Chapter

FOREIGN DIRECT INVESTMENT AND ECONOMIC GROWTH IN OECD COUNTRIES

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ABSTRACT

The role of inward FDI on economic growth has attracted the attention of researchers for many years as its beneficial impact has been recognised theoretically by scholars and policymakers; however, the empirical evidence remains ambiguous.

Hence, the objective of this chapter is to investigate the causal relationship between FDI inflows/outflows and economic growth in developed OECD countries. Investigation of the causal link between FDI

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inflows and growth has important implications such that if there is a unidirectional causality it would support the FDI-led growth hypothesis. Alternatively, if the causal link runs in the opposite direction, it would imply that economic growth may be a prerequisite for countries to attract FDI. Finally, if the causal process is bi-directional, FDI inflows and growth would have a reinforcing causal relationship.

In particular, this chapter contributes to the existing literature by focusing on developed countries as inward/outward FDI has become an increasingly significant factor in influencing the economic activity. In contrast, most previous time-series causality studies focus on developing countries with only a few covering developed countries. However, almost all of the world's FDI originates from developed countries and the majority of FDI is also located in developed countries.

Another feature is that this chapter also tests the causal link between outward FDI and economic growth. Outward FDI might promote the home country's economic growth as it might yield higher profits, transfer technology and management skills to the home country, expand production abroad, secure raw materials overseas and avoid trade barriers and so on.

Following an Introduction, the chapter then reviews FDI trend across OECD countries. Next it discusses the alternative theories and literature exploring the relationship between FDI and economic growth (i.e. the impact of inward FDI on host country's economic growth, the impact of outward FDI on home country's economic growth, together with the impact of economic growth on inward/outward FDI). We then describe empirical causality testing methodology, together discussing the empirical results.

1. INTRODUCTION

The Global Financial crisis that led to the Great Recession resulted in differing levels of economic turmoil across developed industrialised economies, with particularly acute implications for eurozone countries where it triggered a sovereign debt crisis given their fundamental lack of economic cohesion and appropriate policy tools. For example, the absence of adjustable exchange rates, centralised monetary policy and constrained fiscal policy severely limited scope for economies to both ameliorate shocks and to find a sustainable path to recovery. Indeed, a greater emphasis had previously been placed on long-term supply-side economic policy as discussed in the EU's Lisbon Agenda and its successor, Europe 2020 that seeks to develop a growth model to create conditions for "a different type of growth that is smarter, more

sustainable and more inclusive". Hence, this chapter to examines the importance for economic growth of nations shifting the emphasis of their economies towards long-term supply-side economic policy through evaluating the foreign direct investment (FDI) – growth nexus.

FDI plays an important role in influencing the level of economic activity in the world with multinational companies accounting for above one-fifth of world employment in the non-agricultural sectors (Whyman and Baimbridge, 2008). The remarkable growth in FDI has attracted the attention of many researchers on developing countries, as they believe that developing countries have less advanced technology and benefit more from inward FDI through technology spillover (Bengoa and Sanchez-Robles, 2003; Roy and Van den Berg, 2006). However, developed countries might also benefit from inward FDI; yet, there is a risk that inward FDI may transfer the host country's advanced technology to the home country, resulting in a reduction in the comparative advantage of the host country (Dunning, 1994). Another potential drawback is that foreign firms might out compete local firms and drive them out of business (Blomstrom and Kokko, 1997; Hill, 2009).

Outward FDI may also bring significant benefits to the home country, with outward investing firms benefiting from increasing returns to scale and yielding higher profits by investing abroad than by investing in the home market (HM Treasury, 1996). It may also provide routes to transfer advanced technology, management skills and working training to the home country, therefore improving the productivity of domestic firms (HM Treasury, 1996). However, concerns arise over the adverse impact of outward FDI on employment, domestic investment and exports in the home country.

Therefore, this study contributes to the existing literature in the following ways. First, it considers a 'nation' as the unit for analysis and uses data on aggregate FDI inflows into a country from the rest of the world and aggregate FDI outflows from a country to the rest of the world. Second, this study concentrates on developed OECD countries (Australia, Austria, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Korea, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, UK and US) as inward/outward FDI might be an important engine to their economic growth and they are the major sources and recipients of FDI. This contrasts with the vast majority of empirical studies focusing on developing countries. Furthermore, many empirical studies pool both developed countries and developing countries into one sample and do not distinguish them in their analysis. Blonigen and Wang (2005) argue that FDI plays a different role in developed countries compared to developing countries such that pooling

developed and developing countries in an empirical analysis leads to incorrect inferences. Moreover, this study takes into consideration the importance of outward FDI on the host country's economy, which has been largely neglected in the literature.

2. FDI TRENDS AND DISTRIBUTION IN DEVELOPED OECD COUNTRIES

In terms of the stylised facts relating to FDI trends, Figure 1 represents the general trend of FDI inflows and FDI outflows in developed OECD countries, which form the basis of the empirical analysis.
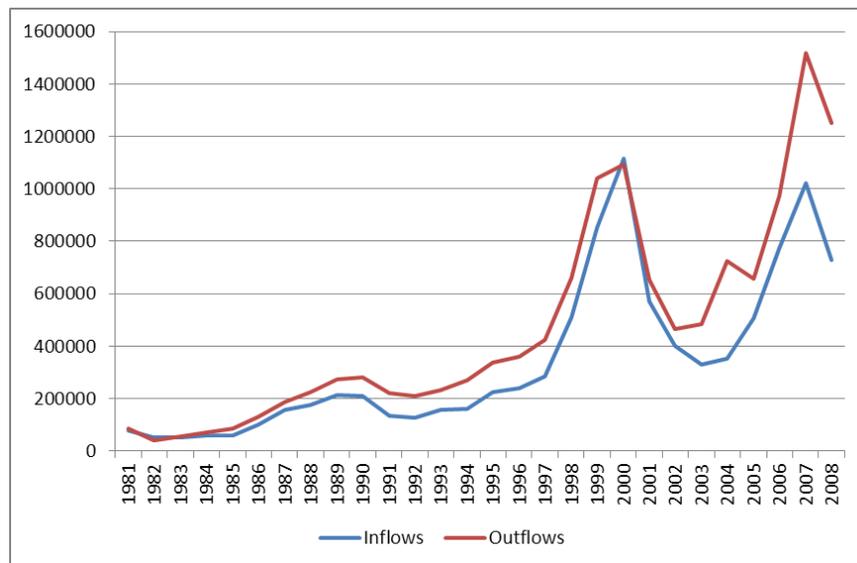
Data source: UNCTAD Foreign Direct Investment Database (2011) and World Development Indicators (2011).

Notes: (1) Data are in millions of 2000 US $. (2) Developed OECD countries include Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Korea (Republic of), Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, UK and US. (3) Germany refers to former federal republic of Germany (West Germany) before 1990 and it refers to both former federal republic of Germany (West Germany) and former democratic republic of Germany (East Germany) from 1990.

Figure 1. FDI inflows and outflows in developed OECD countries.

The amount of inflows was relatively small and fluctuated a little between 1981 and 1992. From 1992, it rose steadily to 1997 and increased dramatically to the peak level in 2000. According to UNCTAD (2006), the trends are driven by cross-border mergers and acquisitions (M&As). However, from the highest level in 2000, inflows fell sharply by about 50 percent in 2001, returning to the level in 1998. According to UNCTAD (2002), this decline reflected the slow-down of economic activity in developed countries and a decrease in their stock market activity, which reduced new international investment, particularly the cross-border M&As. The event of 11 September 2001 exacerbated the slowdown, which may also have contributed to the further decline in 2002 and 2003 (UNCTAD, 2002). In 2004, inflows started to pick up following three years of decline, which reflects the recovery and higher growth rates in some countries (UNCTAD, 2006). After four years of consecutive growth, inflows rose in 2007 by more than 30% and reached another high level, which was close to the record high level in 2000. The increase in inflows reflected high economic growth and strong corporate performance in many countries (UNCTAD, 2008). After the global financial and economic crisis in 2007, the decline of corporate profits and stock prices greatly reduced the value of cross-border M&As, which resulted in 29% fall in inflows in 2008 (UNCTAD, 2009).
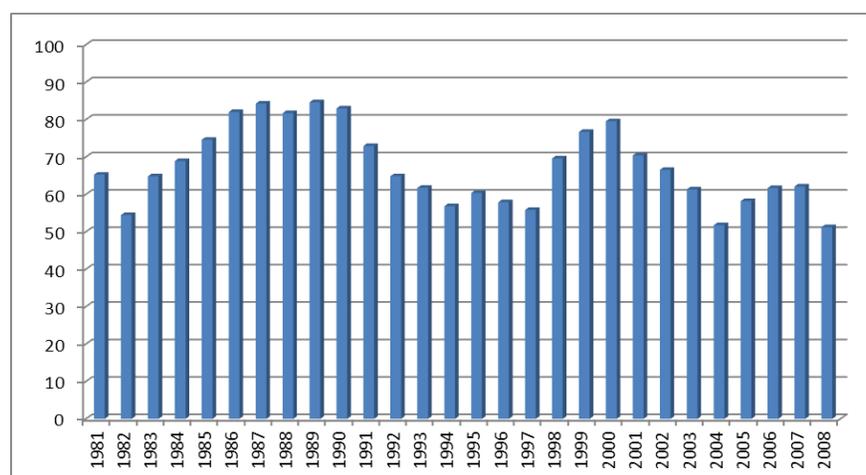
Data source: UNCTAD Foreign Direct Investment Database (2011).
Notes: (1) Developed OECD countries include Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Korea (Republic of), Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, UK and US. (2) Germany refers to former federal republic

of Germany (West Germany) before 1990 and it refers to both former federal republic of Germany (West Germany) and former democratic republic of Germany (East Germany) from 1990.

Figure 2. Share of world inflows to developed OECD countries (%).

FDI outflows followed a similar pattern to that for inflows from 1981 to 2002. Although in 2003 outflows started to recover, the recovery was short-lived as there was a further decline in 2005, whilst 2006 and 2007 experienced huge increases in outflows. Outflows reached the all-time peak level in 2007, which was 39% higher than the outflows in 2000. However, outflows fell again by 18% in 2008 due to global financial crisis. Another difference between inflows and outflows is that the outflow line is above the inflow line for most years, indicating that outflows are more than inflows in developed OECD countries. According to UNCTAD (2006), outflow trends are also driven by cross-border M&As.
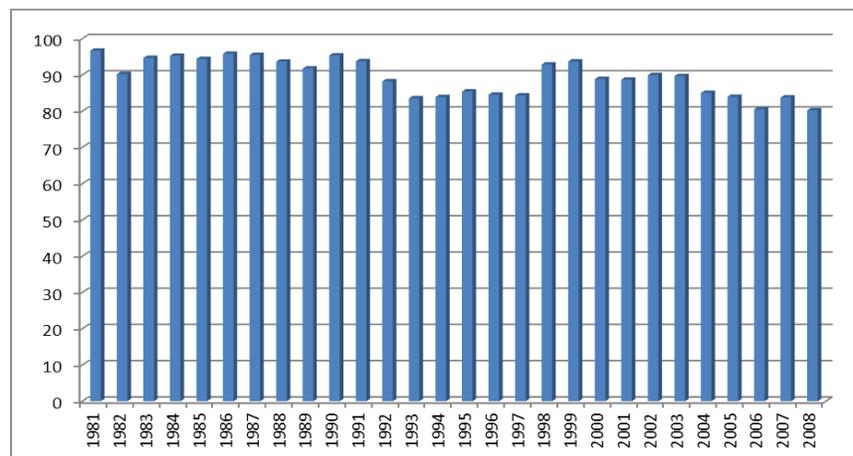

Data source: UNCTAD Foreign Direct Investment Database (2011).
Notes: (1) Developed OECD countries include Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Korea (Republic of), Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, UK and US. (2) Germany refers to former federal republic of Germany (West Germany) before 1990 and it refers to both former federal republic of Germany (West Germany) and former democratic republic of Germany (East Germany) from 1990.

Figure 3. Share of World outflows from developed OECD countries (%).

Turning to the share of world FDI inflows shown in Figure 2, we can see that the share of developed OECD countries fluctuates from 51% to 85% between 1981 and 2008, with an average of approximately 67%. Therefore, developed OECD countries account for a significant proportion of world inflows. With respect to the share of world FDI outflows illustrated in Figure 3, developed OECD countries account for most of global outflows ranging from 80% to 97% between 1981 and 2008.

Table 1. Annual average FDI data from 1981 to 2008

FDI as a percentage of total world (%)		FDI as a percentage of GDP (%)	
Inflows	Outflows	Inflows	Outflows
US 23.51	US 19.38	Netherlands 4.22	Netherlands 6.65
UK 8.55	UK 12.99	Ireland 3.89	Switzerland 6.25
France 5.48	Japan 8.85	Iceland 3.73	Iceland 6.17
Spain 3.76	France 8.75	Sweden 3.72	Sweden 4.61
Netherlands 3.24	Germany 8.01	UK 2.86	UK 4.31
Canada 3.12	Netherlands 5.92	Spain 2.46	France 3.08
Germany 2.92	Canada 4.29	Denmark 2.41	Finland 3.04
Australia 2.67	Switzerland 3.29	New Zealand 2.38	Ireland 2.98
Italy 1.70	Sweden 2.81	Switzerland 2.38	Spain 2.71
Sweden 1.65	Spain 2.71	Canada 2.17	Denmark 2.70
Switzerland 1.20	Italy 2.68	Australia 2.14	Canada 2.45
Denmark 0.62	Australia 1.42	Portugal 2.05	Norway 2.35
Japan 0.60	Norway 0.90	Finland 1.88	Austria 1.79
Ireland 0.59	Denmark 0.78	France 1.72	Germany 1.71
Portugal 0.56	Finland 0.74	Austria 1.48	Portugal 1.41
Austria 0.55	Austria 0.62	Norway 1.37	Australia 1.15
Korea 0.48	Korea 0.61	US 1.12	US 1.03
Norway 0.47	Ireland 0.50	Germany 1.03	Italy 1.01
New Zealand 0.42	Portugal 0.27	Greece 0.88	Japan 0.82
Finland 0.41	New Zealand 0.18	Italy 0.61	New Zealand 0.74
Greece 0.40	Iceland 0.09	Korea 0.56	Korea 0.65
Iceland 0.05	Greece 0.07	Japan 0.09	Greece 0.37
Belgium na	Belgium na	Belgium na	Belgium na
Luxembourg na	Luxembourg na	Luxembourg na	Luxembourg na

Data source: UNCTAD Foreign Direct Investment Database (2009).

Notes: (1) na: not available. (2) Germany refers to former federal republic of Germany (West Germany) before 1990 and it refers to both former federal republic of Germany (West Germany) and former democratic republic of Germany (East Germany) from 1990.

The average share is as high as 89%, so developed OECD countries are the dominant FDI exporters. Hence, we conclude that OECD countries are the major sources and recipients of world FDI. FDI inflows/outflows in OECD countries drive the world FDI inflows/outflows pattern. Compared with developed countries, developing countries only contribute a small fraction of world FDI inflows/outflows. However, the majority of current literature focuses on FDI in developing countries, studies on developed countries are relatively scarce. Therefore, it is important to investigate FDI inflows and outflows in developed OECD countries and that is why this study concentrates on this group of economies.

The distribution of FDI inflows/outflows to/from the developed OECD countries has been relatively uneven. Looking at FDI as a percentage of total world. Table 1 shows that the most attractive host developed countries are US, UK, France, Spain, Netherlands, Canada, Germany and Australia in the last three decades, accounting for more than 50% of world inflows. Regarding the outflows of FDI, the largest foreign investors are US, UK, Japan, France, Germany, Netherlands, Canada and Switzerland, accounting about 70% of world outflows. If we take the market size of the host countries and home countries into consideration, the rankings change significantly. The third and fourth column in Table 1 present FDI inflows as a percentage of host country's GDP and FDI outflows as a percentage of home country's GDP. Netherlands, Ireland, Iceland, Sweden, UK are successful in attracting FDI inflows. In terms of FDI outflows, the largest home countries are Netherlands, Switzerland, Iceland, Sweden and UK. However, compared with the first two columns, US is not the largest country in terms of inflows and outflows of FDI.

In summary, Figures 2 and 3 indicate that around 70% of world FDI inflows go to developed OECD countries and about 90% of world FDI outflows originate from developed OECD countries. Therefore, developed OECD countries as a whole contribute the majority of world inflows/outflows. However, there are significant differences in inflows/outflows among individual developed OECD countries shown in Table 1. Hence, it is interesting to examine why different OECD countries have different amounts of FDI inflows/outflows. Current country level studies on the relationship between inward FDI and growth have focused on developing countries (Zhang, 2001; Campos and Kinoshita, 2002; Basu and Chakraborty,2003; Lyroudi and Papanastasiou, 2004; Makki and Somwaru, 2004; Lumbila, 2005; Sylwester, 2005; Hansen and Rand, 2006; Hsiao and Hsiao, 2006; Greenaway and Sapsford, 2007; Qi, 2007; Duttaray and Dutt, 2008; Liu and Shu, 2009), as

they take the view that developing countries have less advanced technology and are technological laggards compared to developed countries (Roy and Van den Berg, 2006). Therefore, the role of inward FDI in transferring technology to developing countries is more important. In addition, many studies pool both developed and developing countries into one sample and do not distinguish them (Olofsdotter, 1998; de Mello, 1999; Ram and Zhang, 2002; Choe, 2003; Alfaro and Chanda, 2004; Durham, 2004; Le and Suruga, 2005; Busse and Groizard, 2006; Batten and Vo, 2009). Blonigen and Wang (2005) argue that significant differences exist in developed and developing countries and pooling data together leads to false inferences. However, the empirical studies on only developed countries are limited (Ericsson and Irandoust, 2001; Ekanayake and Vogel, 2003; Kottaridi, 2005; Roy and Van den Berg, 2006; Ghosh and Wang, 2009; Iyer and Rambaldi, 2009). In addition, studies on the impact of outward FDI on the home country's economic growth are relatively scarce (Herzer, 2008; Ghosh and Wang, 2009). Therefore, it is important to analyse FDI in developed countries and that is why this study focuses on developed OECD countries.

3. THE RELATIONSHIP BETWEEN FDI AND ECONOMIC GROWTH

According to the neoclassical growth model, output is a function of labour and capital, technology is considered as an exogenous factor (Barro and Sala-i-Martin, 1995). Inward FDI is a driving force of growth as it increases capital accumulation in the host country. However, it only has short-run effect on economic growth (Ericsson and Irandoust, 2001; Asheghian, 2004). Consequently, the research on the long-run impact of inward FDI on growth has led to the endogenous growth theory, which emphasizes the importance of knowledge and technology in the economic growth process and postulates that technological change is an endogenous determinant of economic growth (Barro and Sala-i-Martin, 1995). Inward FDI increases long-run economic growth not only through capital accumulation, but also through technological progress. Inward FDI can make a positive contribution to the host country by supplying advanced technology, product and process innovations (Dunning, 1994; Whyman and Baimbridge, 2008). The entry of foreign firms might stimulate domestic firms to protect their market shares and profits, which leads to severe competition, low price, wide consumer choice and high quality

standards in the host country (Dunning, 1994; Blomstrom and Kokko, 1997; OECD, 2002; Hill, 2009). Increased competition may force local firms to use resources more efficiently, to develop product and process innovation and to promote technological upgrading, etc (Zhang, 2001; OECD, 2002; Ozturk, 2007; Hill, 2009). Therefore, the productivity of local firms can be improved by imitating the more advanced technology brought by inward FDI, by exploiting existing technology and resources more efficiently or by seeking for more advanced technology (Blomstrom and Kokko, 1997, Saggi, 2000; Ozturk, 2007). Furthermore, inward FDI may create forward and backward linkages as foreign firms transfer technology to local suppliers of intermediate goods and customers (Blomstrom and Kokko, 1997; Saggi, 2000; Zhang, 2001; OECD, 2002).

Inward FDI may enhance human capital in the host country by introducing the host country management practices, organizational and marketing techniques (de Mello, 1999; Ericsson and Irandoust, 2001).The foreign firms might provide managerial and working training to their employees. The important information can be transferred to the host country as domestic employees move from foreign to local firms or set up their own businesses (Blomstrom and Kokko, 1997; Saggi, 2000; OECD, 2002; Meier and Rauch, 2005; Hill, 2009). Additionally, the superior skills of foreign firms may stimulate local firms to improve or develop their own skills (Hill, 2009). Furthermore, inward FDI can increase the level of employment in the host country (Baker, 1999; Hill, 2009; Salvatore, 2012). Another benefit is that it improves the efficiency of resource allocation in the host country by engaging in the economic activities where the host country has a comparative advantage (Dunning, 1994; Whyman and Baimbridge, 2008). In addition, the increased competition and demonstration effects encourage domestic firms to use resources more efficiently (Blomstrom and Kokko, 1997; OECD, 2002). Moreover, Inward FDI improves the balance of payments in the host country if inward FDI and imports are substitutes (Hill, 2009). Another benefit to the balance of payments arises when foreign firms undertake production in the host country and export products to other countries (Dunning, 1994; Hill, 2009). Furthermore, the host country can gain through tax revenue from foreign profits (Dunning, 1994; Blomstrom and Kokko, 1997). Finally, inward FDI has the potential to bring environmental benefits to the host country by introducing good practices and clean technologies (OECD, 2002).

Alternatively, there is a risk that foreign technology and working practices cannot accommodate local capacities and needs (Dunning, 1994). Additionally, inward FDI may transfer the host country's advanced technology

to the home country, resulting in a reduction in the comparative advantages of the host country (Dunning, 1994). Another potential drawback is that foreign firms might out-compete local firms and drive local firms out of business, which might lead to foreign firms establish monopolies and raise prices in the host country's market (Blomstrom and Kokko, 1997; Hill, 2009). Moreover, the balance of payments in the host country may be deteriorated if the repatriated profits to the home country are more than the initial capital investment in the host country (Hill, 2009) or if inward FDI promotes imports and limits exports in the host country (Dunning, 1994; Hill, 2009). In addition, foreign firms may try to lower tax paid to the host country through transfer pricing manipulation (Dunning, 1994; Blomstrom and Kokko, 1997). Finally, inward FDI might bring harmful impact on the host country's environment, especially in the extractive and heavy industries (OECD, 2002).

In terms of the impact of outward FDI on home country's economic growth, then technology sourcing might be an important motivation behind outward FDI (Neven and Siotis, 1996; Love, 2003). Home countries can benefit from potential spillovers if the firms that invest abroad access the superior technology, organizational and management techniques in the foreign countries and transfer them back to the home country (Dunning, 1994; Hill, 2009). Additionally, it may facilitate the formation of inter-firm networking and cross-border cooperative alliances, which will benefit the home country (Dunning, 1994). Additionally, outward FDI can also exert a positive influence on home country's economic growth in the following channels. First, outward FDI facilitates firms in the home countries to get access to the global market and to expand production/sales in the foreign markets (Dunning, 1994; O'Connor and Walsh, 1998; Wang and Wong, 2007). Second, it can help firms in the home country avoid domestic competition and compete with foreign firms (O'Connor and Walsh, 1998). Third, the profits earned by the firms abroad can be repatriated to the home country, benefiting its economic development (O'Connor and Walsh, 1998). Moreover, outward FDI may secure raw materials and resources supplies in the foreign country and avoid trade barriers to the foreign market (Dunning, 1994; Baker, 1999; Salvatore, 2012). In addition, outward FDI may help the home country reduce the production costs and increase production efficiency. Finally, the home country's balance of payments can be improved if the inward flow of foreign profits is more than the initial outward investment (Hill, 2009). Furthermore, if outward FDI requires the home country to export inputs, intermediate goods, capital equipment etc to the foreign countries, it will benefit the balance of payments in the home country (Hill, 2009). The increased exports will have a

positive impact on the employment level in the home country (O'Connor and Walsh, 1998; Hill, 2009; Williams, 2009).

In contrast, one harmful effect of outward FDI on the home country is the loss of domestic jobs (Salvatore, 2012). Furthermore, the unemployment level increases if outward FDI is a substitute for exports (O'Connor and Walsh, 1998; Hill, 2009). In addition, outward FDI might have a detrimental effect on the balance of payments in the home country. The balance of payments suffers if the initial outward capital investment is more than the subsequent inward foreign profits. The situation will get worse if outward FDI and exports are substitutes (Hill, 2009). Moreover, multinational firms can avoid domestic monetary policies due to their access to international capital markets, which might create difficulties on government control over the home country's economy (Salvatore, 2012). Finally, there are costs of adjusting to local language and culture, adapting to local business practices and customer needs, learning about the quality of local infrastructure etc (Dunning, 1994).

However, there might be a reverse relationship from economic growth to inward/outward FDI, whereby ignoring the feedback relationship might lead to biased empirical results and restrict the dynamics (Kim and Seo, 2003). Additionally, Dunning (1981) puts forward the investment development path, which suggests that inward and outward direct investment positions of a country are related to its economic development. The basic hypothesis is that as country develops, the OLI (Ownership, Location, Internalization) advantages facing its indigenous firms that might invest abroad and foreign firms that might invest in the country change; consequently, the amounts of inward and outward FDI also change. The investment development path identifies that countries tend to go through several stages of development (Dunning, 1993, 2001; Dunning and Narula, 1996). Moreover, other impacts of economic growth on inward/outward FDI are where economic growth can be seen as an indicator of future market potential in the host country, whereby higher rate of economic growth ensures long-term commitment by foreign investors as it leads to an increase in income and consumer demand for goods and services (Noorbakhsh and Paloni, 2001). It also implies better infrastructure, provides greater incentive for inward FDI (Tsai, 1994) and influences positively the business climate for inward FDI (Morisset, 2000); indeed, rapid growth may also give rise to the presence of economic rents that will encourage inward FDI (Globerman and Shapiro, 1999).Furthermore, economic growth in the home country is positively related with outward FDI. With higher economic performance and development, the banks in the home country are able to provide more loans for firms to invest abroad (Wang and

Wong, 2007). Moreover, firms are more likely to develop their ownership advantages in terms of economies of scale in the production, improvement of marketing expertise, invention and adoption of new technology etc. These are competitive advantages for firms to undertake foreign production (Globerman and Shapiro, 1999; Kyrkilis and Pantelidis, 2003; Kueh and Puah, 2009).

In terms of the empirical studies that investigate the relationship between inward/outward FDI and host/home country's overall economic growth, they examine the impact of inward FDI on growth, the impact of growth on inward FDI and the two-way relationship whereby most studies relate to developing or a mix of developing and developed countries experiences and find a positive impact of FDI on growth. However, the positive impact of FDI is conditional on the host country's threshold absorptive capacity, such as human capital, trade openness, income level, financial development, institutional development etc. Thus, only countries that are above threshold level of development benefit from inward FDI. Alternatively, countries that are above threshold level of development benefit more from inward FDI than countries that are below threshold level of development. There are only three studies (Blonigen and Wang, 2005; Kottaridi, 2005; Ghosh and Wang, 2009) focusing explicitly on developed countries. Blonigen and Wang (2005) do not find a significant impact of inward FDI on economic growth in the developed countries. According to Kottaridi (2005), inward FDI plays a positive role in booting economic growth in the core countries (Belgium-Luxembourg, France, Germany, Netherlands and UK) and the beneficial effect of FDI is enhanced for countries with good human capital. However, inward FDI is incapable of increasing economic growth in the peripheral countries (Greece, Ireland, Italy, Portugal and Spain). In addition, Ghosh and Wang (2009) find the evidence of a positive effect of inward FDI on economic growth in 24 developed countries and the positive effect does not depend on the R&D expenditure in the host country.

Additionally, many studies examine the two-way relationship between inward FDI and economic growth; however, most causality test studies concentrate on developing countries, only five studies (Ericsson and Irandoust, 2001; Ekanayake and Vogel, 2003; Asheghian, 2004; Qi, 2007; Iyer and Rambaldi, 2009) focus explicitly or partly on developed countries. Studies on developed countries find different results based on country sample, time period and methodology. However, these studies do not look for a pattern in the results. Hence, this study tries to fill in the literature gap by examining the causal relationship between inward FDI and economic growth in developed OECD countries. In addition, it tries to look for a pattern in the results to

explain why different developed countries experience different FDI-growth relationships. In relation to the relationship between outward FDI and economic growth, empirical studies on the relationship between outward FDI and home country's economic growth are limited. Looking at the studies on developed countries, Ghosh and Wang (2009) find that outward FDI plays a positive role in the home country's economic growth in 24 developed countries. In addition, Lipsey (2000) examines the determinants of outward FDI and finds that economic growth is a factor positively affecting outward FDI in 22 developed home countries. Finally, Herzer (2008) tests the two-way relationship and finds bi-directional causality between outward FDI and economic growth for 14 developed home countries.

4. RESEARCH METHODOLOGY AND FINDINGS

The idea of causality testing was developed by Granger (1969) between two variables X_t and Y_t based on the model of one variable X_t (Y_t) on the lagged values of both variables. Although the Granger (1969) conventional causality test is valid for a VAR model with stationary or trend stationary variables as the Wald tests for causality follow standard chi-squared distribution asymptotically (Toda and Yamamoto, 1995). However, if the variables in the VAR model are integrated or cointegrated, the Wald tests have nonstandard asymptotic properties and the conventional causality test is not applicable (Dolado and Lutkepohl, 1996). For instance, if variables are known to be integrated of order one with no cointegration, VAR in first-order differences of the variables should be estimated (Dolado and Lutkepohl, 1996). Moreover, if the variables are known to be integrated of order one and to be cointegrated of order one, then error correction model (ECM) should be specified (Toda and Yamamoto, 1995). Therefore, tests for unit roots and cointegration rank are usually required before estimating the VAR model. However, this can prove problematic because the unit root tests to test the null hypothesis of stationarity have low power against the alternative hypothesis of (trend) stationarity (Toda and Yamamoto, 1995). Moreover, simulation experiments show that Johansen's tests for cointegrating ranks are not very reliable for sample sizes that are typical for economic time series (Toda and Yamamoto, 1995). Hence, size distortion and pre-test bias may cause serious problems (Yamada and Toda, 1998). In order to overcome the above problems, Toda and Yamamoto (1995) propose a method that is applicable whether the VAR variables are

stationary, integrated or cointegrated and ensures that the Wald tests have standard asymptotic distributions.

The advantage of this methodology is that tests for unit roots and cointegration rank are not required, as they have proved to be problematic. Hence, this methodology is applicable whether the variables are stationary, integrated or cointegrated.

There are some limitations on this approach. The Monte Carlo simulations suggest that this approach has advantages in terms of size stability, but might be inefficient in terms of low estimation power (Yamada and Toda, 1998). Toda and Yamamoto (1995) argue that the inefficiency depends on the specific model such that this might be big if a VAR system has many variables and the lag length is one (Toda and Yamamoto, 1995). On the other hand, the inefficiency might be relatively small if a VAR system has a small number of variables and long lag length (Toda and Yamamoto, 1995). In our model, we have a VAR system with three variables and long lag length. Therefore, the methodology is appropriate for our model as the inefficiency is relatively small.

Hence, for our model specification we incorporate inward FDI, outward FDI and economic growth into the VAR model, the equations to be estimated for each country are as follows:

$$X_t = \mu_1 + \sum_{i=1}^{k+d} \alpha_{1i} X_{t-i} + \sum_{i=1}^{k+d} \beta_{1i} Y_{t-i} + \sum_{i=1}^{k+d} \theta_{1i} Z_{t-i} + \varepsilon_{1t} \tag{1}$$

$$Y_t = \mu_2 + \sum_{i=1}^{k+d} \alpha_{2i} X_{t-i} + \sum_{i=1}^{k+d} \beta_{2i} Y_{t-i} + \sum_{i=1}^{k+d} \theta_{2i} Z_{t-i} + \varepsilon_{2t} \tag{2}$$

$$Z_t = \mu_3 + \sum_{i=1}^{k+d} \alpha_{3i} X_{t-i} + \sum_{i=1}^{k+d} \beta_{3i} Y_{t-i} + \sum_{i=1}^{k+d} \theta_{3i} Z_{t-i} + \varepsilon_{3t} \tag{3}$$

t is the number of years
k is the optimal lag order
d is the maximal order of integration of the three variables
ε is white noise error terms.
X is inward FDI
Y is growth rate of real GDP
Z is outward FDI

Annual FDI flow data are used as most previous time-series causality studies use flow data. The variables are FDI inflows as a percentage of GDP, FDI outflows as a percentage of GDP and the growth rate of GDP in constant 2000 US dollars.

Table 2. Unit root test results

		Australia	Austria	Canada	Denmark	Finland	France	Germany	Ireland	Italy	Japan
FDI inflows	DF-GLS test	I(0)	Unknown	I(0)	I(1)	Unknown	I(1)	I(1)	I(1)	I(2)	I(1)
	ADF test	I(0)	I(1)	I(1)	I(1)	I(2)	I(1)	I(1)	Unknown	I(1)	I(1)
FDI outflows	DF-GLS test	I(0)	I(1)	Unknown	I(0)	I(1)	I(0)	I(0)	I(1)	Unknown	I(1)
	ADF test	I(0)	I(1)	Unknown	I(0)	I(1)	I(0)	I(0)	I(2)	I(1)	Unknown
GDP growth rate	DF-GLS test	I(0)	I(0)	I(0)	I(0)	I(0)	I(0)	I(0)	I(2)	I(0)	I(1)
	ADF test	I(1)	I(0)	I(0)	I(0)	I(0)	I(0)	I(0)	I(2)	I(1)	I(1)
		Korea	Netherlands	New Zealand	Norway	Portugal	Spain	Sweden	Switzerland	UK	US
FDI inflows	DF-GLS test	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(2)	I(0)	I(0)
	ADF test	I(1)	I(1)	I(0)	I(1)	I(1)	I(2)	I(1)	I(2)	I(0)	I(0)
FDI outflows	DF-GLS test	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(0)	I(0)	I(0)	I(2)
	ADF test	Unknown	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(0)	I(0)	I(2)
GDP growth rate	DF-GLS test	I(1)	I(1)	I(0)	I(0)	I(0)	I(0)	I(0)	I(0)	Unknown	I(0)
	ADF test	I(1)	I(1)	I(1)	I(0)	I(0)	I(0)	I(0)	I(0)	I(0)	I(2)

Note: Data in Germany refer to former federal republic of Germany (West Germany) before 1990, data refer to former federal republic of Germany (West Germany) and former democratic republic of Germany (East Germany) from 1990.

Real FDI values are not used since the investment deflator is not available, instead we use FDI inflows/outflows as a percentage of GDP and GDP in constant 2000 US dollars from World Development Indicators (2011).

Table 3. The number of integration order

Country	DF-GLS test	ADF test
Australia	0	1
Austria	1	1
Canada	0	1
Denmark	1	1
Finland	1	2
France	1	1
Germany	1	1
Ireland	2	2
Italy	2	1
Japan	1	1
Korea	1	1
Netherlands	1	1
New Zealand	1	1
Norway	1	1
Portugal	1	1
Spain	1	2
Sweden	1	1
Switzerland	2	2
UK	0	0
US	2	2

Note: Data in Germany refer to former federal republic of Germany (West Germany) before 1990, data refer to former federal republic of Germany (West Germany) and former democratic republic of Germany (East Germany) from 1990.

The time period is between 1981 and 2008. The country sample includes 20 developed OECD countries – Australia, Austria, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Korea, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, UK and US, although we include Switzerland where data are only available between 1983 and 2008. Other countries are not included as there are not enough observations: Belgium (2002-2008), Greece (1999-2008), Iceland (1986-2008), Luxembourg (2002-2008).

The most commonly used test of the unit root in time-series is the augmented Dickey-Fuller (ADF) test. However, Hsiao and Hsiao (2006) argue that the DF-GLS test (Elliot and Rothenberg, 1996) for unit root has higher power in the sense that it is more likely to reject the null hypothesis of a unit root and accept the alternative hypothesis of no unit root. Therefore Hsiao and Hsiao (2006) use both ADF test and DF-GLS test for unit root. So we follow their method and apply both tests for comparison.

Table 2 presents the results from the ADF and DF-GLS unit root tests for each country, which we summarize the order of integration, which is presented in Table 3.

Table 4. Optimum lags

Country	LR	FPE	AIC	HQIC	SBIC
Australia	4	1	4	1	1
Austria	4	4	4	4	4
Canada	4	4	4	4	1
Denmark	4	0	0	0	0
Finland	4	4	4	4	0
France	4	4	4	4	4
Germany	4	2	4	2	1
Ireland	4	4	4	4	1
Italy	4	1	4	1	1
Japan	4	1	4	1	1
Korea	2	2	2	2	1
Netherlands	4	2	2	2	2
New Zealand	4	4	4	4	0
Norway	3	3	3	3	0
Portugal	3	3	3	3	3
Spain	4	4	4	4	1
Sweden	4	1	1	1	1
Switzerland	4	4	4	4	4
UK	3	1	3	1	1
US	4	1	4	1	1

Notes: (1) Data in Germany refer to former federal republic of Germany (West Germany) before 1990, data refer to former federal republic of Germany (West Germany) and former democratic republic of Germany (East Germany) from 1990. (2) Duttaray and Dutt, (2008) set the maximum lag length as 4 using 27 observations and Qi (2007) sets the maximum lag length as 5 using 34 observations. The maximum lag is set as 4 for all countries as the number of observation is 28.

Table 5. Summary of diagnostic tests

Country	Optimum lag k	Maximum order of integration d	Normality tests	LM test	Stability test
Australia	1	1	X	√	√
Austria	4	1	X	X	X
Canada	1	1	X	X	√
Denmark	4	1	√	X	X
Finland	4	1	√	√	X
France	4	1	√	√	X
Germany	4	1	√	√	X
Ireland	4	2	X	X[a]	X
Italy	1	1	X	√	√
Japan	1	1	X	√[a]	√
Korea	2	1	√[a]	√	√
Netherlands	4	1	X	√	X
New Zealand	4	1	√	X	√
Norway	3	1	√	√	X
Portugal	3	1	√	√	√
Spain	1	1	X	X	√
Sweden	4	1	√	X	√
Switzerland	4	2	X	X[a]	X
UK	1	1	X	√	√
US	4	2	√[a]	X[a]	X

Notes: (1) Data in Germany refer to former federal republic of Germany (West Germany) before 1990, data refer to former federal republic of Germany (West Germany) and former democratic republic of Germany (East Germany) from 1990. (2) Normality tests include skewness statistic, kurtosis statistic and the Jarque-Bera statistic tests for normally distributed disturbances after VAR. The null hypothesis is that the errors are normally distributed after VAR at 10% level. √ means that the null hypothesis is accepted at 10% level. √[a] means the null hypothesis is accepted at 5% level, but rejected at 10% level. X means the null hypothesis is rejected at both 5% level and 10% level. (3) In Lagrange-multiplier (LM) test for residual autocorrelation after VAR, the null hypothesis is that the residual is not auto-correlated after VAR at 10% level. √ means that the null hypothesis is accepted at 10% level until lag 4, √[a] means the null hypothesis is accepted at 5% level, but rejected at 10% level until lag 4. X means the null hypothesis is rejected at both 5% and 10% level until lag 4. X[a]: the exogenous variables may not be collinear with the dependent variables or their lags. (4) In stability test, √ means that the VAR model satisfies stability condition and X means that the VAR model does not satisfy stability condition.

Furthermore, there are different criteria for choosing optimum lag length including Akaike's information criterion (AIC), the final prediction error (FPE), the Hannan-Quinn information criterion (HQIC), likelihood ratio (LR) test, and Schwarz's Bayesian information criterion (SBIC). Most time-series causality studies use only one criterion to select optimum lag order (Ericsson and Irandoust, 2001; Zhang, 2001; Ekanayake and Vogel, 2003; Chowdhury and Mavrotas, 2006; Hsiao and Hsiao, 2006; Chang, 2007; Qi, 2007; Duttaray and Dutt, 2008; Ang, 2009; Lee, 2009; Liu and Shu, 2009). However, we employ all five criteria to select the optimum lag in order to show a broad picture. Table 4 presents the number of optimum lags for each country according to the above five criteria.

Finally, in relation to diagnostic tests, in the time-series causality literature, most studies do not mention, or do not report diagnostic tests results. However, three diagnostic tests are conducted to test the model, namely skewness statistic, kurtosis statistic and the Jarque-Bera statistic tests for normally distributed disturbances after VAR, Lagrange Multiplier (LM) test for residual autocorrelation after VAR, stability test to check stability condition of VAR. These diagnostic tests are carried out using different combinations of integration order (Table 3) and optimal lags (Table 4). According to Toda and Yamamoto (1995), (k+1)-th order VAR model should be estimated when the optimal lag length is k and the order of integration is zero. Therefore the maximum order of integration d is one when the order of integration is zero. Table 5 presents the diagnostic tests results using the best combinations of optimum lags and maximum order of integration for each country. However, most of these countries do not satisfy all three diagnostic tests, which means that the econometric model could be mis-specified and the analysis results could be biased for some countries.

FINDINGS AND CONCLUSION

Table 6 summarizes the causal relationship between FDI inflows/outflows and the growth rate of GDP. The analysis results indicate a one-way relationship from FDI inflows to growth in two countries (Australia and Sweden), a one-way relationship from growth to FDI inflows in two countries (Japan and Korea), a two-way relationship in eleven countries (Austria, Denmark, Finland, France, Ireland, Netherlands, New Zealand, Norway, Portugal, Switzerland and US) and no causal relationship in five countries (Canada, Germany, Italy, Spain and UK). In terms of the link between FDI

outflows and growth, the causal link runs from FDI outflows to growth for four countries (Australia, France, New Zealand and Norway), the reverse causality is found in four countries (Germany, Korea, Portugal and UK), the bi-directional causality exists for eight countries (Austria, Denmark, Finland, Ireland, Netherlands, Sweden, Switzerland and US) and no causality is found in four countries (Canada, Italy, Japan and Spain).

Table 6. Summary of causality tests

		Countries
Relationship between FDI inflows and growth	FDI → growth	Australia, Sweden
	FDI ← growth	Japan, Korea
	FDI ↔ growth	Austria, Denmark, Finland, France, Ireland, Netherlands, New Zealand, Norway, Portugal, Switzerland, US
	No causality	Canada, Germany, Italy, Spain, UK
Relationship between FDI outflows and growth	FDI → growth	Australia, France, New Zealand, Norway
	FDI ← growth	Germany, Korea, Portugal, UK
	FDI ↔ growth	Austria, Denmark, Finland, Ireland, Netherlands, Sweden, Switzerland, US
	No causality	Canada, Italy, Japan, Spain

Notes: (1) Data in Germany refer to former federal republic of Germany (West Germany) before 1990, data refer to former federal republic of Germany (West Germany) and former democratic republic of Germany (East Germany) from 1990. (2) It is significant at 10% level.

As shown in Table 6, different countries experience different FDI-growth relationships, hence we analyse whether the reasons depend on country-specific factors (e.g. financial development, GDP per capita, trade openness, domestic investment, R&D expenditure, inflation rate, corporate tax revenue, trade union density, employment protection legislation index and unemployment rate). For example, we try to investigate whether countries with good financial development, higher GDP per capita etc experience FDI-led growth. However, the period average data on country specific factors do not provide evidence why different countries follow different patterns in FDI-growth relationship. The reasons for not being able to find a pattern on FDI-growth relationship might be due to the limitations of Granger causality test proposed by Toda and Yamamoto (1995). First, the causality test suffers from inefficiency because of the artificially augmented lag (Kurozumi and Yamamoto, 2000). In addition, although the empirical size of the test statistic

is less distorted when the sample size is small, but the approach is not completely free from size distortion and it still has a large size distortion in some cases (Kurozumi and Yamamoto, 2000). Another limitation is that the causality test only examines the directions of causal links between inflows/outflows and economic growth, but does not check whether the causal links are positive or negative. Finally, most sample countries do not satisfy all the diagnostic tests, so the econometric model could be mis-specified.

In summary, however, this chapter contributes to the existing literature by focusing on developed countries as inward/outward FDI has become an increasingly significant factor in influencing the economic activity in a developed country. Moreover, most previous time-series causality studies focus on developing countries and only a few studies cover developed countries (Ericsson and Irandoust, 2001; Ekanayake and Vogel, 2003; Asheghian, 2004; Qi, 2007; Iyerand Rambaldi, 2009); although almost all of the world's FDI originates from developed countries and the majority of FDI is also located in developed countries.

Another feature is that this chapter also tests the causal link between outward FDI and economic growth. Outward FDI might promote the home country's economic growth as it might yield higher profits, transfer technology and management skills to the home country, expand production abroad, secure raw materials overseas, and avoid trade barriers and so on.

REFERENCES

Alfaro, L. and A. Chanda (2004) FDI and economic growth: the role of local financial markets. *Journal of International Economics* 64: 89-112.

Ang, J. B. (2009) Financial development and the FDI-growth nexus: the Malaysian experience. *Applied Economics* 41: 1595-1601.

Asheghian, P. (2004) Determinants of economic growth in the United States: the role of foreign direct investment. *The International Trade Journal* 18: 63-83.

Baker, J. C. (1999) *Foreign direct investment in less developed countries: the role of ICSID and MIGA*. London, Quorum Books.

Barro, R. J. and X. Sala-i-Martin (1995) *Economic growth*. New York, McGraw-Hill.

Basu, P. and C. Chakraborty (2003) Liberalization, FDI and growth in developing countries: a panel cointegration approach. *Economic Inquiry* 41: 510-516.

Batten, J. A. and X. V. Vo (2009) An analysis of the relationship between foreign direct investment and economic growth. *Applied Economics*41: 1621-1641.

Bengoa, M. and B. Sanchez-Robles (2003) Foreign direct investment, economic freedom and growth: new evidence from Latin America. *European Journal of Political Economy19*: 529-545.

Blomstrom, M. and A. Kokko (1997) How foreign investment affects host countries.Policy *Research Working Paper* 1745. Washington D C, The World Bank.

Blonigen, B. A. and M. G. Wang (2005). Inappropriate pooling of wealthy and poor countries in empirical FDI studies. *Does foreign direct investment promote development?* T. H. Moran, E. M. Graham, et al. (eds) Washington D C, Institute for International Economics and Centre for Global Development.

Busse, M. and J. L. Groizard (2006) Foreign direct investment, regulations and growth. *Policy Research Working Paper* 3882. Washington D C, World Bank.

Campos, N. F. and Y. Kinoshita (2002) Foreign direct investment as technology transferred: some panel evidence from the transition economies. *The Manchester School*70: 398-419.

Chang, S. C. (2007) The interactions among foreign direct investment, economic growth, degree of openness and unemployment in Taiwan. *Applied Economics* 39: 1647-1661.

Choe, J. I. (2003) Do foreign direct investment and gross domestic investment promote economic growth? *Review of Development Economics* 7: 44-57.

Chowdhury, A. and G. Mavrotas (2006) FDI and growth: what causes what? *The World Economy*29: 9-19.

de-Mello, L. R. (1999) Foreign direct investment-led growth: evidence from time-series and panel data. *Oxford Economic Papers* 51: 133-151.

Dolado, J. J. and H. Lutkepohl (1996) Making Wald tests work for cointegrated VAR systems. *Econometric Reviews* 15: 369-386.

Dunning, J. H. (1981) Explaining the international direct investment position of countries: towards a dynamic or developmental approach. *Review of World Economics* 117: 30-64.

Dunning, J. H. (1993) Multinational enterprises and the global economy. Wokingham, Addison-Wesley.

Dunning, J. H. (1994) Re-evaluating the benefits of foreign direct investment. *Transnational Corporations* 3: 23-52.

Dunning, J. H. and R. Narula (1996) The investment development path revisited: some emerging issues. *Foreign direct investment and governments - catalysts for economic restructuring*. J. H. Dunning and R. Narula (eds) London, Routledge: 1-41.

Durham, J. B. (2004) Absorptive capacity and the effects of foreign direct investment and equity foreign portfolio investment on economic growth. *European Economic Review*48: 285-306.

Duttaray, M. and A. K. Dutt (2008) Foreign direct investment and economic growth in less developed countries: an empirical study of causality and mechanisms. *Applied Economics*40: 1927-1939.

Ekanayake, E. M. and R. Vogel (2003) Openness and economic growth: empirical evidence on the relationship between output, inward FDI and trade. *Journal of Business Strategies*20: 59-72.

Elliott, G. and T. J. Rothenberg (1996) Efficient tests for an autoregressive unit root. *Econometrica* 64: 813-836.

Ericsson, J. and M. Irandoust (2001) On the causality between foreign direct investment and output: a comparative study. *The International Trade Journal* 15: 1-26.

Ghosh, M. and W. Wang (2009). Does FDI accelerate economic growth? The OECD experience based on panel data estimates for the period 1980-2004. *Global Economy Journal* 9 (4).

Globerman, S. and D. M. Shapiro (1999) The impact of government policies on foreign direct investment: the Canadian experience. *Journal of International Business Studies* 30: 513-532.

Globerman, S. and D. Shapiro (2002) Global foreign direct investment flows: the role of governance infrastructure. *World Development* 30: 1899-1919.

Granger, C. W. J. (1969) Investigating causal relations by econometric models and cross-spectral methods. *Econometrica* 37: 424-438.

Greenaway, D. and D. Sapsford (2007) Foreign direct investment, economic performance and trade liberalisation. *The World Economy* 30: 197-210.

Hansen, H. and J. Rand (2006) On the causal links between FDI and growth in developing countries. *The World Economy* 29: 21-41.

Herzer, D. (2008) The long-run relationship between outward FDI and domestic output: evidence from panel data. *Economics Letters* 100: 146-149.

Hill, C. W. L. (2009) *International business: competing in the global market place.* London, McGraw-Hill.

HM Treasury (1996) Overseas investment and the UK explanations, policy implications, facts and figures. *Treasury Occasional Paper* 8. London, HM Treasury.

Hsiao, F. S. T. and M.-C. W. Hsiao (2006) FDI, exports and GDP in East and Southeast Asia – panel data versus time-series causality analyses. *Journal of Asian Economics17*: 1082-1106.

http://www.cbpp.org/cms/index.cfm?fa=view&id=3441

Iyer, K. G. and A. N. Rambaldi (2009) How trade and foreign direct investment affect the growth of a small but not so open economy: Australia? *Applied Economics* 41: 1525-1532.

Kim, D. D.-K. and J.-S. Seo (2003) Does FDI inflow crowd out domestic investment in Korea? *Journal of Economic Studies* 30: 605-622.

Kottaridi, C. (2005) The 'core-periphery' pattern of FDI-led growth and production structure in the EU. *Applied Economics* 37: 99-113.

Kueh, J. S.-H. and C.-H. Puah(2009) Empirical analysis on emerging issues of Malaysia outward FDI from macroeconomic perspective. *International Review of Business Research Papers* 5: 124-134.

Kurozumi, E. and T. Yamamoto (2000) Modified lag augmented vector autoregressions. *Econometric Reviews* 19: 207-231.

Kyrkilis, D. and P. Pantelidis (2003) Macroeconomic determinants of outward foreign direct investment. *International Journal of Social Economics* 30: 827-836.

Le, M. V. and T. Suruga (2005) Foreign direct investment, public expenditure and economic growth: the empirical evidence for the period 1970-2001. *Applied Economics Letters* 12: 45-49.

Lee, C. G. (2009) Foreign direct investment, pollution and economic growth: evidence from Malaysia. *Applied Economics* 41: 1709-1716.

Lipsey, R. E. (2000) Interpreting developed countries foreign direct investment. *NBER Working Paper 7810*. Cambridge, National Bureau of Economic Research.

Liu, X. and C. Shu (2009) Trade, foreign direct investment and economic growth in Asian economies. *Applied Economics* 41: 1603-1612.

Lumbila, K. N. (2005) What makes FDI work? A panel analysis of the growth effect of FDI in Africa. *Africa Region Working Paper* 80. Washington D C, World Bank.

Lyroudi, K. and J. Papanastasiou (2004) Foreign direct investment and economic growth in transition economies. *South Eastern Europe Journal of Economics*1: 97-110.

Makki, S. S. and A. Somwaru (2004) Impact of foreign direct investment and trade on economic growth: evidence from developing countries. American *Journal of Agricultural Economics*86: 795-801.

Meier, G. M. and J. E. Rauch (2005) *Leading issues in economic development.* Oxford, Oxford University Press.

Morisset, J. (2000) Foreign direct investment in Africa: policies also matter. *Policy Research Working Paper* 2481. Washington D C, The World Bank.

Noorbakhsh, F. and A. Paloni (2001) Human capital and FDI inflows to developing countries: new empirical evidence. *World Development*29: 1593-1610.

O'Connor, C. and E. O. M. Walsh(1998) Irish outward foreign direct investment - The future impetus for economic growth. *Student Economic Review (SER).*Dublin, Ireland, Trinity College Dublin.

OECD (2002) Foreign direct investment for development: maximising benefits, minimising costs. Paris, Organisation for Economic Co-operation and Development. http://www.oecd.org/dataoecd/47/51/1959815.pdf

Olofsdotter, K. (1998) Foreign direct investment, country capabilities and economic growth. *Weltwirtschaftliches Archiv* 134: 534-547.

Ozturk, I. (2007) Foreign direct investment-growth nexus: a review of the recent literature. *International Journal of Applied Econometrics and Quantitative Studies*4: 79-98.

Qi, L. (2007) The relationship between growth, total investment and inward FDI: evidence from time series data. *International Review of Applied Economics*21: 119-133.

Ram, R. and K. H. Zhang (2002) Foreign direct investment and economic growth: evidence from cross-country data for the 1990s. *Economic Development and Cultural Change* 51: 205-215.

Roy, A. G. and H. F. Van-den-Berg (2006) Foreign direct investment and economic growth: a time-series approach. *Global Economy Journal* 6(1).

Saggi, K. (2000) Trade, foreign direct investment, and international technology transfer: a survey. *Policy Research Working Paper* 2349. Washington D C, The World Bank.

Salvatore, D. (2012) *Introduction to international economics*. Hoboken, Wiley.

Sylwester, K. (2005) Foreign direct investment, growth and income inequality in less developed countries. *International Review of Applied Economics*19: 289-300.

Toda, H. Y. and T. Yamamoto (1995) Statistical inference in vector autoregressions with possibly integrated processes. *Journal of Econometrics*66: 225-250.

Tsai, P.-L.(1994) Determinants of foreign direct investment and its impact on economic growth. *Journal of Economic Development*19: 137-163.

UNCTAD (1995) Transnational corporations and competitiveness. *World Investment Report* 1995. New York and Geneva, United Nations Conference on Trade and Development.

UNCTAD (2002) Transnational corporations and export competitiveness. *World Investment Report* 2002. New York and Geneva, United Nations Conference on Trade and Development.

UNCTAD (2006) FDI from developing and transition economies: implications for development. *World Investment Report* 2006. New York and Geneva, United Nations Conference on Trade and Development.

UNCTAD (2008) Transnational corporations and the infrastructure challenge. *World Investment Report* 2008. New York and Geneva, United Nations Conference on Trade and Development.

UNCTAD (2009) Transnational corporations, agricultural production and development. *World Investment Report* 2009. New York and Geneva, United Nations Conference on Trade and Development.

Wang, M. and M. C. S. Wong (2007) Foreign direct investment outflows and business-cycle fluctuations. *Review of International Economics*15: 146-163.

Whyman, P. B. and M. Baimbridge (2008) Labour market flexibility as a key determinant of FDI: evidence from the UK. *Foreign direct investment*. H. G. Blaine (ed) Hauppauge, New York, Nova Science Publishers.

Williams, D. A. (2009) Determinants of outward foreign direct investments from small island developing states. *American Journal of Economics and Business Administration*1: 45-54.

World Bank (2011) World Development Indicators. Washington D C, The World Bank. http://www.esds.ac.uk/international/access/access.asp

Yamada, H. and H. Y. Toda (1998) Inference in possibly integrated vector autoregressive models: some finite sample evidence. *Journal of Econometrics*86: 55-95.

Yang, J. Y. Y. and N. Groenewold (2000) The determinants of foreign direct investment in Australia. *Economic Record* 76: 45-54.

Zhang, K. H. (2001) Does foreign direct investment promote economic growth? Evidence from East Asia and Latin America.Contemporary *Economic Policy* 19: 175-185.