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**FOREIGN DIRECT INVESTMENT, ECONOMIC GROWTH AND
LABOUR MARKET REGULATION: EMPIRICAL EVIDENCE FROM
MALAYSIA**

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ABSTRACT

This study aims to analyze the role of labor market regulation in moderating the impact of foreign direct investment (FDI) on economic growth. It tests whether countries with high level of labor market regulation can benefit from FDI inflows more efficiently. It uses observation from Malaysia and data spanning over 2000-2015 period. Threshold regression was employed to examine the influence of labor market regulation on the impact of FDI on output growth. The result suggest that there is a threshold effect in the FDI-growth relationship such that the positive impact of FDI after Malaysia achieve a certain level of quality in term of labor market regulation. This finding is consistent with the view that host countries must have absorptive capacity in order to benefit from FDI inflows. Therefore, policymakers should weigh the cost of policies aimed at attracting FDI versus those that seek to improve the regulation of labor market.

Keywords: Foreign Direct Investment, Economic growth, Labor market, Threshold estimation and Malaysia.

1.0 Introduction

Economic growth and productivity improvement are among the most important issues in the field of economics. In the past decades, economists have attempted to find out the reason why some countries are able to grow faster than the others. Studies by Durlauf et al., (2005) and Sala-i-Martin (1997) revealed that that over than sixty different variables that contributes to the growth performance. One of them is foreign direct investment (FDI) which is believed will bring potential positive externalities on economic

growth in the host country. The International Monetary Fund (IMF) defined FDI as an international investment made to acquire lasting interest in enterprises operating outside of the economy or a flow of capital across international boundaries. The lasting interest here is a long term relationship between the direct investors with direct investment enterprise, where direct investment here implies the acquisition of at least 10 percent of the ordinary shares of an enterprise abroad. An alternative definition of FDI refers as a set of economic activities or operations that carried out in a host country by firms controlled or partly controlled by firms in some other country. IMF (1993) stated that FDI bears three broad characteristics; first it refers to a source of external financing rather than necessarily net physical investment or real activity per se; second a matter of convention FDI involves a 10 percent threshold value of ownership; thirdly FDI consists of both the initial transaction that creates investments and the direct investment enterprises aimed at maintaining, expanding or reducing investments. More specifically, FDI is defined as consisting of three broad aspects (IMF, 1993) as new foreign equity flows; intra-company debt transactions and reinvested earnings.

The inflows of FDI will be depends on the purpose of home country investment and the economic factors at the host country that can be classified in three types of FDI, which is resource seeking FDI, market seeking FDI and efficiency seeking FDI. Resource seeking FDI is motivated by the availability of natural resources in host countries like raw materials, complementary factors of production that is labor and physical infrastructure. Nunnenkamp (2002), this type of FDI inflows is important and remains a relevant source of FDI for developing countries. The second type of FDI is market seeking FDI, where the inflows will be depends on the market size, market growth and regional integration. Productivity and adjusted labor cost, sufficiently skills labor, business related services and trade policy are the factors to attract the efficiency seeking FDI in the host country. Besides the types of FDI, the inflow of FDI is seems to have a connection with host countries advantage or known as location advantage. Whereas the location advantage embodies the characteristic (economic, institutional and political) such as large domestic markets, the degree of openness of the host economy, level of development, availability of natural resources, an educated labor force, low labor cost, good institutions (the clarity of country's law, efficiency of bureaucracy and the absence of corruption), political stability, nature of exchange rate regime return on investment, corporate and other tax rates among others. Countries that have these advantages will attract the inflows of FDI.

The purpose of this study is to estimate the role of labor market in moderating the impact of FDI on economic growth in Malaysia. Whereas this purpose is relate to the third type FDI of "efficiency seeking FDI". In line with the previous discussion, labor market is one of the factors that attract inflow of FDI. Theoretically labor market had been discussed as one of the important factor on economic growth (Solow 1956; Mankiw, Romer and Weil 1992). The labor markets at host countries play an important role to adapt the inflows from FDI. These markets should able to absorb the differences in the nature of technology employed by home countries. Basically home countries have a bundle of intangible assets such as sophisticated product differentiation, organizational and management skill, and superior technology which provides some advantages to host countries and to acquire this advantage host countries need to provide and prepare a good condition of labor market. Because of that, there is growing acknowledgment among government in developing countries that labor market reforms are necessary for attracting the inflows of FDI. The best alternative is by providing the universal flexibility of labor market. Host countries with low levels of employment protection and a flexible labor market are commonly perceived to provide an environment conducive to investment, employment and structural change.

The globalization of production processes by MNC has further encouraged policymakers around the world to redesign their labor market regulations to provide greater flexibility in this market in order to adapt with the operations of MNCs. The rationale is that increased flexibility in labor market regulations will make a host country more attractive to MNCs looking at alternative locations and will result in

greater FDI. Location decision of MNCs points to the high priority attaching to labor market flexibility issues in determining the investment location. Labor market flexibility is fast becoming a key requirement for MNCs seeking to consolidate approaches to managing human capital in a global context. Firms those seeking the maximization of profit are most interested to locate in countries with more flexible labor markets, which afford firms more freedom to adjust to prevailing economic conditions. Thus the labor market flexibility will have a substantial impact on the nature of FDI and will affect the practices and behavior of inward investing organizations. Therefore, it seems reasonable to assert that, there will influx inflows of FDI to countries with flexible labor market. Labor market flexibility can be determined if the operation of market force are freely from the rigidities and or restriction of powerful actors such as a monopsony employers, trade unions and government on the labor market. Thus this would imply the elimination of all barriers to the free operation of market force and the labor market is perfectly flexible. Labor market flexibility is a central element in determining the overall performance of the nation economy and describes how labor markets function. A flexible and efficient labor market, combined with a stable macroeconomic environment, implies an economy that is fairer, more competitive and more productive. It also implies an economy that is better able to adapt to the changing economic environment. Her Majesty's Treasury³² (commonly known as HM Treasury) identify three basic 'overall' definitions of the labor market flexibility; (1) Flexibility as the speed with which the labor market can adjust in response to an economic shock; (2) A flexible labor market as one that exhibits a good equilibrium, i.e. a low structural unemployment rate; and (3) A flexible labor market as one that has institutional features that allow wages and employment to adjust smoothly and freely to equate supply with demand.

With the flexible labor market, the host country labor market will benefit more from the inflows of FDI and location of MNC's. The entry of MNC's, with the technological advantage yields the productivity differences between home country and domestic country in influencing wages. Basically, foreign firms will pay the wages 7 percent higher than industry average and as the advantage owing the productivity differences (Driffield 1996). On the other side, domestic firms will get the technology which may increase the productivity of skilled workers. In the mean time, we can say that the inflows of FDI will influence economic growth to host country and provides the important link between technology and economic growth. By providing flexible labor market, the inflows of investment may bring with it exposure to new technologies and the possibility of technological spillovers to domestic industry (Haskel et al 2002). MNC operations in the host country can result in technology spillovers from FDI whereby domestic firms adopt superior MNC technology which enables them to improve their productivity. Technology spillovers thereby generate a positive externality that should allow the host country to enhance its long-run growth rate. The primary interests and motive to attract FDI especially policy makers in developing and transition economies is to obtain new and advanced technology from developed countries or MNC's with the purpose to establish domestic innovation capacity, besides expecting FDI inflows to bring much-needed capital marketing techniques and management skills.

2.0 Review of Literatures

The relationship between Foreign Direct Investment (FDI) and economic growth has been an interested issue for a period of ten years. There are numerous studies in FDI promoting economy growth (i.e De Mello (1999), Chadee et al., (1997) ,Nair-Reichert and Weinhold (2001), Freckleton, Wright and Craigwell, (2012) and Iqbal, Ahmad, Haider and Anwar (2014). Overall study the significant of FDI and growth on particular countries. Study on South Asian Association for regional cooperation (SAARC) is an organization of south Asian nation by Qaiser Abbas, Salman Akbar, Ali Shan Nasir and Ullah (2011) for a sample of SAARC countries for year 2001 to 2010 shows that is a positive and significant relationship between GDP and FDI while an insignificant relationship between GDP and inflation.

³² Her Majesty's Treasury (HM Treasury) is the United Kingdom's economics and finance ministry.

Furthermore Agrawal & Khan (2011) found China's growth is more affected by FDI, than India's growth in a panel of 2 countries over the period 1993 – 2009. As well as Khder Aga (2014) finds that the effects of FDI- human capital and FDI-export indicate that the transfer of high technology and knowledge has an adverse impact on South Korean economic growth. Study by Borensztein et al., (1998) developed a research of 69 developing countries over two time periods 1970-1979 and 1980-1989 confirms that FDI contributes towards the economies of the less developed countries, if they have the capabilities to absorb advanced technologies. However Ying and Riming (2008) found new evidences that export led growth (ELG) and FDI-led growth with data of 28 regions in China for 1994-2005 shows simulation reveals that with foreign trade and FDI scale varying, marginal GDP in different Chinese regions is positive. Alfaro et al. (2004) examine the links among FDI, financial markets and economic growth using cross-country sample of 71 developing and developed countries for the period 1975-1995 suggests that FDI plays an important role in contributing to economic growth but the level of development of local financial markets is crucial for these positive effects to be realised.

By analysed on the data of 6 emerging countries of China, India, Mexico, Malaysia, Pakistan and Thailand for the period of 1970-2005, Miankhel et al., (2009) claimed that FDI drives the economic growth of India while exports drive the economic growth of Pakistan and bidirectional causality between GDP and FDI in Thailand while no causal relationship in Malaysia among East Asian countries. The significant contribution of FDI to economic growth in the developing countries has been highlighted by Nair-Reichert and Weinhold (2001) and study by Alzaidy, Naseem, Niaz, and Lacheheb,(2017) shows that financial development plays an essential role in moderating the impact of FDI on economic growth in Malaysia. This implies that well-developed financial sectors lead to further and facilitate FDI spill over and hence yield economic growth, particularly for the case of Malaysia. Labor market regulation generally refers to the range of economic, social, and judicial measures and channel that affect labor market outcomes and behavior. The importance of labor market issues has been increasingly reflected in economic policy discussions where, according to Freeman (2007, p. 3).Results from a study of the operations of the labor market in the Caribbean Group for Cooperation in Economic Development (CGCED) suggest that these regulatory measures do have some effect on the operation of businesses in the region (see Abt Associates 1998).

Study by Parcon (2008) analyses FDI inflows to a sample of 195 countries over the period 1990-2005 and finds evidence that FDI to developed and developing countries is affected differently (negatively in some cases and positively in other cases) by different aspects of labor market standards and regulation. Labor market institutions and their impact on economic outcomes have been widely studied in many OECD countries, but much less so in others. Javorcik and Spatareanu (2005) analyse the effect of labour market regulation on FDI on a sample of 19 western and eastern European countries and found that extensive flexibility in the host country's labour market is associated with a higher probability and volume of investment. Meanwhile Loayza and Palacios's (1997) study of labor market liberalization in Latin America and the Caribbean also comes to the conclusion that low level of labor market distortion exists in the Caribbean compared with Latin America. Diego (2013) found that the relationship between MNEs location decision and host country's labor market institutional factors is sensitive to host country's development stage and market integration with the EU countries by using a sample of 41 European countries over the period 2004-2008. These results are consistent with previous findings (Javorcik and Spatareanu (2005), Delbecque et al. (2007), Olney (2011), Parcon (2008). The effect of MNEs on wages and working conditions varies in complex ways across different types of investments, workforce groups and national environments also suggests that governments and other stakeholders may be able to take measures to enhance the contribution of FDI to economic and social development (OECD, 2008).

Study by (Busse and Groizard, 2006) found the evidence that excessive regulations restrict growth through FDI only in the most regulated economies and the more regulated economies are less able to take

advantage of the presence of multinational companies. This result is further evidence of the fact that important host country characteristics can lead to a positive impact of foreign investment inflows on growth rates. Based on the survey by Vijaya and Kaltani (2007) shows that FDI-Flows have a negative impact on overall wages in the manufacturing sector and this impact is stronger for female wages as compared to Ndikumana and Verick (2007) no convincing evidence on the linkages between FDI and labour market characteristics and outcomes in sample of African countries. Bazen (2000) states, the realisation of the benefits on minimum wages (reducing wage and income inequality, pay discrimination, poverty in working families, and providing work incentives and protection for low paid workers) depends on the policy not having adverse effects on the economy. Hence research done by Sambharya and Rasheed (2015) indicate that better economic management (monetary policy, fiscal burden and banking and finance), less government participation in the economy, less state intervention (strong property rights, less regulation, low prevalence of informal markets and less corruption), absence of wage and price controls and higher levels of political freedom lead to higher FDI inflows after controlling for FDI stock. Moreover Azémar and Desbordes (2010) research are using separate data on sales by US multinational enterprises (MNEs) foreign affiliates on a sample of 43 developed and developing countries for 1982-1994 period shows that the provision of fiscal incentives or the deregulation of the labour market would exert a positive impact on total FDI. Mayom (2015) investigates the impact of FDI on the labor market measures in a sample of 48 Sub-Saharan African countries over the period 1991-2009 show that the variable of interest, FDI, shows the expected signs and significance in the employment estimation.

In a study of FDI from seven developed countries entering seven Central and Eastern European countries using country-level data, Leibrecht and Scharler (2009) find that differences in employment protection legislation have no effect on FDI flows entering the host countries when labor costs are included in the model. Based on data for the years 2000 to 2003, the findings suggest that if, for example, Italy (a typical country with strict regulation) had enjoyed the same flexibility in labour market regulation as the United States (a typical country with flexible regulation), its unemployment rate might have been 2.3 percentage points lower among the total labor force, 3.4 percentage points lower among women and 5.6 percentage points lower among young people (University of Bath, 2009). Furthermore using a sample of 121 countries over the period 1970-2000 there is an unconditional negative correlation between income inequality and regulations in the labor market (Calderón, Chong, and Valdés, 2004). Good labor market regulations promote new business and can help shift workers to the formal sector, where higher productivity boosts economic growth. Restrictive labor market regulations, by contrast, can discourage the development of formal businesses or prevent the growth of existing ones (La Porta and Shleifer, 2008). Study by Nordin (2014) shows the countries that group above threshold value of more flexibility of labor market has a positive impact and indicate that labor market flexibility play an important role in moderating FDI on economic growth in developing countries.

3.0 Methodology

The performance of the labor market is also vital to the well being of the economy and society. Flexibility and efficiently labor market support with a stable macroeconomic environment, implies an economy that is fairer, more competitive and more productive and economy is better able to respond to economic change. In particular, the labor market is a key to the economy's sustainable rate of growth and contributes to overall competitiveness and productivity. This section comprises the discussion regarding the estimation model, data and econometric methodology that will be built and used to test the role of labor market flexibility in moderating FDI effects on economic growth. This study employed model specification that is broadly similar to Mankiw et al. (1992) and extension the model based on Aiginger (2004) and Bernal-Verdugo et al., (2012) and using the threshold regression estimation technique to capture the role of labor market flexibility in moderating the impact of FDI on economic growth.

Theory of economic growth had been established by Solow (1956), that known as Solow growth model. This is a model of capital accumulation in a pure production economy, where there are no prices because this model are strictly interested in output equal to real income. Assumption of the model are everyone works all the time, so there is no labor or leisure choice, and assume all income receive will be save, hence invest a fixed portion of their income. There is no government intervention in the economy and hence no taxation nor subsidies, where this is a closed economy. The Solow growth model is described as follow:

$$Y = AK^\alpha L^{1-\alpha} \quad (1)$$

where A is a productivity parameter and where $\alpha < 1$ that production involves decreasing returns to capital, and based on the law of motion that shows capital accumulation depends on investment (equal to aggregate savings). Our interest is on role of labor market on economic growth where Solow model only focus on capital accumulation. Human capital is expected to affect growth on long run; to capture the role of human capital new growth theory had been introduced known as New or Endogenous Growth Theory. There are two pioneer works that explain role of human capital in growth model. First is Lucas (1988), model (2) shows the growth rate of human capital affect the growth rate of aggregate income:

$$Y_t = K_t^\alpha H_t^{1-\alpha} h_t = K_t^\alpha (L_t h_t)^{1-\alpha} \quad (2)$$

where Y , K , H , h and L denote aggregate income, physical capital stock, aggregate and per capita human capital stock and labor respectively. The coefficient of γ in introduced to capture the possible effect of human capital that may lead to increasing returns to scale. The second is Romer (1990) that explain role of human capital in facilitate technological development, where a higher level of human capital leads to more innovations and higher efficiency which finally cause a higher growth rate of aggregate income. In short, the level of the human capital stocks affects the growth of the economy. According to Romer (1990), he assumes that human capital is used to improved technology which translates in a physical capital accumulation.

From the above discussion, we can conclude that Lucas approach consider human capital as a qualitative aspect of labor that is required to operate existing and new technologies. When there is closed economy, Romerian aspect of human capital is dominant because we cannot import the technology. This section develops a growth model to estimate the role of labor market in moderating the impact of FDI on economic growth. The estimation of econometric specification in this study is done by using R software (The R Foundation for Statistical Computing). The specification of growth model is motivated by influential paper Mankiw et al. (1992) (MRW) and support by Aiginger (2004), indicate that beside the basic economic growth determinants, the characterizes a set of institutions, such as product or labor market regulation, or legal and institutional variables, the rule of law, corruption etc. should be accounting in the growth model, so that this model estimation include the labor market flexibility.

$$\text{GROWTH}_t = \beta_0 + \beta_1 \text{INITIAL GDP}_t + \beta_2 \text{FDI}_t + \beta_3 \text{LM}_t + \varepsilon_t \quad (3)$$

where GROWTH is growth rate of GDP per capita for Malaysia in period t , INITIAL GDP is logged level of per capita GDP, FDI is foreign direct investment, LM is a labor market that examines based on index of labour market regulation.

In this paper, we apply threshold test by Hansen (2000) to assess the null hypothesis of a linear regression. This method allows the sample data to determine the number and location of the thresholds. From this threshold regression, the developed model will fall into regimes that depend on an unknown value of an observed value (two regimes or three regimes). Our model will estimate role of labor market

flexibility in moderating FDI on economic growth, as such we want the parameter associated of labor market as a threshold variable. We can achieve this by estimating the following threshold specification;

$$\text{GROWTH}_{it} = \begin{cases} \beta_0^1 + \beta_1^1 \text{INITIAL GDP}_t + \beta_2^1 \text{FDI}_t + \varepsilon_t; \text{LM} \leq \gamma \\ \beta_0^2 + \beta_1^2 \text{INITIAL GDP}_t + \beta_2^2 \text{FDI}_t + \varepsilon_t; \text{LM} \geq \gamma \end{cases} \quad (4)$$

where γ is unknown threshold. Here the observation can divided into two or three regimes or groups depending on whether threshold variable that is labor market flexibility (LMF) is smaller or larger than the value γ . The impact of labor market flexibility in moderating the impact of FDI on growth will be given by β_2^1 for countries in the low LMF regimes (i.e. with an LMF level less than γ) and by β_2^2 for countries in the high LMF regimes (i.e. with an LMF level greater than γ).

4.0 Results and Discussion

In this section, we estimate the role of labor market in moderating the impact of FDI on economic growth by using threshold regression based on Hansen (2000). The empirical results are present and discuss in the next sections. The analysis and discussions for Malaysia over the period 2000-2015 and there are two indicators represent labor market that we use in this study that is the index of labour market regulation. Before we examine the existence of threshold effects in the models, the first step of our analysis is to estimate the best model to use in the whole analysis. The tested models are stated in Equation (5) to (6), where the equation (5) is without interaction variable and equation (6) we examine the interaction variable of FDI and labor market.

$$\text{GROWTH}_t = \beta_0 + \beta_1 \text{INITIAL GDP}_t + \beta_2 \text{FDI}_t + \beta_3 \text{LMREG}_t + \varepsilon_t \quad (5)$$

$$\text{GROWTH}_t = \beta_0 + \beta_1 \text{INITIAL GDP}_t + \beta_2 \text{FDI}_t + \beta_3 \text{LMREG}_t + \beta_4 \text{LMREG}_t \times \text{FDI}_t + \varepsilon_t \quad (6)$$

The results are presented in Table 1 and Table 2. Table 1 present the result without interaction variable and Table 2 present the result with the interaction variable. As shown in the Table 1 and Table 2, all the models that we tested are highly significant at 1 percent significant level. We decide to use model without interaction variable because based on reported result, with interaction variable for both indicators of labor market, FDI has not directly effect on growth rate as the estimated coefficient is insignificant at the usual level that can be seen in Table 2. Result for model without interaction is reported in Table 2, and we find that FDI are highly significant in influencing growth rate. This finding are consistence with the past the literature of De Mello (1997), Lipsey (2000), Olivia and Rivera-Batiz (2002), Choe (2003) and Ma (2009) who also find that the role of FDI in promoting country growth rate.

Table 1: Ordinary least square estimation

Labor Market Regulation				
Initial GDP	0.81	0.16	4.98	7.58e-07 ***
FDI	11.71	2.57	4.56	5.85e-06 ***
LMF	0.04	0.09	0.44	0.66
Constant	0.41	0.93	0.45	0.65
F-test	15.33			
p-value	9.865e-10***			
Multiple R ²	0.049			

Note: Data covers periods from 2000-2015 and estimation using R statistical Software.

Table 2: Ordinary least square

	Coefficient	Standard error	t-value	p-value
Labor Market Regulation				
Initial GDP	0.85	0.16	5.16	3.09e-07 ***
FDI	27.51	10.83	2.54	0.11
LMF	0.13	0.11	1.22	0.22
FDI x LMF	-2.29	1.53	-1.50	0.13
Constant	-0.34	1.06	-0.31	0.74
F-test	12.08			
p-value	1.453e-09***			
Multiple R ²	0.05			

Note: Data covers periods from 2000-2015 and estimation using R statistical Software.

The next empirical analysis need to be done is to ensure the existence of the threshold effects. According to Hansen (1996, 1999 and 2000), the existence of threshold effect can be examine by using bootstrap approach in estimating the p-value based on 1000 replication for all bootstrap test. To determine number of the threshold, model (9) was estimated by using least square estimation by allowing for zero, one and two thresholds. The test statistics F_1 , F_2 are presented in Table 3.

$$TFP_t = \mu_t + \theta_1 INTGDP_{t-1} + \theta_2 INTGDP_{t-1}^2 + \theta_3 INTGDP_{t-1}^3 + \theta_4 LMREG_{t-1} + \theta_5 INTGDP_{t-1} LMREG_{t-1} + \beta_1 FDI_{t-1} I(LMREG_t \leq \gamma_1) + \beta_2 FDI_{t-1} I(\gamma_1 > LMREG_t \leq \gamma_2) + \beta_3 FDI_{t-1} I(\gamma_2 > LMREG_t) + e_t \quad (7)$$

This model is developed based on equation (4) setting. Where TFP as dependent variable, INTGDP as an independent variable, FDI is of interest variable and LM is threshold variables and will be measure by index of labour market regulation. There are also additional regressors that included in this model $INTGDP_{t-1}^2$, $INTGDP_{t-1}^3$ and $INTGDP_{t-1} LMREG_{t-1}$ represent the non-linear term to reduce the possibility of spurious correlations due to omitted variables bias.

Table 3: Test for threshold effects.

	Labour Market Regulation
Test for single threshold	
F_1	20.42
p-value	0.05**
(10%, 5% , 1% critical value)	[15.62, 20.21, 37.62]
Test for double threshold	
F_2	15.96
p-value	0.06*
(10%, 5% , 1% critical value)	[17.67, 21.47, 43.22]

Note: Data covers periods from 2000-2015 and estimation using R statistical Software.

Table 3 shows the estimation result of the F-test, p-value and critical value based bootstrap estimation. Table 3 reported that, based on F_1 value of 20.42 and F_2 value of 15.96 and both are statistically significant at 5 percent significant level and we can easily rejected the null hypothesis, that there are existence of threshold effect. Therefore, the threshold estimation indicated that there are double threshold effects and we classify the data and model into three regimes that represent in equation (8).

$$TFP_t = \mu_t + \theta_1 INTGDP_{t-1} + \theta_2 INTGDP_{t-1}^2 + \theta_3 INTGDP_{t-1}^3 + \theta_4 LMREG_{t-1} + \theta_5 INTGDP_{t-1} LMREG_{t-1} + \beta_1 FDI_{t-1} I(LMREG_t \leq \gamma_1) + \beta_2 FDI_{t-1} I(\gamma_1 > LMREG_t \leq \gamma_2) + \beta_3 FDI_{t-1} I(\gamma_2 > LMREG_t) + e_t \quad (8)$$

The result represent strong evidence of a nonlinear relationship between labor market and country growth rate as in each instance the null hypothesis of no threshold is rejected. The point estimate of double threshold for regulation is reported in Table 4. The result can be represent in three classes of countries that can be indicated by the point estimates with the very low level of labor market flexibility’, ‘very high level of labor market flexibility’ and ‘other’. The ranges of confidence intervals are not too tight which indicate high uncertainty about the nature of this division. More details and information can be learn and seen about the thresholds estimate of labour market regulation from plots of concentrated ratio function $LR_1^r(\gamma)$ and $LR_2^r(\gamma)$ in figures 1- 2.

Table 4: Threshold estimates

	Estimate	95% confidence intervals
Labor Market Flexibility: Regulation		
$\hat{\gamma}_1^r$	4.5	[3.6, 5.1]
$\hat{\gamma}_2^r$	5.9	[5.9, 6.2]

Note: Data covers periods from 2000-2015 and estimation using R statistical Software.

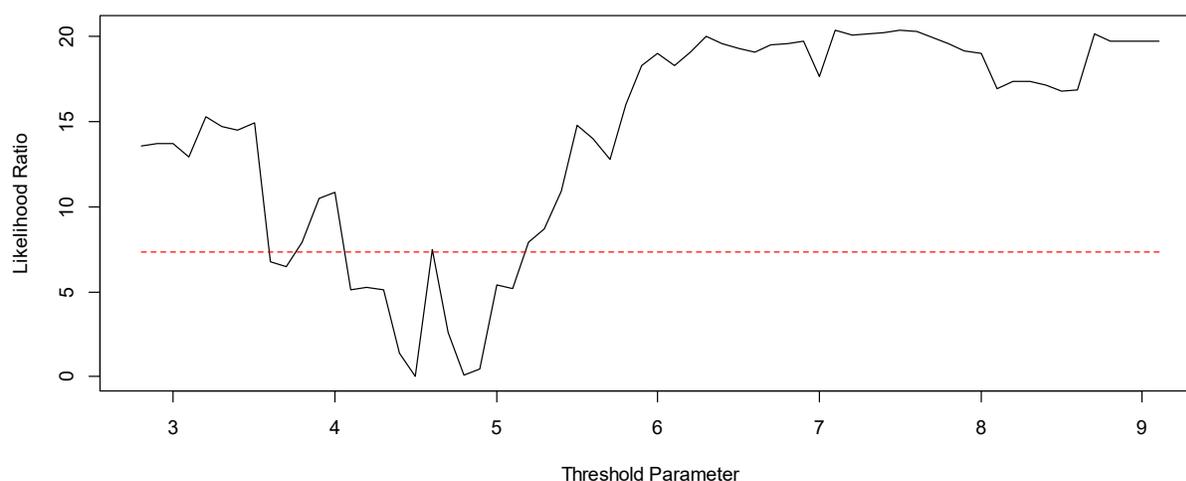


Figure 1: Confidence interval construction in single threshold model of regulation.

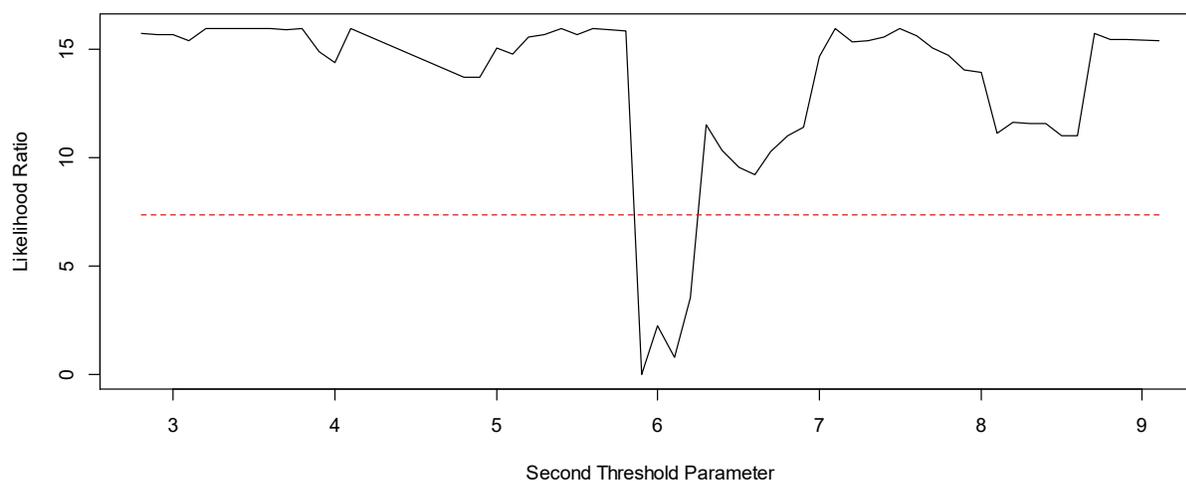


Figure 2: Confidence interval construction in double threshold model of regulation.

The regression coefficient estimates, conventional OLS standard errors and white-corrected standard errors are reported in Table 6. The reported results of regulation as indicator labor market and estimate for double threshold effects. We can see, the first independent variable of initial GDP, show mixed result of positive and negative. The first coefficient of $INTGDP_{t-1}$ is 41.17, where there are positively relationship between initial GDP and economic growth. By following the model developed by Hansen (1999), $INTGDP_{t-1}^2$ show negative value of -10.10, where when initial GDP is squared, there is negatively relationship with the growth rate and this negative sign are consistence with reported result by Hansen (1999), we take power of three for initial GDP $INTGDP_{t-1}^3$ of 0.67 and positively related with the growth rate, also consistence with result reported with Hansen (1999). The coefficient values of labor market flexibility indicate negative sign of -1.20 that labor market flexibility are negative relationship with economic growth, this result is consistence with Barro (1998) with the level of flexibility of labor market are negatively relationship with growth rate (i.e: less flexibility of labor market (high regulation) will lowers the growth rate).

Turning now to the interaction variable of initial GDP and labor market flexibility indicate the positive value of 0.56 with growth rate, where this coefficient value indicates that when we interact labor market flexibility with the initial GDP, labor market flexibility will play a positive role to country growth rate. This result indicates that with more flexible labor market supported by good condition of GDP will influence growth rate and this result is consistence with Forteza and Rama (2000). Our interest variable is the threshold effects. Since previously we estimate regulation has double threshold effect, so model of regulation that we examine based on three regimes. The first regime indicate ‘very low level of labor market flexibility’ second regime indicates “very high level of labor market flexibility’ and third regime indicate ‘other’. This estimation of threshold variable indicates the role of labor market flexibility in moderating the impact of FDI on economic growth.

Table 6: Threshold regression

Regressor	Coefficient estimate	OLS SE	White SE
Labor Market Regulation (Double Threshold)			
Dependent variable is Growth rate			
$INTGDP_{t-1}$	41.17	24.3992	24.6597
$INTGDP_{t-1}^2$	-10.10	5.4689	5.4162
$INTGDP_{t-1}^3$	0.67	0.3961	0.3793
LMF_{t-1}	-1.20	1.5834	1.5511
$INTGDP_{t-1}LMF_{t-1}$	0.56	0.3549	0.3582
$FDI_{t-1}I(LMF_{t-1} \leq 4.5)$	-22.77	9.8106	12.3442
$FDI_{t-1}I(4.5 < LMF_{t-1} \leq 5.9)$	41.10	7.1527	17.4865
$FDI_{t-1}I(LMF_{t-1} > 5.9)$	13.48	3.7201	6.3268
Threshold estimate	5.9		
Fixed threshold	4.5		
Confidence region	[5.9, 6.2]		
Sum of Squared Errors	7347.184		
LR Test for threshold effect	15.96085		
Trimming Percentage	0.05		

Note: Data covers periods from 2000-2015 and estimation using R statistical Software.

Results for threshold estimation of labour market regulation of ‘very low level of labor market flexibility’ show negative coefficient of -22.77 that we can conclude with low level of labor market flexibility, there is negatively impact in moderating FDI on country growth rate. Result for second regime show 41.10 of ‘very high level of labor market flexibility’ and third regime of ‘other’ indicate the coefficient value of

13.48. We can conclude that, country with very high level of labor market flexibility will encourage the inflows of FDI and at the same time will boost country growth rate. These results explain with high level of labor market flexibility, country will attract more inflows of FDI and at the same time will enhance countries growth rate, however with low level of labor market flexibility did not attract inflows of FDI and will lowers the countries growth rate. Past studies by Cooke and Noble (1998), Cooke (2001), Ferner and Quintanilla (1997), Bentolila and Bertola (1990), Haaland et al., (2003) and Dewit et al., (2003) also indicate that flexible labor market are significant attractor of FDI.

5.0 Conclusion and Recommendation

This study has developed an empirical discussion about the role of labor market in moderating the impact of FDI on growth by using threshold estimation. The method is applied to Malaysia with estimation of 16 years for the period 2000-2015. Based on index of labour market regulation, we find the different regimes of these two indicators. Labour market regulation show an existence of double thresholds with three regimes applied in the estimation model. This study present the new evidence on the role of labor market in moderating the impact of FDI on growth, where the major contribution of this study is FDI have a positive effect on economic growth only when the index of labor market exceed a threshold level at second regimes of ‘very high level of labor market flexibility’. Thus, we can conclude that, countries with very high level of labor market flexibility will play an important role in moderating the impact of FDI on economic growth and this result consistence with Haaland et al., (2003), Javorcik and Spatareanu (2004), Gunnigle and McGuire (2001) and Storey et al., (2002), that they find country with greater flexibility in the host country’s labor market is associated with higher probability of investment taking place as well as with a larger volume of investment flows. The other contribution of his study is labor market flexibility should be one of the determinant of growth rate, not only labor discussed by Solow (1956) and human capital by Barro and Lee (1993).

This finding emphasize the importance role of government and labor market union in forming any labor market regulation because any new rules or modification of this market will affect the level or inflows of FDI also the number of MNC’s location and finally will reduce country growth rate. Accordingly, policy marker should originate policies to promote labor market flexibility, because more flexible of labor market will give more benefit to the host countries. Although more flexible give more benefit compare to the rigid labor market, any changes of labor market policy should not neglected the employment protection.

References

- Adams, S., Opoku, E.E.O. (2015), Foreign direct investment, regulations and growth in Sub-Saharan Africa. *Economic Analysis and Policy*, 47, 48-56.
- Agrawal, G., & Khan, M. A. (2011). Impact of FDI on GDP: A Comparative Study of China and India. *International Journal of Business and Management*, 6(10), 71–79. <http://doi.org/10.5539/ijbm.v6n10p71>
- Aiginger, K. (2004). Labour Market Reforms and Economic Growth. The European Experience in the Nineties (No. 232). WIFO Working Papers.
- Alfaro L., Chanda A., Kalemli-Ozcan S. & Sayek S. (2004), “FDI and Economic Growth: the Role of Local Financial Markets”, *Journal of International Economics*, No. 64, pp. 89-112.
- Alzaidy, G., Naseem, M., Niaz, B., & Lacheheb, Z. (2017). The Impact of Foreign-direct Investment on Economic Growth in Malaysia : *The Role of Financial Development*, 7(3), 382–388.
- Azémar, C., & Desbordes, R. (2010). Short-run Strategies for Attracting Foreign Direct Investment. *World Economy*, 33(7), 928–957. <http://doi.org/10.1111/j.1467-9701.2010.01226.x>
- Barro, R. J & Lee, J.W. (1993). International Comparisons of Educational Attainment. *Journal of Monetary Economics* 32(3):363-394.

- Barro, R. J. (1998). Human capital and growth in cross-country regressions. Harvard University. Processed.
- Bazen, S. (2000), "Minimum wages and low paid employment", in Gregory, M., Salverda, W. and Bazen, S. (Eds), Labour Market Inequalities, Oxford University Press, Oxford.
- Bentolila, S., & Bertola, G. (1990). Firing costs and labour demand: How bad is Eurosclerosis?. *Review of Economic Studies*, 57: 381-402.
- Bernal-Verdugo, L. E., Furceri, D., & Guillaume, D. (2012). Labor market flexibility and unemployment: new empirical evidence of static and dynamic effects. *Comparative Economic Studies*, 54(2), 251-273.
- Busse, M., & Groizard, J. L. (2006). FDI, Regulations and Growth. SSRN Electronic Journal, (August), 1-26.
- Calderón, C., Chong, A., & Valdés, R. (2004). Labor Market Regulations and Income Inequality: Evidence for a Panel of Countries, (October).
- Cooke, P. & Noble, D. (1998). Industrial relations system and U.S. Foreign Direct Investment abroad. *British Journal of Industrial Relations*, 36: 581-598.
- Cooke, P. (2001). Regional Innovation Systems, Clusters, and the Knowledge Economy. *Industrial and Corporate Change* 10 (4): 945-974.
- De Mello Jr, L. R. (1997). Foreign direct investment in developing countries and growth: A selective survey. *The Journal of Development Studies*, 34(1), 1-34.
- De Mello L. R. (1999), « Foreign direct investment-led growth : evidence from time series and panel data», Oxford Economic Papers, No. 51, pp. 133-151.
- Dewit, G., Gorg, H., & Montagna, C. (2003). Should I stay or should I go? A note on employment protection, domestic anchorage, and FDI.
- Diego, E. (2013). Labor Market Rigidity and Foreign Direct Investment : The Case Of Europe, 13.
- Driffield, N. (1996) Global Competition and the Labour Market, Harwood, Reading.
- Durlauf, S. N., Johnson, P. A., & Temple, J. R. (2005). Growth econometrics. *Handbook of economic growth*, 1, 555-677.
- Ferner, A., & Quintanilla, J. (1998). Multinationals, National Business Systems and HRM: The Enduring Influence of National Identity or a Process of "Anglo-Saxonization"? *International Journal of Human Resource Management*, 9(4), 710-731.
- Forteza, A., & Rama, M. (2000). Labour Market "Rigidity" and the Success of Economic Reforms Across more than One Hundred Countries. World Bank Mimeo.
- Freckleton, M., Wright, A., & Craigwell, R. (2012). Economic growth, foreign direct investment and corruption in developed and developing countries. *Journal of Economic Studies*, 39(6), 639-652. <http://doi.org/10.1108/01443581211274593>
- Gunnigle, P., & McGuire, D. (2001). Why Ireland? A Qualitative Review of the Factors Influencing the Location of US Multinationals in Ireland with Particular Reference to the Impact of Labour Issues. *The Economic and Social Review*, Vol. 32, No. 1: 43-67
- Haaland, J. I., Wooton and G. Faggio (2003). Multinational firms: Easy come, easy go?. *FinanzArchiv* 59: 3-26.
- Hansen, B.E. (2000). Sample splitting and threshold estimation. *Econometrica* 68, 575- 603
- Hansen, B.E. (1999). Threshold effects in non-dynamic panels: Estimation, testing and inference. *Journal of Econometrics* 93, 345-368.
- Hansen, B.E. (1996). Inference when a nuisance parameter is not identified under the null hypothesis. *Econometrica*, 6:, 413-430.
- Haskel, Jonathan, Piera, S., & Slaughter, M. (2002). Does Inward Foreign Direct Investment Boost the Productivity of Domestic Firms?. NBER working paper no. 8724.
- Iqbal, N., Ahmad, N., Haider, Z., & Anwar, S. (2014). Impact of foreign direct investment (FDI) on GDP: A Case study from Pakistan. *International Letters of Social and Humanistic Sciences*, 16(2002), 73-80. <http://doi.org/10.18052/www.scipress.com/ILSHS.16.73>

- Javorcik, B. S., & Spatareanu, M. (2004). Does it matter where you come from? Vertical spillovers from FDI and Investor Nationality. World Bank Policy Research. Washington. World Bank.
- Javorcik, B.S., Spatareanu, M., 2005. Do foreign investors care about labor market regulations? Review of World Economics 141 (3), 375–403.
- Khder Aga, A. A. (2014). The Impact of Foreign Direct Investment on Economic Growth: A Case Study of Turkey 1980–2012. International Journal of Economics and Finance, 6(7), 8–19. <http://doi.org/10.5539/ijef.v6n7p71>
- LaPorta, Rafael, and Andrei Shleifer. 2008. “The Unofficial Economy and Economic Development.” Brookings Papers on Economic Activity 47 (1): 123-135.
- Leibrecht, M. and Scharler, J. (2009), How important is employment protection legislation for Foreign Direct Investment flows in Central and Eastern European countries?¹. Economics of Transition, 17: 275–295. doi:10.1111/j.1468-0351.2009.00353.
- Lipsey, R. E. (2000). Foreign production by U.S. firms and parent firm employment. In Multinational firms and impacts on employment, trade, and technology: New perspectives for a new century, ed. Robert E. Lipsey and Jean-Louis Mucchielli, 3– 23. London: Routledge.
- Lucas, R. E. (1988). On the mechanics of economic development. *Journal of monetary economics*, 22(1), 3-42.
- Mankiw, G., Romer, D., & Weil, D. (1992). A Contribution to the Empirics of Economic Growth. *Quarterly Journal of Economics* 107(2): 407-38.
- Mayom, D. A. (2015). The Impact of Foreign Direct Investment on Labor Market Measures : Evidence from Sub-Saharan Africa.
- Nair-Reichert, U., Weinhold, D. (2001), Causality tests for cross-country panels: A new look at FDI and economic growth in developing countries. Oxford Bulletin of Economics and Statistics, 63(2), 153-171.
- Ndikumana, L., & Verick, S. (2007). The Linkage between FDI and Domestic Factor Markets : Unravelling the Developmental Impact of Foreign Investment, 1–29.
- Nordin, N. (2014). Role Of Labor Market Flexibility In The FDI Growth Nexus : Panel Threshold Evidence, 2014(ICPR), 440–453.
- Nunnenkamp, P. (2002). Determinants of FDI in developing countries: has globalization changed the rules of the game? (No. 1122). Kieler Arbeitspapiere.
- OECD. (2008).The impact of Foreign Direct Investment on Wages and Working Conditions. Employment and Industrial Relations: Promoting Business Conduct in a Globalising Economy, (June), 31. <http://doi.org/10.1080/10242690701455474>
- Oliva, M. A., & Rivera-Batiz, L. A. (2002). Political institutions, capital flows, and developing country growth: An empirical investigation. *Review of Development Economics*, 6(2), 248-262.
- Parcon, H. (2008). Labor Market Flexibility as a Determinant of FDI Inflows, (8).
- Romer, P. (1990). Endogenous technological change. *Journal of Political Economy*, 98(5), part II, pp. 71-S102.
- Sala-i-Martin, X. X. (1997). I just ran two million regressions. *The American Economic Review*, 178-183.
- Sambharya, R. B., & Rasheed, A. A. (2015). Does economic freedom in host countries lead to increased foreign direct investment? Competitiveness Review, 25(1), 2–24. <http://doi.org/10.1108/CR-05-2013-0047>
- Solow, R. M. (1956). The contribution to the theory of economic growth. *The Quarterly Journal of Economics*, Vol. 70, No. 1. 65-94.
- Storey, J., Quintas, P., Taylor, P., & Fowle, W. (2002). Flexible employment contracts and their implications for product and process innovation. *The International Journal of Human Resource Management*, 13(1), 1-18.
- University of Bath. (2009, March 17). Strict Labor Market Regulation Increases Global Unemployment, Study Shows. *ScienceDaily*. Retrieved October 26, 2017 from www.sciencedaily.com/releases/2009/03/090317095020.htm

- Vijaya, R. M., & Kaltani, L. (2007). Foreign Direct Investment and Wages: a Bargaining Power Approach. *Journal of World Systems Research*, XIII(1), 83–95.
- Ying, L., & Riming, C. (2008). Function simulation of FDI, foreign trade and regional GDP in China. *Journal of Chinese Economic and Foreign Trade Studies*, 1(3), 232–243.
<http://doi.org/10.1108/17544400810912383>