846.00	40.00
Average Policy Interests Rate (Percent)	1.98	1.68	0.63	1.25	3.41	40.00
Consumer Price Index (Percent)	0.37	0.34	0.58	-0.82	2.11	40.00
Trade Openness Index (Percent)	101.46	101.30	8.91	83.50	121.09	40.00
Average Exchange Rate (USD/THB)	32.34	32.01	1.76	29.80	35.84	40.00
Independent Variable (United State)						
GDP growth rate (Percent)	0.57	0.60	0.36	-0.30	1.40	40.00
Inflation growth rate (Percent)	1.77	1.79	0.84	-0.06	3.76	40.00
Labor productivity /real GDP per hour work (Unit)	1.00	1.00	0.02	0.96	1.04	40.00

5.Estimation Result

The estimation result regards the above hypothesis in order to examine whether the minimum wage can create a positive impact and skilled labor creates a negative impact to TDI during year 2010-2019 or not. Therefore, by applying the Ordinary Least Square (OLS) Regression method, the results were shown in table 3 and 4 as follows.

Table 3 : OLS Regression result by Gretl – Model 1 and Model 2 without natural logarithms

Ordinary Least Square (OLS) _ Without Natural Logarithms Using 40 observations		
Independent Variables	**Model 1**	**Model 2**
Intercept (constant)	4.381 (1.400)	7.729*** (3.391)
Minimum Wage	118.803*** (3.258)	152.742*** (8.059)
Labor Skill	-0.116 (-0.195)	
Gross Domestic Product	0.533** (2.616)	0.401*** (2.951)
Exchange Rate s	25438.6 (1.439)	
Policy Interest Rate	144354*** (2.785)	107270** (2.641)
Consumer Price Index	10262.8 (0.293)	
Trade Openness Index	12765.7* (1.815)	6512.95 (1.078)
Relaxation of Regulation	-39245.0 (-0.488)	
Political Stability	95815.2 (1.516)	
GDP Growth Rate in US	43744.8 (0.812)	
Labor productivity in US	-9.585*** (-2.937)	-1.1304*** (-4.393)
Inflation growth rate in US	-16832.1 (-0.562)	
Adjusted R-squared	0.811	0.808

Remark: parentheses denoted standard errors
*** significant level at 0.01 or 1 percent
** significant level at 0.05 or 5 percent
* significant level at 0.1 or 10 percent

In table 3 shows the results of two models. The result of first model shows that both average Minimum Wage (MW) and Policy Interest Rate (PIR) in Thailand are highly positive significant at 0.01 to TDI. Meaning that when the minimum wage increases by 1 baht, the amount of TDI will increase by 118.8 million baht. Moreover, the TDI will increase to 144,354 million baht if there is an increasing in average policy interest rate by 1 percent. However, there is an opposite sign from the previous literature, which comes from the fact that in the period of high interest rate, the economic is in a good condition. Therefore, when people have more income, will motivate more outward FDI in Thailand. Interestingly, Labor productivity in US (LPU) is also highly significant at 0.01 but the sign is opposite from the previous literature, this comes from the fact that even though there is an increasing trend in investing to the US from Thailand but with the increasing rate of Labor productivity in US cannot pull up the overall TDI outflow from Thailand. Moreover, the result also shows that the Gross Domestic Product (GDP) in Thailand is statistically significant at 0.05, which means when the GDP increase by 1 million baht, the amount of TDI will increase to 0.53 million baht. For the Trade Openness Index (TO) is significantly at 0.1 which imply that when there is an increasing in trade openness by 1 percent, the amount of TDI will increase around 12,766 million baht. All in all, the other independent variables such as, the Labor Skill (LS), Exchange Rate (EXR), Consumer Price Index (CPI), Relaxation of Regulation (REG), Political Stability (PO), GDP Growth Rate in US (GDPU), and Inflation growth rate in US (INU) are not significant to the TDI. In conclusion, the value of adjusted R-squared in this model is equal to 0.811, meaning that 81.1 percent that the dependent variable (TDI) can explained by all the independent variables, while the rest 18.9 percent is unexplained.

For the result of the second model by omitted all insignificant variables from model 1 found that the average Minimum Wage (MW) is still highly significant at 0.01 towards TDI. This means when there is an increasing in minimum wage by 1 baht, the outward direct invest in Thailand will reach to 152.742 million baht. Moreover, the result also shows that if the labor productivity (LPU) increases by 1 unit per hour work in the US, there will be a decreasing in overall TDI by 1.13 million baht, which is highly significant at 0.01. Interestingly, the Gross Domestic Product (GDP) in Thailand in this model is highly significant at 0.01 which means when the GDP increase by 1 million baht, the amount of TDI will increase to 0.4 million baht. Furthermore, the

result found that the Policy Interest Rate (PIR) in Thailand is statistically significant at 0.05, meaning that when an average policy interest rate increased by 1 percent, the amount of TDI will increase to 107,270 million baht. However, the Trade Openness Index (TO) variable in this model is not significant towards TDI. All in all, the value of adjusted R-squared in this model is equal to 0.808, means that around 80.8 percent, the TDI (dependent variable) can explained by all the independent variables, while the rest 19.2 percent is unexplained.

Hence, to smooth, reduce the variation and be able to describe the coefficient in term of percentage. Therefore, applying the natural logarithms in the model is required. Then, the details were shown in the table 4 as follows

Table 4 : OLS Regression result by Gretl – Model 1, Model 2 and Model 3 – with natural logarithms

Ordinary Least Square (OLS)_ With Natural Logarithms Using 40 observations			
Independent Variables	Model 1	Model 2	Model 3
Intercept (constant)	-91.764*** (-3.351)	-36.791*** (-6.980)	-28.959*** (-8.868)
Minimum Wage (ln)	3.161** (2.503)	4.416*** (11.00)	4.323*** (12.87)
Labor Skill (ln)	-0.071 (-0.570)	0.040 (0.343)	
Gross Domestic Product (ln)	4.277** (2.318)		
Exchange Rate (ln)	2.488 (0.146)	1.838 (1.533)	
Policy Interest Rate	0.624*** (4.051)	0.660*** (6.769)	0.620*** (7.605)
Consumer Price Index	0.054 (0.531)	0.077 (0.739)	
Trade Openness Index (ln)	3.113 (1.531)		
Relaxation of Regulation	-0.049 (-0.213)	-0.102 (-0.443)	
Political Stability	0.195 (1.086)	0.308* (1.747)	0.257 (1.496)
GDP Growth Rate in US	-0.003 (-0.018)	-0.194 (-1.531)	
Labor productivity in US	-12.816 (-1.560)		
Inflation growth rate in US	-0.016 (-0.189)	0.564 (0.866)	

Adjusted R-squared	0.840	0.824	0.810
Remark: parentheses denoted standard errors *** significant level at 0.01 or 1 percent ** significant level at 0.05 or 5 percent * significant level at 0.1 or 10 percent			

In table 4 shows the results of three models. The result of first model indicated that Policy Interest Rate (PIR) in Thailand is highly significant at 0.01 to TDI or this variable is the most influential factor that explain the outward direct investment of Thailand. However, there is an opposite sign from the previous literature, which comes from the fact that in the period of high interest rate, the economic is in a good condition. Therefore, when people have more income, will motivate more outward FDI in Thailand. Furthermore, an average Minimum Wage (MW) in Thailand is statistically positive significant at 0.05 which means when an average minimum wage in Thailand increased by 1 percent, the amount of TDI will increase by 3.16 percent. Moreover, it is important to note that the Gross Domestic Product (GDP) in Thailand also another variable statistically significant at 0.05 towards TDI. This imply that the outward direct invest in Thailand will reach 4.28 percent when there is an increasing in gross domestic product by 1 percent. Hence, for the other independent variables such as, the Labor Skill (LS), Exchange Rate (EXR), Consumer Price Index (CPI), Trade Openness Index (TO), Relaxation of Regulation (REG), Political Stability (PO), GDP Growth Rate in US (GDPU), Labor productivity in US (LPU), and Inflation growth rate in US (INU) are not significant to dependent variable or TDI. For the value of adjusted R-squared in this model is equal to 0.840, meaning that 84 percent that the dependent variables (TDI) can explained by all the independent variables, while the rest 16 percent is unexplained. However, after testing the multicollinearity and heteroskedasticity problem, found that this model has multicollinearity problem. This means, there is a high relationship between Minimum Wage (MW), Gross Domestic Product (GDP), Trade Openness Index (TO), and Labor productivity in US (LPU) which the value is more than 0.8.

The result of the second model by taking out all high collinearity variables, which are Gross Domestic Product (GDP), Trade Openness Index (TO), and Labor productivity in US (LPU) shows that there are two important variables highly significant toward the outward direct investment of Thailand. First is the average Minimum Wage (MW), having a highly positive significant level at 0.01 meaning that

the TDI will increased by 4.42 percent, when there is an increasing in minimum wage in Thailand by 1 percent. Second, the Policy Interest Rate (PIR) also highly positive significant at 0.01. This implies that if the policy interest rate increased by 1 percent, the outward direct investment from Thailand will increase by 0.66 percent. Surprisingly, the political stability (PO) is significant at 0.1 to the TDI in this model, which means when there is a political stability in the country, the amount of TDI will increase around 0.31 percent. Moreover, the value of adjusted R-squared in this model is equal to 0.824, means there is 82.4 percent that the dependent variable (TDI) can explained by all the independent variables and the rest 17.6 percent is unexplained. Furthermore, the insignificant variables in this model are Labor Skill (LS), Exchange Rate (EXR), Consumer Price Index (CPI), Relaxation of Regulation (REG), GDP Growth Rate in US (GDPU), and Inflation growth rate in US (INU).

For the third model is developed by omitted all insignificant variables from the second model. The result found that Minimum Wage (MW) in Thailand is highly positive significant at 0.01, meaning that when the minimum wage increased by 1 percent, the TDI will increased by 4.32 percent. Moreover, the Policy Interest Rate (PIR) also highly positive significant at 0.01. Therefore, this imply that when the policy interest rate increased by 1 percent, the outward direct invest in Thailand will also increase by 0.62 percent. However, the Political Stability (PO) variable in this model is not significant. Hence, the value of adjusted R-squared in this model is equal to 0.810, meaning 81 percent that the dependent variable (TDI) can explained by all the independent variables and the rest 19 percent is unexplained. Moreover, by using the correlation matrix to check multicollinearity problem and Breush-Pagan to test heteroskedasticity problem, found that there is no heteroskedasticity problem, which means the p-value is gather than a significant level at 0.1. All in all, there is also no multicollinearity problem occur in this model since the value is no more than 0.8.

6.Conclusion and Policy Implication

This study mainly discussed on how minimum wage and skilled labor affect to Thailand direct investment (TDI) as well as considering on other factors that can influence the TDI for both internal (Thailand) and external (US). The time series data was gathered from many public sources between year 2010-2019 in quarterly basis. Therefore, to prove that the minimum wage can create a positive impact and skilled labor create a negative impact to the outward direct investment of Thailand, then applying the OLS regression method can summarized the result are as follows. First, the minimum wage can influence and has a positive relationship to TDI while skilled labor is not significant to TDI. Second, the policy interest rate also has positive

relationship and significantly towards outward direct investment of Thailand. Third, for the other variables both internal and external variable such as Exchange Rate (EXR) , Consumer Price Index (CPI) , Trade Openness Index (TO) , Relaxation of Regulation (REG), GDP Growth Rate in US (GDPU), Labor productivity in US (LPU), and Inflation growth rate in US (INU) are not significant to dependent variable or TDI.

For policy implications of this research are first, as the result found that there is a positive relationship between minimum wage and TDI. This implies that when the government want to boost up the TDI then, there should be an increasing in minimum wage. However, the adjustment of minimum wage by government shall rely on the conditions and labor productivity in the market. Simply say that the increasing in minimum wage should increase step by step. Hence, the firms will have more time to develop, improve, and lower the cost of production as well as the employees will be able to increase their quality of production to suit with the increasing in minimum wage. Moreover, every industry in Thailand should change the mind set of being a cheap labor cost in order to maintain their product's competitiveness. But instead focusing on the value added to the products and led the increasing in minimum wage being the factor that can influence the improvement of labor's productivity and quality (Siksamat,2013) . Therefore, the country will be more comparative advantage which can lead to higher TDI at the end. Even though nowadays, the minimum wage in Thailand is quite high around 313-336 baht per day while our neighboring countries such as Cambodia, Vietnam, lao, and Myanmar have a minimum wage only 193,180,170, and 113 baht per day (Overseas Employment,2020).

Second, the research found that there is also having a positive relationship between policy interest rate and TDI. This implies that with the increasing in policy interest rate will result higher TDI at the end. Since this relationship has an opposite sign with the previous literature which comes from the fact that in the period of high interest rate, the economic is in a good condition. Then, when people have more income, will result to more outward FDI in Thailand. Moreover, with the increasing in policy interest rate may encourage more investors invest into Thailand but only in the short run. Thus, the country should promote more technology advancement and infrastructure in order attract more foreign direct investment which can help to boost up the economic growth in long term. At the end, when the country has more competitive advantage, finally will become an outward direct investment player (Dunning ,1981).

There are some obstacles in this study. First, to find the quarterly data from public source might not comfortable than the data provided in yearly basis. For example, in case of labor skill data, this data was public on the website of Ministry of Labor only 6 years historical data. Therefore, this research must seek approval from

the Department of Skill Development in order to get the quarterly data during 2010-2019. Second, when using the correlation matrix to check multicollinearity problem. There are some variables that have high correlation such as, Gross Domestic Product (GDP), Trade Openness Index (TO), and Labor productivity in US (LPU). Thus, to solve the multicollinearity problem, this research is omitted all those variables in the model. For the suggestion of further study are first, there should be more variables that use to determine Thailand direct investment both internal and external variables, which can help the result more efficient. Second, selecting the pair country to determine the pattern or behavior might be another option because this can help the researcher better understand regards to Thailand direct investment. Third, the analysis of outward direct investment from Thailand to both developing and developed countries also another implication that need to focus since this can help the researcher be able to analyze the factors, pattern, and behavior of the TDI.
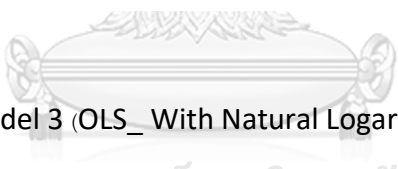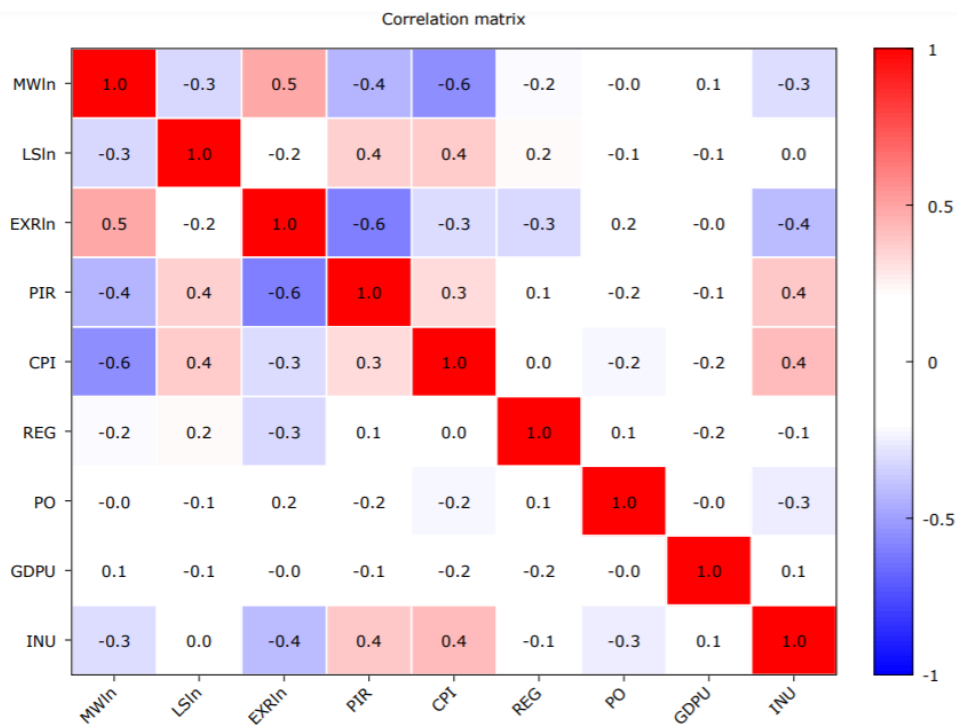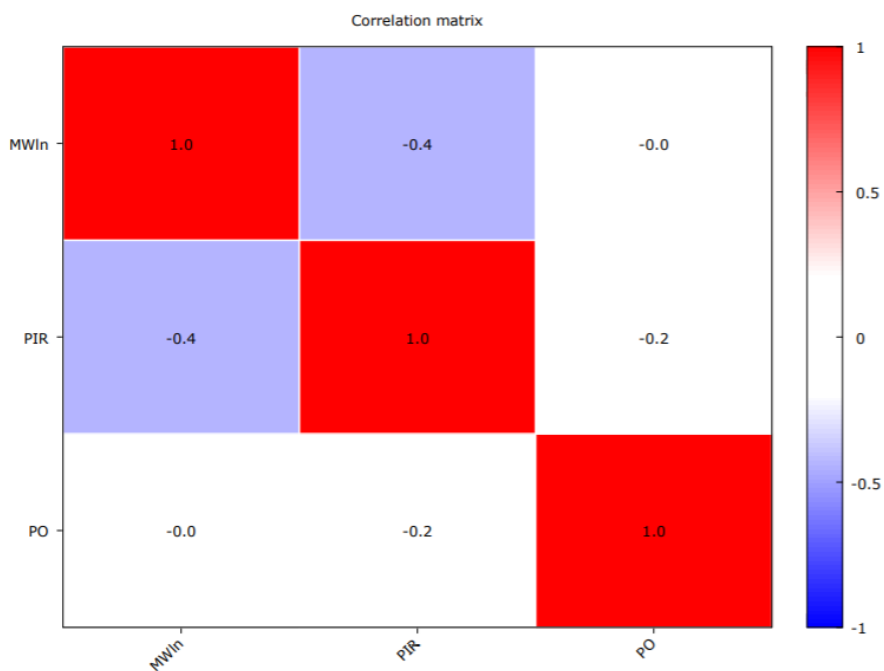
Appendix

Correlation Matrix : Model 1 (OLS_ With Natural Logarithms)

Correlation matrix
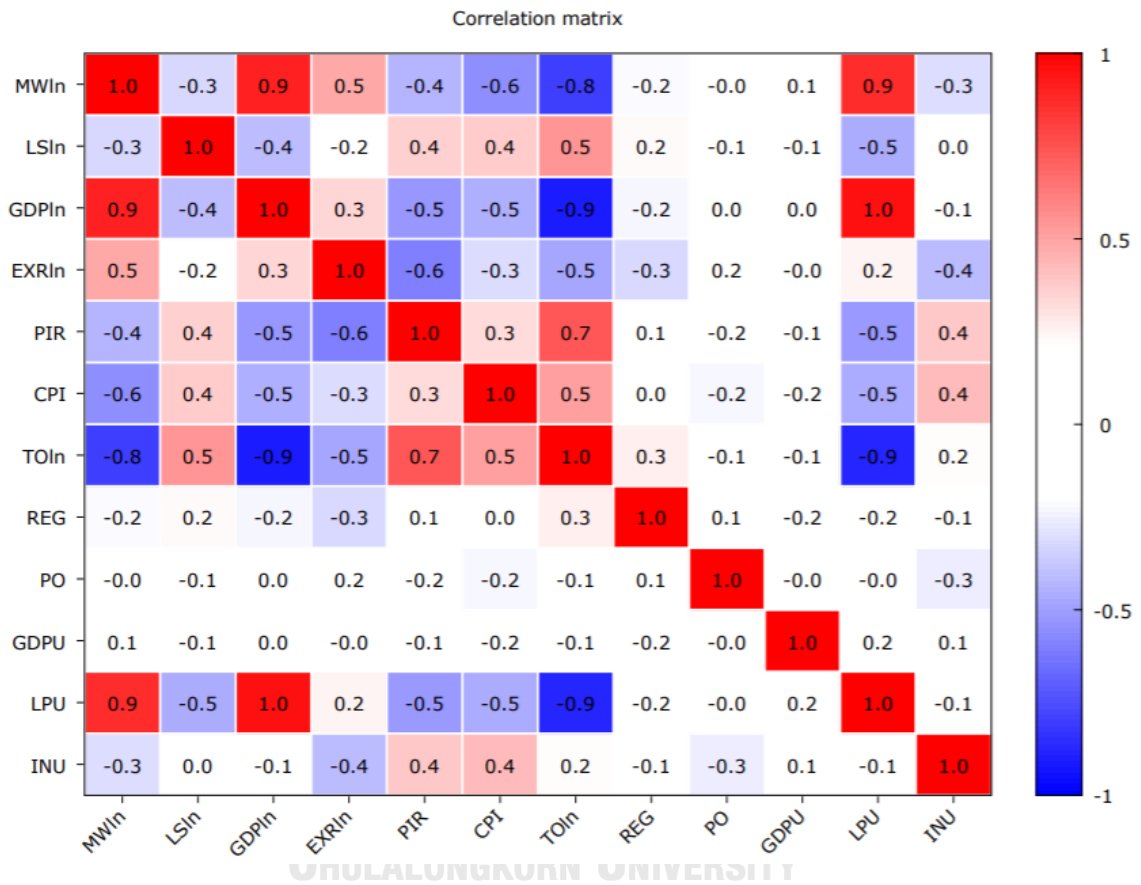
Correlation Matrix : Model 2 (OLS_ With Natural Logarithms)

Correlation matrix

Correlation Matrix : Model 3 (OLS_ With Natural Logarithms)

Correlation matrix

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