



The determinants of foreign direct investment in Malaysia: A case for electrical and electronic industry



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ABSTRACT

This study attempts to analyse the determinants of inward FDI in the electrical and electronic (E&E) industry in Malaysia using bounds test approach for the 1980–2008 period. It is found that GDP, real exchange rate, financial development, corporate income tax, macroeconomic uncertainty and social uncertainty factors significantly affect inward FDI in E&E sector in Malaysia. Empirical results indicate that GDP, real exchange rate, financial development and macroeconomic uncertainty are positively related to inward FDI in E&E sector in the long run. However, corporate income tax and social uncertainty have a negative impact on inward FDI in E&E sector. Furthermore, the Granger causality results also indicate that all explanatory variables Granger-cause FDI in the long-run, but in the short-run only macroeconomic and social uncertainties Granger-cause FDI. The impact of social uncertainty is found to be greater than macroeconomic uncertainty. Thus, foreign investors in E&E sector seem to be more concern about the level of social security and safety when choosing their investment destination.

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1. Introduction

Even though the role of foreign direct investment (FDI) in economic growth has a long pedigree in the economic literature, investigation of the determinants of inward FDI remains a hotly debated topic. This topic is crucially important for developing countries which frequently face the shortage of domestic resources to accelerate economic growth (Tang and Chua, 2012). Therefore, investigating the determinants for FDI is vital in modelling an effective macroeconomic policy to attract inward FDI. Given that the policy is relevant, estimating the determinants of inward FDI for Malaysia has also received a great deal of attention. Among them are Lucas (1993), Yusop and Ghaffar (1994), Ismail and Yusoff (2003), Hasan (2004), Sulong and Harjito (2005), Wong (2005, 2006), Choong and Lim (2007), Ang (2008), Marial and Ngie (2009), Choong and Lam (2010), and Aw and Tang (2010). However, the earlier studies on Malaysia were likely to focus on economic factors (e.g. income, market size, and exchange rate) but neglected the implication of social factors such as safety and security on inward FDI. In the context of Malaysia, Tang (2009) documented that criminal cases increased swiftly from approximately 27 thousand cases in 1970 to approximately 199 thousand cases in 2006. United Nation (2007) reported that poor institutional environment such as crime is an additional cost for firms.

Broadman and Recanatini (2001) discovered that areas with low crime rates are likely to gain more investments. Likewise, Daniele and Marani (2011) and Constantinou (2011) found that crime reduces inward FDI in Italy because investors fear of being victims of crime as stipulated in the theory of victimisation. For the sake of brevity, crime is a social uncertainty indicator and it could be an important element in explaining the behaviour of inward FDI.

Apart from that, we also realise that none of the studies have considered the determinants of inward FDI in the electrical and electronic (E&E) industry which is the major industry that attracts FDI to Malaysia. All the above-mentioned studies focused on estimating the determinants of aggregate FDI in Malaysia. Since the 1980s, E&E was the leading industry which attracted most of the inward FDI to Malaysia. For example, in 1980 approximately 27% of total FDI inflows to Malaysia were contributed by the E&E industry, and then it increased to nearly 52% in 2000 and approximately 63% in 2005. However, the contribution of the E&E industry dropped tremendously to 38% of total FDI in 2008. This outcome may be attributed to the emergence of alternative investment destinations (e.g. China, India and Vietnam) and the global economic crisis in late 2007. The aforementioned drop seems to indicate that Malaysia lost its competitiveness in attracting FDI and hence may weaken the process of economic growth in Malaysia. In light of these observed research gaps, it is essential to investigate the determinants of inward FDI for the E&E industry in Malaysia. Besides economic factors, this study will also contribute to the existing literature by taking into account the impact of social factors such as safety and security on inward FDI in the E&E industry.

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Table 1
The summary of selected studies for the determinants of FDI in Malaysia.

Determinants of FDI	Selected empirical studies											
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
GDP growth				(+)	(+)				(+)	(+)		(+)
Domestic market size		(+)	(+)		()	(+)	()	(+)	(+)		(+)	()
Competitor market size								(-)			(+)	(+)
Exchange rate		(+)		(+)	()	(-)	()		(-)	(+)		(-)
Tax rate	(-)								(-)			
Macroeconomic uncertainty									(+)			
Inflation rate		(+)			(+)	(-)	()					(+)
Interest rate		(+)	(+)				()					(+)
Openness			(+)						(+)	()	(+)	(+)
Cost of labour	(-)		()									(+)
Human capital			(-)			(+)	(+)	(+)			(+)	
Infrastructure		(-)		(+)		(+)	(+)		(+)	(+)		()
Financial development		(+)							(+)			
Domestic consumption	(+)											
Liberalisation								(+)				
Corruption												(-)
Research and development			(-)									
Current account balance				(-)	()	(+)	()					
Foreign reserve	(+)											
Crisis									()		(-)	
Degree of industrialisation		(+)										
Profitability		(+)										
Export				(+)	(-)					(-)		
Import					(+)							

Note: The symbol in the parenthesis denote the relationship between FDI and its determinants, while parenthesis () without symbol indicates that the variable is insignificant at the conventional significant level (i.e. 1, 5, and 10%).

[1] = Lucas (1993), [2] = Yusop and Ghaffar (1994), [3] = Ismail and Yussof (2003), [4] = Hasan (2004), [5] = Sulong and Harjito (2005), [6] = Wong (2005), [7] = Wong (2006), [8] = Choong and Lim (2007), [9] = Ang (2008), [10] = Marial and Ngie (2009), [11] = Choong and Lam (2010), and [12] = Aw and Tang (2010).

In order to achieve the goal of this study, a set of time series econometric techniques will be applied. First, we employ the Augmented Dickey–Fuller (ADF) and Phillips–Perron (PP) unit root test to check for the order of integration. Second, the bounds testing approach to cointegration introduced by Pesaran et al. (2001) will be applied in this study to determine the existence of a long-run equilibrium relationship between FDI inflows and its determinants. One of the advantages of this approach is that, as long as the dependent variable is $I(1)$, then it can be applied to test for cointegration irrespective of whether the order of integration of the explanatory variables is purely $I(0)$, purely $I(1)$ or mixed. Unlike the conventional tests for cointegration (e.g. Engle and Granger, 1987; Johansen, 1988), this approach has a superior performance in small sample. Third, the Granger causality test will be utilised to ascertain the direction of causality between FDI and its determinants in Malaysia. Based upon these comprehensive econometric analyses, we believe that the estimation results would be more robust and reliable for policymakers to draw up accurate policies to attract FDI inflows, particular for the E&E industry in Malaysia.

The rest of this paper is organised as follow. The next section discusses the trend of FDI in the E&E industry in Malaysia and the review of previous studies with respect to Malaysia. Section 3 presents the research methodologies used in this study. Section 4 reports the empirical findings. Finally, the conclusion and policy implications are presented in Section 5.

2. The Malaysian context

Back in the early 1970s, Malaysia was a new developing nation, just embarked on plans to diversify its economy from agriculture and raw material production into a multi-sector economy. Unemployment rate was high and the level of education of the labour force was still very low while capital and technology were scarce in the country. In light of this, the government adopted the strategy to bring in labour-intensive and export-orientated industries into the country. At this time, the semiconductor industry was rapidly developing in the industrialised nations. Multinational Corporations (MNCs) were afoot

with plans to shift their labour-intensive assembly operations offshore to take advantage of abundant and cheap labour in the newly developing Asian countries. Therefore, the Malaysian government offered generous tax incentives and developed Free Trade Zones (FTZs) with the necessary infrastructures to attract the influx of MNCs. The first FDI semiconductor plant was set up in 1972. This was closely followed by a number of other MNCs in the electronic industry. By the end of the decade, Malaysia was the largest semiconductor components exporter in the world with MNCs from most of the advanced countries having a base here. Further liberalisation of conditions for FDIs for export operations by the government in 1988 attracted more FDIs into the E&E sector, this time riding on the electronic boom brought about by the introduction of the personal computers and mobile phones. However, since the late 1990s, FDI inflow into the E&E sector began to decline. Obvious reasons were the 1997 Asian financial crisis which affected the investment sentiments in the region. This was exacerbated by the pegging of the Ringgit at a fixed rate to the greenback which though protected existing establishments, increased both costs and potential risks to new FDIs. Furthermore, during this period the emergence of alternative investment destinations especially China, Vietnam, South Korea, Taiwan and Singapore who replicated the successful strategies of Malaysia of the last two decades had opened up more choices to FDIs. The E&E industry is very footloose and can be shifted and established in any region easily. Meanwhile in the late 1990s, the government imposed locational requirement for investment in the E&E industry in the desire to promote the newly established multi-media super corridor and Cyberjaya. With two decades of economic growth, the government had invested heavily into the national education front and the new generation of work force was much higher educated and they shunned the low paid and low status electronic assembly works. As a result, Malaysia was bypassed by FDIs particularly those for the next phase of the E&E industrial boom of personal computers and mobile phones and in 2009 FDI into the E&E section recorded a significant plunge (UNCTAD, 2010). The E&E sector is identified as one of the critical sectors in Malaysia in order to stimulate sustainable economic growth. Therefore, it is vitally important to explore the determinants of FDI in the E&E

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