

THE DETERMINANTS OF ASEAN COUNTRIES' ATTRACTIVENESS TO FOREIGN DIRECT INVESTMENT IN REAL ESTATE

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ABSTRACT

Foreign direct investment (FDI) is not a new form of investment in ASEAN and over recent years, it has played a significant role in ASEAN economic growth. Foreign direct investment in real estate (FDIRE), however, is relatively new to the real estate sector. In a global investment, the competitiveness of a country, and hence its ability to attract and retain investors, is one of the main drivers of sustainable economic development of a country. In order to be more attractive, a particular country has to determine the attractiveness factors driving FDIRE sector. Knowing a country's FDI attractiveness can help maximize profit and minimize risks for the investing counterpart. Attractiveness of a country can be evaluated through its ability to be profitable, creative and balanced by measuring factors such as accessibility, real estate and financial attractiveness (financial centres and balance of payments). However, appropriate analytical model for attractiveness assessment are required to determine for competing countries in FDIRE. The aim of this study is to determine the attractiveness of FDIRE incorporating real estate, socio-cultural, technological, economic and political (ReSTEP) factors and transaction costs (TC) in ASEAN countries using gravity model from 1999-2010. The gravity model is used to identify the variables which best explain differences between ASEAN countries as hosts to FDIRE. This study considers the basic gravity variables from a theoretical overview based on a literature survey and availability of data. This study uses panel data analysis of bilateral countries of ASEAN-5 (Malaysia, Indonesia, Philippines, Singapore and Thailand) countries as a host country and 11 source countries. The results show that all variables are significant except property prices (PPRICE), real estate transparency (ReTRANS), consumer price index (CPI) and exchange rate (EXC). PPRICE and ReTRANS for real estate factors, while CPI and EXC for economic factors. Therefore, to attract more FDIRE in ASEAN countries, each country should improve their socio-cultural, technological, economy and reduce the real estate registration restriction and also avoid excessive transaction costs.

Keywords: Foreign Direct Investment in Real Estate (FDIRE), ASEAN, Gravity Model

INTRODUCTION

The establishment of ASEAN Declaration by the ASEAN-5 countries (Malaysia, Indonesia, Philippines, Singapore and Thailand) in 1967 is to promote political and economic cooperation and regional stability as a center for global investment. Also to accelerate economic growth, social progress and socio-cultural evolution among the ASEAN members. There are several initiatives implemented to achieve these aims including the removal of trade and investment barriers to attract foreign direct investment (FDI) from investors to the ASEAN region through the agreement on ASEAN Investment Guarantee Agreement (AIGA) in 1987, ASEAN Free Trade Area (AFTA) in 1992, ASEAN Investment Area (AIA) in 1998 and the latest ASEAN Comprehensive Investment Area (ACIA) in 2009. Even though all ASEAN countries except Singapore had adopted restrictive regulations to control FDI firms in order to alleviate the harmful effects of FDI to local economies, in the mid-1980s due to the debt crisis of 1985 and the evocation of Newly Industrial Economies (NIEs), most ASEAN countries switched from inward to outward strategies of FDI (Ismail, 2009). A component of these strategies is off-shore real estate investment, i.e. foreign direct investment in real estate (called FDIRE hereinafter).

As seen in **Figure 1**, ASEAN FDIRE has grown positively from a record low of US\$624.28 million in 1999 to its peak of US\$8165 million in 2007. From 2000-2001, the FDIRE flow in ASEAN countries fell to 10.80% from the previous level of 15.71% due to the Asian financial crisis in 1997. The flow however rose in 2002 to 58.23%. A 19.04% decline was then seen from 2004 to 2007 to US\$825 million, followed by a continuous rise from 2004 to 2007. A fall of 32.44% (US\$5516 million) occurred in 2008. 2009 and 2010 then saw a continuous increase from 33.76% to 74.13%. Compared to non-FDIRE growth in ASEAN countries (particularly in the manufacturing and financial services sectors), it seems that both move in tandem from 2004 until 2010. FDIRE seems to have rapid growth and this may unlock the potential of real estate sector in the ASEAN countries' economic growth from the FDI perspectives. This view is consistent with Masron and Feredouni (2012), who found that FDIRE and FDI have a significant and positive impact on the host country's economic development.

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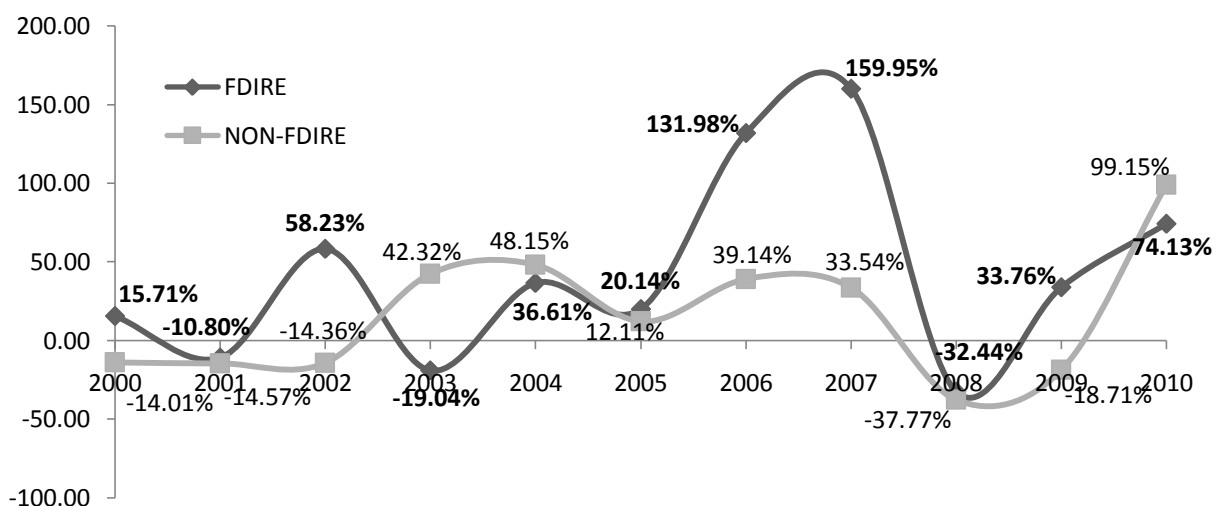


Figure 1: ASEAN FDIRE and Non-FDIRE Growth (%), 2000-2010

However, FDIRE is relatively new to the real estate sector in ASEAN and the world alike. Significant cross-border investment in real estate by institutional investors did not occur until the 1980s (Spremann and Gantenbein, 2003). This is supported by Masron and Feredouni (2012) whose study showed that there is an increasing trend of FDIRE globally and in certain countries. Statistical analysis by Brown and Matysiak (2000) showed that 37% of the world's wealth was accounted for by foreign real estate investment. This situation has grown considerably in the last decade in ASEAN countries. FDIRE in Thailand for instance started in the mid-1990. Almost 40% of net FDI in Thailand from 1993 to 1996 was in the real estate sector, signalling a shift of FDI from the manufacturing sector to the real estate and infrastructure sectors (Soontiensand Haemputchayakul, 2001; Brimble and Techaratanawiroj, 2006). In Malaysia, the value of FDIRE increased from RM1.8 billion in 2003 to RM7.4 billion in 2007 (Masud, Yusoff, Hamid, and Yahaya, 2008). Then in 2008, 54% of the total FDI in Vietnam was registered in the real estate sector (Thu and Perera, 2010).

In the real estate sector, countries that are expected to have a strong and stable economy are perceived as the most significant factor to attract foreign investors (Chin, Dent, and Roberts, 2006). It also automatically affects the demand for real estate assets (DiPasquale and Wheaton, 1992). There is a high-impact economic policy in terms of economic gains that it can bring about not only for the investors concerned but also for a country. The impact of FDIRE on the U.S. and India shows that it influences the movement of domestic interest rates and directly contributes to the creation of new jobs in this sector. FDIRE also provides foreign and domestic investors with a diversification option that has solid returns without the volatility of stocks and also provides direct investment that helps support a healthy real estate industry. Moreover, FDIRE is important because it can create major inflows of funds that can enhance domestic investment to achieve a higher level of real estate development and triggering new technology advancement (REALTORS, 2003; Mamata, 2011).

Although FDIRE creates some benefits, international investors have to face markets composed of many different factors such as different economies, cultures and regulations of the host country. In order to cope with these significant factors and to make profitable investment decision on global market level, investors must assess the risk of the investment, taking into consideration all these key factors while deciding on an investment opportunity (Hines, 2001; 1988). FDI by private equity funds and other collective investment funds have also been adversely affected by the financial crisis (UNCTAD, 2009). This situation has triggered a new challenge for investors to decide which country is a better host for their investments. It is important to recognize that each country is different and each one has different factors of FDI attractiveness (Cabrera and Giraldo, 2009). These factors may differ significantly from one location to another depending on the attractiveness of a particular region or country.

The attractiveness of a country nonetheless lacks precise definition. The concept of attractiveness is well-suited to assessing the situation of an economy in a globalised economy and is only useful in the formulation of economic policy if it is precisely defined (Banque De France, 2004). The assessment of a country's attractiveness as a location for FDI from the investor's viewpoints is an important feature that contributes to estimate the degree of economic and financial development of host countries. Therefore, there are several aspects that need to be analyzed by determining critical factors to be included and measured to obtain final ranking of attractiveness.

Attractiveness of a country can be evaluated in many ways such as its ability to be profitable, creative and balanced by measuring factors such as accessibility, taxation, labor, real estate, risk management, sustainable management of resources, city pride, creativity and innovativeness, corporate spirit (Ernst and Young, 2008); real economic activity and

employment measured by statistics on foreign subsidiaries established in a particular country, mobility of goods, labour and capital, and financial attractiveness such as financial centres and balance of payments (Banque De France, 2004). However, appropriate analytical model for attractiveness assessment are required to determine for competing countries in FDIRE.

In a global investment, the competitiveness of a country, and hence its ability to attract and retain investors, is one of the main drivers of its sustainable economic development. Competitiveness is defined as a set of factors, policies, and institutions that determine the level productivity in a country (World Economic Forum, 2005). Therefore, in order to be more attractive, a particular country has to determine the attractiveness factors driving FDIRE in their countries. This is important problem because knowing a country's FDIRE attractiveness can help maximize profit and minimize risks for the investing counterpart.

Therefore, to synchronize with the aims and purposes of ASEAN Declaration to promote ASEAN as an attractive investment destination, this study attempts to determine the attractiveness of FDIRE incorporating the real estate, socio-cultural, technological, economic and political (ReSTEP) factors and transaction costs (TC) in ASEAN-5 countries through gravity model from year the 1999-2010. To the best of our knowledge, so far, studies on the importance of ReSTEP factors and geographical distance as a proxy for transaction costs in the determination of bilateral FDIRE in ASEAN-5 countries using gravity model are strictly limited. Thus, it attempts to provide the answer to one simple question, which is what are the attractiveness factors driving FDIRE in ASEAN-5 countries.

The rest of the paper is structured as follows. Section 2 and Section 3 provides a literature review and conceptual framework. Section 4 explains the data and methodology. Section 5 reports the results and discussion. The conclusion and summary are presented in Section 6.

LITERATURE REVIEW

Although FDI theories are not new, there are none has linked to the real estate sector. Most theoretical work has been discussing on manufacturing and production sectors. This view is supported by Holsapple, Terutomo, and Olienyk (2006), Salem (2011) and Zull Kepili and Masron (2011). However, Dunning (1993) argued that the eclectic paradigm also can be applied to service-oriented FDI (i.e. real estate and hotel FDI). Therefore, Holsapple, et al (2006) were adapting Dunning's eclectic paradigm in 2006 to evaluate FDI in real estate (FDIRE). Indeed, recently many studies applied Dunning's eclectic paradigm to evaluate FDIRE in their studies (Hsieh, 1997; Holsapple, et al, 2006; Paul, 2009; Zull Kepili and Masron, 2011; Salem, 2011; Chen, 2011; Fereidouni and Masron, 2011; Lieser and Groh, 2014).

The Dunning's eclectic paradigm is the most comprehensive framework as it covers most of the earlier theories of FDI. Eclectic paradigm integrated the ownership, location and internalisation (OLI) advantages to evaluate FDI. However, real estate investments often exist in the forms of foreign direct investment (FDI) or foreign portfolio investment (FPI) (Holsapple, et al, 2006). FDI exists in the form of lasting interest in a domestic enterprise, a minimum 10% ownership and voting power, control of enterprise in the long term, in terms of active management decisions (IMF, 1977; Lee and Lim, 2007; Masud, et al, 2008; OECD, 2008; UNCTAD, 2008; Karimi and Yusop, 2009; Jackson, 2013) and generally, FDI investors are active players. Portfolio investors, by contrast, are passive owners of financial securities (Holsapple, et al, 2006).

Due to the hybrid of FDI and FPI in real estate investment, Holsapple, et al. (2006) had extended Dunning's eclectic paradigm by insert portfolio (P) advantages to OLI paradigm to evaluate FDIRE known as OPLI paradigm. However, Salem (2011) argued that the paradigm should have the ordering of LOPI instead of OPLI. He stated that investors start looking at national and macro level factors on countries worldwide, then they can evaluate O, Pand I advantages. Therefore, LOPI paradigm proposed by Salem (2011)is moresuitable in this study as real estate has greater association with location advantages than ownership advantages. Thus, based on the FDI theories reviewed in this section, the extended eclectic (LOPI) paradigm is the most suitable and useful in this studyas the basisto determine FDIRE factors in ASEAN countriessince different countries has different FDIRE factors. It depends on the situation of a particular country.

Previous studies which attempt to determine FDI in ASEAN countries were more focused on general FDI (Uttama, 2005; Suebsawangkul, 2006; Plummer and Cheong, 2007; Ismail, 2009; Karimi, Yusop, and Law, 2010; Masron and Abdullah, 2010; King, Ismail, and Hook, 2010; Hattari, Rajan, and Thangavelu, 2012; Hoang, 2012) and manufacturing sector (Ismail and Yussof, 2003; Masron and Abdullah, 2010; Yussof and Ismail, 2002; Mirza and Giroud, 2003; Athukorala and Wagle, 2011). However, none has focused on ASEAN's real estate sector in specific. Therefore, to bridge this gap, previous studies on the determinants of FDI in ASEAN countries need to merge with the few specific studies on FDIRE in others region countries.

The intention of this section is to focus on the factors driving FDIRE in ASEAN countries through a critical review of the literature. The factors considered here are related to the LOPI framework which stated that the factors driving investors to undertake FDIRE depend on host country's economic, political and socio-cultural factors. These factors are

also applied by Hsieh (1997), Lai and Fischer (2007) and Salem (2011) in their studies to determine FDIRE factors. In addition, to compete with others countries, source and host countries need to consider technology advantages as a factors influencing FDIRE. This view is supported by Dunning (1977), UNCTAD (2006), Narula and Wakelin (1998) and Tu and Tan (2012). Moreover, real estate is the main factor in this study. Hence, real estate, socio-cultural, technological, economic and political known as ReSTEP factors will be discussed in this section to determine the factors influencing FDIRE in ASEAN countries based on the empirical review.

Real Estate Factors (Re)

FDIRE in ASEAN countries is quite complex as none has focused on real estate factors specifically. However, based on previous studies, there were mixed results in real estate factors influencing FDIRE globally. In United States (US), Ford, Fung and Gerlowski (1998) found that construction activity is the most influential factor affecting foreign investor choice in types of US real estate. While MIGA (2002) in their survey on FDI worldwide found that the availability of buildings or land in host country and the cost of real estate were the main factors of FDI decisions.

However, security of property rights, institutional property estimation, degree of urbanization, housing stock, ease of registering property and REIT's market volume were found to be important determinants for institutional real estate investment in 66 countries including 6-ASEAN countries (Lieser and Groh, 2010). Rodriguez and Bustillo (2008) have shown that average housing price was one of the determinants in modeling foreign real estate investment in Spanish. While recent investigation by Zull Kepili and Masron (2011) found property-related tax was determinants of FDI in Malaysia and Salem (2011) found security of property rights and size of institutional real estate market were determinant of FDI in commercial real estate and hotel sectors for selected MENA countries.

Furthermore, Barnett and Brooks (2006); He, Wang, and Cheng (2009) and Liu (2011) also investigated the determinants of FDI in China real estate sector. They found that land transfer fees, market allocated land areas, commercial housing construction areas, real household income and average selling price of the commercialized buildings were driving investment in FDI in China real estate sector. In addition, studies by Lai and Fischer (2007) on the factors affecting the decision of foreign firms for real estate to invest in Taiwan shows that government's restriction on investment in real estate market and access to real estate information remains the major determinant for investment in Taiwan real estate sector. Thus, from the above discussion, there are many real estate factors that influence the choice of FDI depending on the situation of a particular country.

Socio-cultural Factors (S)

In ASEAN countries, there are various societies and cultures that investors had to enter for investment decision making. These different socio-cultural environments can cause cross-cultural problems such as miscommunication and cross-cultural conflict. Therefore, in order to compete, investors have to understand and manage effectively the difference of socio-cultural of people from other countries. Culture is describe as an attitude, shared belief, values, human customs, civilizations, social structure, religion, language, education and the way of life of a society or a social group which learned from earlier generations (Paul, 2008; Fariza, Rahim and Asmat, 2010). Culture plays a significant role in people's daily lives because it evolves within a society to show their own characteristic and distinguish them from others societies or nations. Social structure comprised of groups and institutions in a society's fundamental organization such as family, religion, school, the position of men and women in society, the family, social classes, group behavior, age groups and how societies define decency and civility are interpreted differently within every culture (Paul, 2008). These elements can be group into three main elements of social-cultural which are social group association, social status and social mobility (Fariza, Rahim, and Asmat, 2010).

Hofstede (1994) in his study from over 50 countries and paid special attention to characteristics of East Asian cultures conclude that there are five cultural dimensions which are individualism, uncertainty avoidance, masculinity and femininity, power distance and long-term orientation. However in FDIRE, research by Paul (2009) shows that there is a correlation between FDIRE and Hofstede's five dimensions. The results show it is significant even the strength of the relationship is rather weak. It found that among the dimensions, only uncertainty avoidance influences in foreign investor's decision-making. A country with a high uncertainty avoidance index does not attract foreign investors. Most Asian countries rank fairly high in this category such as India and Indonesia. On the other hand, Hong Kong and Singapore score low in uncertainty avoidance (Fariza, Rahim, and Asmat, 2010).

Studies by Mirza and Giroud (2003); Hattari, Rajan, and Thangavelu (2008); Ismail (2009) and Athukorala and Wagle (2011) had found that common language have significantly positive effect to the FDI in ASEAN countries. Dunning (1980) assumed that the attractiveness of a host country's language has an influence on investors' location decision, even though English is developed as the main business language in the world. This view corroborated the findings by Ismail (2010) who also found that the Chinese language is become important in Malaysian bilateral trade within Asian countries particularly besides English. Common language also can reduce the information cost in trade and increase network communication. Moreover, the level of education and training is also important to FDI in ASEAN countries.

Studies by Yussof and Ismail (2002) and Karimi, Yusop, and Law (2010) found that the level of education of a country is crucial to produce a well-educated and high-level skills workforce. Each culture educates its people through schooling, parenting, religious teachings and group membership (Fariza, Rahim, and Asmat, 2010). Other than that, knowledge index, human development index and prior colonial relationship also influences investors decision-making FDI (Yussof and Ismail, 2002; Karimi, Yusop, and Law, 2010; Athukorala and Wagle, 2011). Thus, this shows that socio-cultural aspects need to be analyzed to determine the FDIRE in ASEAN countries.

Technological Factors (T)

Technological developments is an important element of globalization and competitiveness for ASEAN countries. It significantly influences the progress of any country's economic growth. Technology will transfer from the source country to the host country by physical goods or tacit knowledge. The smaller technology gap and similarities between source and host countries will be easier for investors to integrate their investments into local economic environment (UNCTAD, 2006; Dahlman, 2007; Fariza, Rahim, and Asmat, 2010). This view is supported by empirical results from Tu and Tan (2012) on the existence of technology spillovers in ASEAN countries. Thus, it is become challenges for ASEAN countries to compete due to the drastic changes of technological.

Technology refers to the information and communications, innovation potential, technology access, global communications and etc. Most of the studies measured technology through the level of infrastructure development (Yussof and Ismail, 2002; Ismail and Yussof, 2003; Ismail, 2009; Karimi, Yusop, and Law, 2010; Hoang, 2012). In real estate sector, the level of infrastructure development was found to be more important determinant of FDIRE as real estate is part of the infrastructure. Therefore, development and good quality infrastructure will result in more productive investments. It also can reduce the cost of doing business not only in real estate sector but also for others sector. This will leads to a growing demand for real estate from the investors (Sandhu and Fredericks, 2005 and Paul, 2009).

Among the ASEAN countries, Singapore and Malaysia have the most developed infrastructures in this region. They have a high quality infrastructure in the financial, telecommunication and transportation sectors (Sandhu and Fredericks, 2005). Studies by Yussof and Ismail (2002), Mirza and Giroud (2003), Ismail (2009), Hoang (2012) and Karimi, Yusop, and Law (2010) had found that good telecommunications, electricity production, international trading system, infrastructure and computer infrastructure have significantly positive effect to the FDI in ASEAN countries. Other than that, innovation through R&D expenditure is also important in ASEAN countries (Yussof and Ismail, 2002; Ismail and Yussof, 2003 and Athukorala and Wagle, 2011). Yussof and Ismail (2002) observed that national spending on R&D in Malaysia, Thailand, Philippines and Indonesia is still relatively low compared to other countries. However, innovation is not only through R&D, but also from the creation of knowledge, acquisition, adaptation, dissemination and use in diversified local settings (Dahlman, 2007). Thus, ASEAN countries must develop more technological capability and greater flexibility to compete with other countries.

Economic Factors (E)

Economic factors is one of the conventional FDI determinants besides socio-cultural and political factors. It is very significant to sustain the economic growth of a particular country and it influences investor's decision making. The relationship between FDI and economic growth can be complex and heterogeneous across countries (Karimi and Yusop, 2009). In Malaysia for instance, Mun, Lin, and Man (2008) found that FDI and economic growth had a significant relationship with sufficient evidence. However, Karimi and Yusop (2009) argued that in a long term, there is no strong evidence to show that FDI had effect on economic growth in Malaysia by directly. This view also support by Kinuthia (2010), who found that the impact of FDI in Malaysia is small but positive by directly, but the effect may be indirectly through the determinant factors of FDI. Other than that, recent study by Tiwari and Mutascu (2011) shows that FDI plays an important role to enhance the economic growth process in Asian countries. In real estate sector, countries that are expect strong and stable economy are perceived to be the most significant factors to attract foreign investors (Chin, Dent, and Roberts, 2006). It also automatically affects the demand for real estate assets (DiPasquale and Wheaton, 1992).

In ASEAN countries, past studies show that market size is the most important factor for economic activities to influence FDI (Yussof and Ismail, 2002; Ismail and Yussof, 2003; Uttama, 2005; Suebsawangkul, 2006; Plummer and Cheong, 2007; Ismail, 2009; Karimi, Yusop, and Law, 2010; King, Ismail, and Hook, 2010; Athukorala and Wagle, 2011; Hoang, 2012; Hattari, Rajan, and Thangavelu, 2012). Then, to show the transportation and trade cost, Uttama (2005); Plummer and Cheong, (2007); King, Ismail, and Hook (2010); Hattari, Rajan, and Thangavelu (2012) used the distance between host country and source country as a proxy. Exchange rate is also important to determine FDI in ASEAN countries (Suebsawangkul, 2006; Ismail, 2009; Hoang, 2012; Hattari, Rajan, and Thangavelu, 2012).

Furthermore, labour market is becoming one of the important elements to FDI in ASEAN countries. Previous studies show that labour force (Mirza and Giroud, 2003; Ismail and Yussof, 2003; Hoang, 2012; Plummer and Cheong, 2007), wage rate (Ismail and Yussof, 2003; Hoang, 2012; Athukorala and Wagle, 2011) and skilled labor (Ismail and Yussof,

2003; Ismail, 2009) had positive effect on FDI in ASEAN countries. Other than that, relative endowment (Ismail, 2009; King, Ismail, and Hook, 2010), environmental sustainability index (Karimi, Yusop, and Law, 2010), inflation (Suebsawangkul, 2006), extended market relative to distance host country (Ismail, 2009), financial development (Hoang, 2012), bilateral investment treaties (Plummer and Cheong, 2007), interest rate (Ismail and Yussof, 2003), investment and trade cost (Uttama, 2005), population and common border (King, Ismail, and Hook, 2010), lag of export (Hattari, Rajan, and Thangavelu, 2012), currency weight (Suebsawangkul, 2006) and previous business contacts (Mirza and Giroud, 2003) have significantly positive impact on FDI in ASEAN countries. Thus, this study needs to determine the economic factors to show ASEAN country's economic activities for investor's consideration in FDIRE.

Political Factors (P)

Political factors is one of the important elements influencing FDIRE in ASEAN countries. According to Worzala (1994) and Adair, et al., (1999), political factors significantly affects foreign investors when they are investing, operating and finally exiting a market. Due to political ideologies that differ between countries, it is important to determine the host country's political environment in this study to attract investors in FDIRE. The political environment refers to the laws and regulations passed by governments that can affect the viability of investors operations in the host country (Griffin and Pustay, 1998). Investors are concerned about the political conditions, regulatory limitations, foreign exchange, capital controls and pressures by the host government in order to limit the influences of foreign firms operations when they enter in a new market (Dunning, 1980; McGreal, Parsa, and Keivani, 2001 and Paul, 2009). This view is support by Balogh and Sultan (1997) unveiled that one of the US investors FDI's barriers is unfamiliar with the real estate laws in the host countries.

In ASEAN countries, openness, political risk and investment policies are the major political factors influencing FDI (Yussof and Ismail, 2002; Ismail and Yussof, 2003; Ismail, 2009; Masron and Abdullah, 2010; Athukorala and Wagle, 2011; Hoang, 2012 and Hattari, Rajan, and Thangavelu, 2008). Other than that, empirical evidence by Mirza and Giroud (2003); Ismail (2009); Masron and Abdullah (2010) and Hoang (2012) shows government budget, transparency, corruption, institutional quality and government incentives have positive impact on FDI in ASEAN countries. Thus, to bring a greater political environment, ASEAN countries need to co-operate each other. Political cooperation also can be a useful tool in facing the social and economic challenges associated with globalization.

CONCEPTUAL FRAMEWORK

Previous research shows that there are various determinants driving FDI flows in ASEAN countries. Although there is no specific research showing the FDIRE factors in ASEAN countries, but empirical work shows that real estate factors also influence investors' decision in FDI to the particular country. Hence, this study focuses on appropriate variables selection from the empirical literature which covers the main factors in FDIRE. Real estate factors are very limited especially in ASEAN countries. Usually their datasets do not cover all the countries and time series. As mentioned earlier, the arguments of this study measure the most significant determinants of FDIRE were based on LOPI paradigm. It should be noted that the relationships between ReSTEP factors and FDIRE are explained by L, O and P advantages theory. However, since one of the constraints to FDIRE is high transaction costs (see Morell, 2003), foreign investors also have to consider the least costs of transportation and communications, costs of dealing with cultural and language differences, costs of sending personnel overseas and the informational costs of institutional and legal factors (i.e. property rights, property registration, regulations and tax systems) before decide to internalise a target market opportunity. Moreover, foreign investors are able to protect and retain control of the tangible and intangible assets firms by avoiding excessive transaction costs. Therefore, in this study, it also should be noted that the relationship between transaction costs and FDIRE is explained by I advantages theory.

Given the above, this study summarize that real estate (Re), socio-cultural (S), technological (T), economic (E) and political (P) which is also known as ReSTEP factors and transaction costs (TC) as the six main factors to determine the attractiveness of ASEAN countries to bilateral FDIRE. Overall, this study find 11 individual data series grouped into six main FDIRE determinant factors and described in a conceptual framework presented in **Figure 2**.

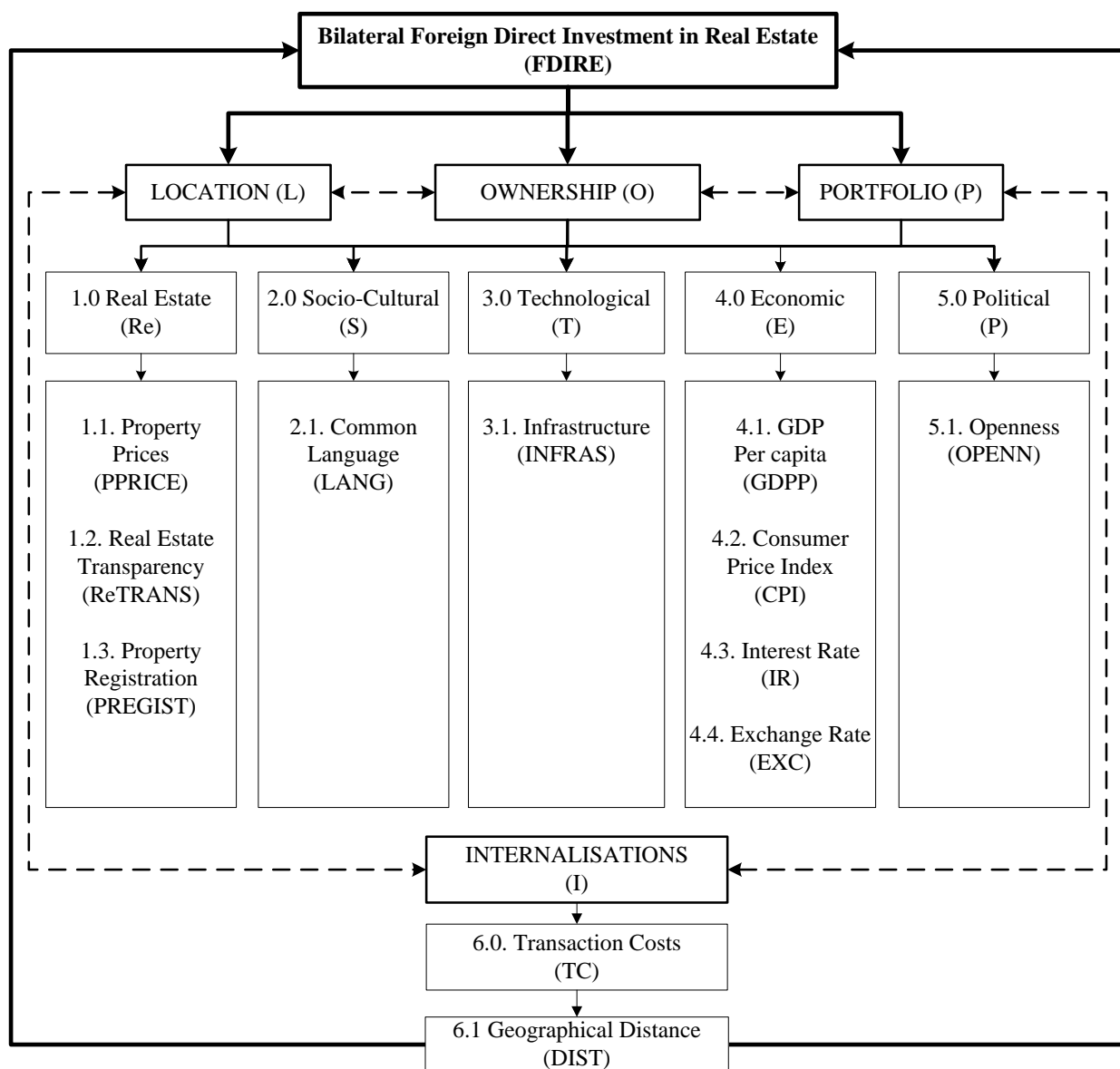


Figure 2: Conceptual Framework of Factors Determine FDIRE

DATA AND METHODOLOGY

This section shows the data and methodology used in this study. As mentioned in earlier section, this study was focused on bilateral FDIRE-Re-S-T-E-P-TC nexus in ASEAN-5 (Indonesia, Malaysia, Philippines, Singapore and Thailand) countries using unbalanced panel data from 1999 to 2010. Due to the limitation of data, this study selected the bilateral geographical data purely based on the availability of the dataset by ASEAN Secretariat (2012). The final dataset in this study covered 11 source countries from 4 regions investors in the world (including ASEAN members) and 5 host countries of ASEAN members. Thus, the total country list in this study consists of 46 cross sectional data countries for a 12 year data period.

The dependent variable of this study is bilateral FDIRE flows in the five ASEAN countries and the data was collected from the ASEAN Secretariat (2012) in Jakarta, Indonesia. The selection of the explanatory variables in this study was considered based on the previous empirical literature and data availability. As discussed in **Section 2** and **Section 3**, this study decided to use ReSTEP factors and TC as the key drivers to determine the attractiveness of ASEAN countries to FDIRE. Since none of the key drivers can be observed and measured directly, this study used 11 different data series as proxies and grouped into six latent key drivers (as proposed in **Figure 2**).

This study used house price index as a proxy for property prices (PPRICE), global real estate transparency index as a proxy for real estate transparency (ReTRANS) and ease of registering property as a proxy for property registration (PREGIST) to show the real estate investment opportunities in a host country. Meanwhile, common language (LANG) between source and host country was used in this study as a proxy for cultural and relations to show socio-cultural environment of a host country. The air transport infrastructure from the total number of registered carrier departure worldwide to a host country was used in this study as a proxy for infrastructure (INFRAS) to show technological development of a host country. In addition, GDP per capita (GDPP) as a proxy for market size, interest rate (IR) as a proxy for financial cost, consumer price index (CPI) and exchange rate (EXC) as a proxy for macro stability were used in this study to show economic activities of a host country. Openness (OPENN) was used in this study as a proxy for host country's trade liberalisation to show political stability. Finally, as a proxy for transaction costs (TC), this study used geographical distance (DIST) between source and host countries.

The data on the variables were obtained from various sources of publications. Data on INFRAS, GDPP, CPI and OPENN were obtained from World Development Indicators (WDI). Global Market Information Databases (GMID) provides data on PPRICE and IR. EXC and OPENN data were taken from the United Nations Conference on Trade and Development (UNCTAD). Centre D'études Prospectives Et D'informations International (CEPII) provides bilateral data such as LANG and DIST. Meanwhile, data on ReTRANS was obtained from Jones Lang LaSalle (JLL) and PREGIST data was taken from World Bank's Doing Business (DB). **Table 2** displays the description of the variables in details and expected results of this study.

Table 1: Variable description and expected results

Variable	Unit	Aspect	Source	Expected sign	
FDIRE	[US\$ Million]	Bilateral FDIRE Dependent variable	ASEAN Secretariat	?	
1.0 Real Estate (Re)					
1.1	PPRICE	[2010 = 100]	House price index of host country, proxy for host country's property prices	GMID	-
1.3	ReTRANS	[ranking 1-5, where, 1=host countries with opaque real estate markets, 5=host countries most transparent]	Global real estate transparency index of host country, proxy for host country real estate stabilisation	JLL	-
1.4	PREGIST	[component score]	Number of procedure to register property, cost and duration of registering property at host country, proxy for ease of registering property at host country.	DB	-
2.0 Socio-cultural (S)					
2.1	LANG	[dummy, where, 1=common language, 0=not common language]	Common language between source country and host country, proxy for cultural and relations	CEPII	+
3.0 Technological (T)					
3.1	INFRAS	[Registered carrier departures worldwide]	Air transport infrastructure of host country, proxy for host country infrastructure	WDI	+
4.0 Economic (E)					
4.1	GDPP	[current US\$ million]	GDP per capita of host country, proxy for host country market size.	WDI	+
4.2	CPI	[2005=100]	Consumer price index of host country, proxy for macro stability	WDI	-
4.3	IR	[annual lending rates (%)]	Interest Rates of host country, proxy for financial costs	GMID	-
4.4	EXC	[against source country currency to host country currency]	Real exchange rate between source country to host country, proxy for macro stability	UNCTAD	+
5.0 Political (P)					
5.1	OPENN	[The sum of host country export and import, US dollars]	Openness of host country, proxy for host country's trade liberalization.	WDI, UNCTAD	+
6.0 Transaction Costs (TC)					
6.1	DIST	[km]	Distance between source and host countries, proxy for transaction costs of source country to host country	CEPII	-

The gravity model, which was proposed by Linder in 1961 and Linnemann in 1966, has been widely used to analyse bilateral trade flows between countries in analogy of Newton's law of gravitation (Breuss and Egger, 1997; Bussiere, et al., 2005; DeRosa, 2008; Thanyakhan, 2008). Recently, the gravity model has become a popular method to analyse the importance of countries' attractiveness factors for FDI (Thanyakhan, 2008; Abid and Bahloul, 2009). The gravity model has performed remarkably well as an empirical framework for explaining investment flows and identifying the common determinants of FDI across countries (Thanyakhan, 2008). Basically, gravitation comes about by the attraction of two masses with distance reducing this effect. Applied to bilateral trade flows, the pull forces are represented by the size of the economics concerned, measured by GDP, GDP per capita or population, while distance is proxy either by kilometers, transportation costs or, more generally, transaction costs (Borrmann, Jungnickel, and Keller, 2005).

However, this gravity equation was adjusted by various authors to theoretical advances and the core gravity variables size and distance were complemented by more specific elements (Borrmann, et al, 2005). A recent study by McAllister and Nanda (2014) show that the basic variables in gravity equation which are GDP for market size and distance have significant effects on cross-border real estate investment flows in 134 countries including ASEAN countries (i.e. Singapore and Vietnam). Furthermore, by added others explanatory variables such as common lang, former colony, global competitiveness, real estate market transparency and economic distance, this study found that all these variables were also significant to cross-border real estate investment flows. Therefore, it shows that beyond the standard gravity variables, there are many factors that can affect the attractiveness of a country for FDIRE (see also Bushnell, McAllister, and Nanda, 2014).

Based on an above discussion, this study will analysed the data and variables using a semi-gravity approached as proposed by Ismail (2009) which only focused on host country factors. The full specification of the semi-gravity type model by include basic gravity variables as well as the host country effects is presented in Eq. 1.

$$\ln FDIRE_{ijt} = \alpha_0 + \beta_1 PPRICE_{jt} + \beta_2 ReTRANS_{jt} + \beta_3 PREGIST_{jt} + \beta_4 LANG_{ij} + \beta_5 \ln INFRAS_{jt} + \beta_6 \ln GDPP_{jt} + \beta_7 CPI_{jt} + \beta_8 IR_{jt} + \beta_9 \ln EXC_{ijt} + \beta_{10} \ln OPENN_{jt} + \beta_{11} DIST_{ij} + \varepsilon_{ijt} \quad (1)$$

where $FDIRE_{ijt}$ stands for bilateral FDIRE flows from source country i to host country j in year t , $PPRICE_{jt}$ is the property prices for host country j in year t , $ReTRANS_{jt}$ is the real estate transparency for host country j in year t , $PREGIST_{jt}$ is the property registration for host country j in year t , $LANG_{ij}$ is the common language between source country i and host country j , $INFRAS_{jt}$ is the air transport infrastructure for host country j in year t , $GDPP_{jt}$ represents market size for host country j in year t , CPI_{jt} is consumer price index for host country j in year t , IR_{jt} is interest rate for host country j in year t , EXC_{ijt} represents the real exchange rate between source country i and host country j in year t , $OPENN_{jt}$ is the openness for host country j in year t , $DIST_{ij}$ is the geographical distance between source country i and host country j and ε_{ijt} is an error term. All variables were natural logarithm except PPRICE, ReTRANS, PREGIST, LANG, CPI, IR and DIST variables.

Then, this semi-gravity model was estimated using panel data analysis and extended as in equation (2). This study applied the panel data technique based on the several advantages over cross sectional or time series data. Panel data gives a large number of data points by pooling of cross sectional and time series data, increasing the degrees of freedom and also reducing multicollinearity (Hsiao, 2003). Hence, panel data improves the efficiency of econometric estimates. There are three types of panel data models namely, a pooled ordinary least-squares (OLS) model, random effects (RE) model and fixed effects (FE) model. However, due to the heterogeneity (specific effect) bias in pooled OLS model (see Tiwari and Mutascu, 2011), only RE and FE models were considered in this study for panel data analysis.

Therefore, considering the extent of equation (1) and bilateral countries' unobserved individual effects, the model to be estimated in this study is as follows:

$$\ln FDIRE_{ijt} = \alpha_0 + \beta_1 PPRICE_{jt} + \beta_2 ReTRANS_{jt} + \beta_3 PREGIST_{jt} + \beta_4 LANG_{ij} + \beta_5 \ln INFRAS_{jt} + \beta_6 \ln GDPP_{jt} + \beta_7 CPI_{jt} + \beta_8 IR_{jt} + \beta_9 \ln EXC_{ijt} + \beta_{10} \ln OPENN_{jt} + \beta_{11} DIST_{ij} + w_{ijt} \quad (2)$$

where $w_{ijt} = \lambda_{ij} + u_{ijt}$ with λ_{ij} being bilateral countries' unobservable individual effects and u_{ijt} is the remainder disturbance in the regression. The differences between RE model and FE model relies on the assumption of λ_{ij} . The RE model assumes that λ_{ij} is drawn independently from some probability distribution (or part of the error term), whereas the FE model assumes that λ_{ij} is a constant. The RE model is applicable when bilateral countries' unobservable individual effects is uncorrelated with FDIRE determinants. On the contrary, if there is a correlation between both, the FE model is more appropriate for this study (see Wooldridge, 2002; Tiwari and Mutascu, 2011). In order to determine which model is more appropriate for the equation estimation, the Hausman test suggested by Hausman (1978) was

applied in this study. The RE model is not appropriate if Hausman test Chi-square statistic is significant at the 5% level and that the FE model is to be preferred, and vice versa.

In addition, the consideration of multicollinearity problem among the variables via correlation coefficient and variance inflation factors (VIF) was employed in this study before starting an above regression procedure. Multicollinearity can lead to misleading or inaccurate result and this happens when two or more variables contain much of the same information (Leech, Barret, and Morgan, 2008). The findings of this study will be discussed in **Section 5**.

EMPIRICAL RESULTS

This section presents the empirical findings using the equation (2) as discussed in **Section 4** and presented in **Table 3**. The aim of this study is to determine the attractiveness of bilateral FDIRE incorporating the six latent key drivers (ReSTEP factors and TC) in ASEAN countries through gravity model. The results of the Wald test and R² in **Table 3** clearly indicate that the explanatory variables selected in this study can be considered to be enough to explain the determinants of bilateral FDIRE in five ASEAN countries as a host country. Statistically, the overall R² equals 45.96% and the Wald test is 72.55 and significant at 1% level of significance. In order to examine the multicollinearity problem as mentioned in **Section 4**, no serious multicollinearity exists among the explanatory variables were used in this study as presented in **Table 3**. Meanwhile, the Hausman test in this study suggests that the RE model is more appropriate for analysis in the semi-gravity model. Thus, this study will focus on RE model results in **Table 3** for further discussion.

Table 3: The determinants of bilateral FDIRE in ASEAN countries

Dependent variable: LN Foreign Direct Investment in Real Estate (lnFDIRE)		
	Explanatory variables:	Coefficients
	Constant	-20.6441 [-2.87]***
Real Estate Factors (Re)	Property Prices (PPRICE)	-0.002973 [-0.51]
	Real Estate Transparency (ReTRANS)	-0.0341 [-0.35]
	Property Registration (PREGIST)	-0.7166 [-2.74]***
Socio-cultural Factor (S)	Common Language (LANG)	1.4549 [2.49]***
Technological Factor (T)	Infrastructure (INFRAS)	0.3485 [1.31]*
Economic Factors (E)	GDP Per capita (GDPP)	0.4901 [1.45]*
	Consumer Price Index (CPI)	-0.00679 [-0.94]
	Interest Rate (IR)	0.0410 [1.34]*
	Exchange Rate (EXC)	0.0620 [0.92]
Political Factor (P)	Openness (OPENN)	0.5017 [1.71]**
Transaction Costs (TC)	Geographical Distance (DIST)	0.3231 [1.86]**
	Breusch-Pagan LM test	1174.49***
	Hausman test	4.96 (0.6646)
	Observations	552
	Mean VIF	ok
	R ² :	
	Within	0.0437
	Between	0.5557
	Overall	0.4596
	Wald test	Wald chi2(11)=72.55***

Note: ***, ** and * denote significant at 1%, 5% and 10% critical value, respectively. The number in [] denotes z-value. Collinearity statistics "ok" for: 1 < mean VIF < 5; 0.1 < tolerance < 1

Overall, the explanatory variables in this study are significant except for the PPRICE, ReTRANS, CPI and EXC. From **Table 3**, it shows that the two gravity standard variables (GDPP and DIST) have significant coefficients. The coefficient estimates of market size (GDPP) are positive and significant at 10% level. This may illustrate the importance of the market size in the explication of bilateral FDIRE. The coefficient estimate of the DIST is positive and significant at 5% level. This sign is not as expected and it suggests that high transaction costs between source country and host country increases the FDIRE in host country. This result is not consistent with the empirical results by McAllister and Nanda (2014). Furthermore, the results of explanatory variables under real estate factors (PPRICE, ReTRANS and PREGIST) shows that the sign of all variables are as expected and had negative relationship with bilateral FDIRE. Among these variables, only PREGIST is statistically significant at the 1% level of significance. This finding indicate that ease of registering property at host country plays an important role in attracting foreign real estate investors. Beside PREGIST, the results show that socio-cultural factor is also important in attracting FDIRE in host country. Statistical results show that the coefficient for LANG is positive and significant at the 1% level of significance, consistent with McAllister and Nanda (2014) and Ismail (2009). In addition, this study also measured the level of economic factors and its relationship to FDIRE. Among the variables under this factor (CPI, IR and EXC) besides GDPP, only the

coefficients of IR are statistically significant at 10% level with FDIRE. It can be seen that CPI and EXC as a proxy for host country's macro stability not plays an important role to attract foreign investors in FDIRE. Finally, the OPENN carries a positive sign and is statistically significant at the 5% level of significance on the host country's FDIRE. This means that FDIRE in host country is more attractive when host country in stable politic conditions due to the higher the level of openness in host country, the easier for foreign investors to invest in FDIRE. Based on these results, it can be concluded that PREGIST, LANG, INFRAS, GDPP, IR, OPENN and DIST have significant impacts on the inflows of FDIRE into five ASEAN countries.

CONCLUSION

The competition among world countries to draw significant amount of foreign direct investment in real estate (FDIRE) sector is a catalyst for country's development. Many countries attempt to portray their advantages as a host to foreign investors so that as large amount of investment as possible is coming into their ways. This has created a 'battle' of foreign trade strategies whereby each country attempts to become as attractive as possible to the rest of the world. Therefore, the attractiveness of a country to FDIRE has become so critical due to intense global competition for drawing as much amount of investment as possible. Each country tries to increase its world's share in FDIRE. The important of country attractiveness must be looked upon from two ends which are from the investor's and the host country's end. There are several factors that should be analysed to determine the attractiveness of a particular country in FDIRE. In order to be more attractive, host country have to compete with others countries in offering the best environments for foreign investors, encompassing such as a wide opportunities in real estate investment, socio-cultural and technological advantages, political stability and favourable macro economy of host country.

Therefore, to synchronize with the aims and purposes of ASEAN Declaration to promote ASEAN in global as an attractive investment destination, this study attempts to determine the attractiveness of FDIRE incorporating the real estate, socio-cultural, technological, economic and political (ReSTEP) factors and transaction costs (TC) in five ASEAN countries (Indonesia, Malaysia, Philippines, Singapore and Thailand) as a host countries from 11 source countries in different regions using the semi-gravity model approached for 12 years data from 1999-2010. To sum up, this has drawn three important conclusions from the empirical analysis. Firstly, as in earlier studies, this study finds that market size and geographical distance as standard gravity variables have a significant relationship with bilateral FDIRE in a host country. Secondly, by extended gravity variables, this study also found that the ease of property registration, common language, air transport infrastructure, financial costs and openness variables were also have significant impacts on the inflows of FDIRE into a host country. This findings show that ReSTEP factors and TC plays an important roles in attracting FDIRE to the ASEAN countries as a host country. Finally, as shown in the empirical evidence, the estimation of semi-gravity model by a panel RE regression is an appropriate estimator to carry out statistical inference relating to the hypothesis of bilateral FDIRE determinants.

This study considers this is an important results that bilateral FDIRE-Re-S-T-E-P-TC nexus is an important element of the host country's attractiveness yet ignored in earlier studies. In this respect, policymakers should improve their socio-cultural, technological, economy and reduce the real estate registration restriction and also avoiding excessive transaction costs to attract more FDIRE in a host country. Despite these important findings, some caveat are in order. One limitation is that the present study only considered the relationship between bilateral FDIRE-Re-S-T-E-P-TC in a host country. For future research, it may be useful to examine the determinants of bilateral FDIRE in source country also using gravity model approach.

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