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Determinants of Foreign Direct Investment in Cambodia: country-specific factor differentials¹

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1. Introduction

Multinational Companies (MNCs) serve foreign markets by exporting to, by licensing or by engaging in international production in the host countries. Cambodia has become the destination of foreign direct investment (FDI) after its first-ever general elections in 1993. Based on approved foreign-invested projects,⁶ the majority of Cambodia's inward FDI came from Asian neighbouring countries, in particular, Malaysia, Taiwan, and China, which together accounted for about 60% of the total. The United States is the fourth largest investor in Cambodia. Cuyvers et al. (2006) provide an overview of inward FDI trends in Cambodia over the period 1994-2004.

This paper seeks to uncover factors influencing inward FDI in Cambodia by empirically studying its economic and geographic as well as political determinants. Panel data analysis is used to investigate the factors affecting both approved FDI and realized FDI in the Kingdom of Cambodia during 1995-2005.^{7,8} Investment decisions are made by the foreign investors after having compared the factors affecting their locational decisions between the home country and the potential host countries. Therefore, relative data, rather than absolute ones, are used. A better understanding of the meanings of these factors which determine the inflows of FDI, both approved and realized, should be useful for policy recommendation and implementation.

This paper is organized as follows. Section 2 reviews the relevant literature and outlines the hypotheses formulation. Section 3 presents a stochastic economic model. The discussion about the data takes place in section 4. The estimation methodology and estimation results are presented in sections 5 and 6, respectively. Section 7 concludes.

2. Theoretical development of FDI and hypotheses

For many years, a number of paradigms and theories have been developed to explain the existence and the growth of the international operations of multinational corporations via FDI (see, e.g., Hymer, 1976; Dunning, 1981, 1988, and 1998; and Dunning and Lundan, 2008) Hymer (1976) applied the industrial organization approach to the theory of foreign production of firms. For firms to own and control foreign value-adding facilities, they must have some ownership advantages, which are specific to them. The possession of such firm-specific advantages must be sufficient to more than offset the disadvantages they may face while competing with indigenous firms which are more familiar with the local situation and do not suffer from the so-called 'liability of foreignness' (Zaheer, 1995) in the country in which they launch their production activities.

⁶ Approved investment (approved FDI) refers to projects that have been officially authorized by the Cambodian Investment Board (CIB) of the Council for the Development of Cambodia (CDC).

⁷ FDI in 1994 is excluded as only data in this year from August to December.

⁸ Realized FDI, in contrast to approved FDI, refers to investment projects that are in operation after having been approved by CIB/CDC.

In his original well-known eclectic paradigm, Dunning (1981, 1988 and 1998) suggests that production abroad can be explained with reference to ownership, internalization and location advantages. Accordingly, a firm will engage in FDI when the following three conditions are satisfied:

- (1) it possesses net ownership advantages, which mostly consist of the possession of intangible assets specific to the firm.
- (2) it must have an advantage to internalize its activities by FDI rather than using the market, e.g., by selling abroad or by licensing or by contracting to foreign firms.
- (3) it must have an advantage in locating in a foreign country rather than at home; that is, it should be able to use its advantages in conjunction with some factor endowments of a host country.

Vernon (1966) developed the production cycle theory to explain international trade and FDI decisions. The production cycle theory divides the life cycle of new products into stages—new product stage, maturing product stage and standardized product stage. In the new product stage, a product is produced by the innovating firm in the home country. At the beginning, its products will mainly be sold in the home market which is likely to be a high income market. In the maturing product stage, exports to other similar (high) income countries take place because of the expanding demand for the product abroad and an increase in product standardization. As demand continues to grow and the average costs of production can be lowered because of standardization and higher demand, international production by means of FDI will be started in these countries. In the standardized product stage, the characteristics of the product and of production process are well known; the product becomes familiar to more and more consumers and the production process becomes accessible to other potential producers. Because of cost considerations and competitive pressure, production may shift to lower cost developing countries. When the incremental production costs in the developing country plus transportation and other costs are lower than the average production costs in the innovating country and in the other developed countries, it becomes worthwhile to start production in another country. Therefore, the product cycle theory implies a dynamic comparative advantage.

There are different types of FDI discussed in the literature (Dunning, 1998; UNCTAD, 2006; Dunning and Lundan, 2008): market-seeking, export-oriented, efficiency-seeking, resource-seeking, and asset-creating seeking investment.⁹ The motivations of these types of FDI are influenced by different factors. For example, host country market-seeking versus export-oriented FDI—will be influenced to different degrees by the host country market (Loree and Guisinger, 1995). Market-oriented FDI may be more concerned with the market size than export-oriented FDI since the former produces for the host country market while the latter produces for the foreign market. Efficiency-seeking and resource-seeking FDI may be encouraged by low-cost developing countries and resource-rich ones, respectively while asset-creating FDI is more likely to go to rich developed economies.

⁹ A number of other motives have been identified regarding firms' decisions to invest in a foreign country. Strategic and political objectives pursued on behalf of the home government are an example. (UNCTAD, 2006).

Undoubtedly many different factors may determine the decision by multinational enterprises to set up subsidiaries in foreign countries. A large number of such determinants have been tested in empirical studies (see, among others, Lui et al., 1997; Wei and Liu, 2001; Zhao, 2003; Pan, 2003). The present paper will focus on the following factors determining FDI: market size, international trade, labor costs, lending interest rate/borrowing costs, exchange rates, inflation rate, political risk, regional integration, and geographical distance. These variables are widely used and tested in empirical studies for both the developing and developed countries (Jun and Sing, 1996; Liu et al. 1997; Wei and Liu, 2001; Zhao, 2003; Ho, 2004). Following Lui et al. (1997), Wei and Liu (2001), and Zhao (2003), literature of FDI and hypothesis formulation are given in the subsections below.

2.1 Market size

Market size is typically measured by Gross Domestic Product (GDP). A larger market size, better prospects for market growth, higher degrees of development, and higher per capita GDP growth are factors taken into account when investors consider to locate in a foreign country. Countries that present attractive market opportunities allow MNCs to exploit their ownership advantages and to benefit from economies of scale, based on the larger production volume. The market size hypothesis stresses that inward FDI is a function of the market size of the FDI-receiving countries (Wei and Liu, 2001).

Davidson (1980) argued that market size influences the locational decisions of MNCs for two main reasons. First, the expected sales volume plays a crucial role in the foreign investment decisions. Foreign direct investment becomes an economically sensible option only when the volume of production exceeds a level at which the average cost of serving the market by means of exports is greater than the average cost of production within the market. Second, market size can be related to economic and strategic motivations behind FDI which occurs primarily in highly concentrated industries. The market size of the FDI-receiving countries is supposed to capture demand and scale effects. It is assumed that there must be sufficient, domestic demand for final goods for production to take place in the host country. A larger market size leads to the realization of scale economies in the production process.

Several empirical studies have supported the hypothesis of a positive relationship between FDI and market size of the host country, arguing that inward FDI is positively related to the host country's market size. For instance, among others, Wei and Liu (2001), Bevan & Estrin (2004), and Ho (2004) find a positive relationship between FDI and the host country's GDP, suggesting that a larger market size can increasingly attract FDI inflows. Previous studies also provide strong support for this phenomenon. For example, Braunerhjelm & Svensson (1996) and Grosse & Trevino (1996) also find evidence that the recipient country's market size has a positive correlation with the amount of inward FDI.

Pitelis (1996) argued that effective domestic demand deficiencies form an impetus for outward FDI. Since market size can be used as a proxy for aggregate demand, the size of the home country's market may be negatively related to the amount of FDI in the FDI-recipient country (Wei and Liu, 2001). Using econometric estimation and testing for the relationship between aggregate demand and outward

investment, Pitelis (1996) found support for the hypothesis that effective domestic demand deficiencies are a stimulus to outward investment by the home country.

Based on the above brief summary of the literature, a comparison can be made between the relative change in the market size of the home country and the host country (Wei and Liu, 2001). If the GDP of the FDI-receiving country grows faster than in the investors' home country, the host country is supposed to be relatively more attractive than the home country, and the home country firm is more likely to engage in FDI in the host country. If the host market size is very small, it will not pay for a MNC to establish a production facility in such a country. Consequently, it is likely to service the host country's market by exports (Markusen, 1998).

Hypothesis 1: An increasing ratio of the host country's GDP relative to the home country's GDP is expected to attract FDI from the home country.

2.2 Labour costs

Lower wage rates or labour costs make countries with abundant skilled and/or unskilled workers more competitive and attractive, and are likely to encourage efficiency-seeking FDI inflows (Jun and Singh, 1996). Firms using labor intensively in their production process and for which labour costs are a large component of their total costs, production abroad in low-labour cost countries provides them with cost advantages over the potential competitors. Lower labour costs in the FDI-recipient country relative to the home country makes it more attractive for FDI to engage in production activities abroad (Dunning, 1998; Navaretti and Venables, 2004; Dunning and Lundan, 2008).

Empirical studies about the FDI-labour cost relationship do not present clear-cut results. Several studies did not offer convincing evidence with regard to the hypothesis that inward FDI is negatively associated with higher labor costs in the host country (Jun and Singh, 1996; Wezel, 2003). On the other hand, there is some evidence about the negative relationship between labor costs and FDI activities in the host economies (Baek and Okawa, 2001; Wei and Liu, 2001; Bevan and Estrin, 2004). Using panel data analysis for factors determining inward FDI in China, Wei and Liu (2001) found strong support for a negative association between wage rates and FDI inflows, and concluded that a cheaper labor force is a strong determinant of inward FDI in China.

Incorporating both traditional and non-traditional factors in econometric estimations, Biswas (2002) concluded that low wages are not necessarily crucial for FDI, and that other factors such as natural resources, a large market and so on, also influence inward FDI flows. In line with the previous studies, Merlevede and Schoors (2004) indicated that relative unit labor costs have the expected negative sign in the FDI equation, but are only significant if allowed to increase over time. Based on the evidence from both survey data and regression analysis, Meyer (1995) argued that MNCs in Central and Eastern Europe are not necessarily motivated by low labor costs either. In a study by Veugelers (1991), the slope parameter of the labor cost is not significant, which suggests that labor costs are not an important determinant for FDI inflows.

The results of the empirical studies about the impact of wage rates on location are mixed. Although theoretical considerations suggest that the location choices by multinational enterprises about foreign production should be influenced by labor costs (Dunning, 1998), there is no clear evidence about the relationship between labor costs and location choice for FDI. Based on the assumption that if the ratio of the host country's labor cost relative to that of the home country is lower, there will be higher inward FDI in the low-cost host country, this paper will test this for Cambodia. Some authors have used labor productivity as a proxy for the real wage rate variable (see for example, loannatos, 2001), based on the cost minimization assumption under perfect competition and Cobb-Douglas production conditions. Under these assumptions, it is assumed that labor productivity will directly affect the host country's ability to attract FDI. In such a situation, investors are also likely to perceive a higher real wage rate as an indication of higher labor productivity. In contrast, Wei (1995) indicated that the wage level should be highly correlated with per capita GDP. Due to insufficient data on labor costs/wage rate in the host and home countries, labor productivity, measured by real GDP divided by labor force, will be used as a proxy variable for the real wage rate.

Hypothesis 2: Inward FDI flows into the host country are expected to be higher, the lower the ratio of the host country's real wage rate level to the home country's real wage rate level.

2.3 Borrowing Costs

The interest rate, which typically measures the cost of borrowing capital, has also been considered to be a determining factor influencing investment. As mentioned in Wei and Liu (2001), Aliber (1993) indicated that there are economic linkages between FDI and the cost of borrowing. If the cost of borrowing in the home country is lower than in the host country, home country firms have a cost advantage over their rivals in the host economy, and are in a better position to enter the host country through FDI. Conversely, the higher the borrowing cost of foreign investors in the host country relative to their respective home countries, the higher will be the ability of foreign firms to compete with domestic firms in the host country, leading to higher inflows into the FDI-receiving country.

The fact that a lower interest rate (lower cost of borrowing) in the investors' home country encourages to enter into international investment operations through FDI in the recipient country is based on the assumption that foreign investors will raise the needed funds in the home country, and use these to finance their activities in the host country. However, while this may be true if the investment projects are wholly owned by foreign investors, it is not necessarily the case when they are jointly owned by local and foreign partners as the former have to partially contribute funds in accordance to the relevant equity share (Wei and Liu, 2001). Therefore, if other factors affecting FDI inflows are held constant, the lower the interest rate in the home country relative to that of the host country, the larger the FDI flows into the host country.

Several empirical studies have supported the linkages between FDI and the interest rate (Barrel and Pain, 1997; Farrell et al., 2000; Pan, 2003). However, empirical analysis by Onyeiwu and Shrestha (2004)

and Bevan and Estrin (2004) fail to support this hypothesis for FDI inflows to Africa and to East and Central European transition economies.

Hypothesis 3: The lower the interest rate in the home countries relative to the host country, the higher the level of FDI in the host country.

2.4 Trade relations

Normally, firms that enter into a foreign market, can use alternative modes of entry, e.g. arm's length trade (exporting) or foreign production facilities through FDI. UNCTC (1991) and United Nations (1993) have shown that there are links between international trade and FDI, particularly in the cases of resource seeking and market-seeking FDI.

The sign of the trade-FDI relationship varies with the objective of the investment initiative (Petri, 1994):

- Market-oriented investment is attracted by site-specific advantages of a market that may, e.g., derive from buyers' characteristics. Market-seeking FDI is likely to substitute for international trade when it is confronted with high import barriers.
- Production-oriented/efficiency-seeking FDI is motivated by low cost conditions in host countries.
 Such host country advantages may consist of low wages, investment incentives, or plentiful resources, etc.
- Trade-facilitating FDI (likely trade-creating investment) is determined by the need to provide services to exporting activities.

Building on Dunning's well-known OLI framework (ownership advantage, location advantage, and internalization advantage), Markusen (1998) developed a model, which is referred to as the knowledge-capital model.¹⁰ Knowledge capital has often a public goods property within the MNC. Knowledge capital may be very costly to produce, but once it has been produced, the MNC can make it available at relatively low costs to its subsidiaries without reducing the value or productivity of the assets in the existing facility. Therefore, firms with knowledge capital are more likely to engage in horizontal direct investment as they can attain economies of scale as a result of the public good nature of knowledge capital, which allows them to compete with local firms that usually have a better knowledge of the domestic market. Markusen (2002) concluded that trade and horizontal investment are substitutes. In a similar line of reasoning, Moore (1993) stressed that firms may be likely to invest in a foreign country when the international production costs can be more than offset by savings that come from avoiding transportation costs, tariff duties and non-tariff impediments.

Based on a review of theories and empirical studies, Neary (2007) indicated that the bulk of FDI is horizontal rather than vertical, aiming at replicating production facilities in foreign countries to improve access to the foreign markets rather than breaking down the production process to benefit from lower production costs. The standard model of horizontal FDI, which emphasizes a proximity-concentration

¹⁰ Knowledge capital includes human capital of employees, blueprints, procedures, and marketing assets/intellectual property rights (patents, trademarks, copyrights, etc.).

trade-off, is supported by empirical evidence (Neary, 2007). The model predicts that a rise in trade costs (tariff rates and transportation costs) encourages FDI relative to exports, and vice versa. Therefore, it is expected that firms will on the on hand serve the markets close to their production facilities in the host country by exporting because they avoid the fixed costs of setting up production facilities, and on the other hand serve the further away markets by setting up production units in those host countries to save on transportation costs. This argument is based on the belief that trade costs are positively correlated with the distance between the home and host countries. Following this assumption, one should expect international trade and FDI to be substitutes in the sense that an increase in transaction costs will stimulate FDI while a drop in such transaction costs will discourage it.

Yet, international trade and FDI can also be complementary. The explanation for a trade-FDI complementarity relationship can be provided by the product life cycle theory (Vernon, 1966). The initiative to start production abroad in other high income countries will be determined by the growing demand in those countries, the standardization of the product and the ensuing lowering of the production costs in the host country, compared to the country of origin of the new product. In a later stage, the production finally moves to low cost developing countries in which a maturing product is produced, which will be exported back to the innovating country. These types of FDI therefore are export-oriented.

Firms producing tradable goods may also want to invest abroad to improve market access and sales facilities by offering improved customer support (Barrel and Pain, 1997). Wei and Liu (2001), indicate that FDI may relate to sales, and will be particularly strong when there is a need for after-sales service. Once the level of exports reaches a certain threshold, firms producing tradable goods may invest in consumer-oriented service facilities in the host country.

MNCs (especially those engaged in vertical FDI) may want to exploit international differences in factor prices by moving production processes to the locations where components or semi-finished goods can be produced most cheaply. Vertical FDI is more likely to occur when the differences in factor intensity across the different parts of the production processes are larger. Recent literature also posits that vertical FDI is more likely to be trade-creating (Kumar, 1994 and Markusen, 2002). As a firm's production process is partially shifted abroad, the production units in the home country and host countries become more intensively integrated vertically, which leads to trade of intermediate goods between the home and host countries. Intra-firm trade takes place when parent companies supply components, semi-finished or intermediate goods such as machinery to their subsidiaries in the host countries. In the same vein, subsidiaries may export supplies, other inputs or final products to the parent firms in the home country (Wei and Liu, 2001).

Ekholm, Forslid and Markusen (2007) provided a formal theoretical analysis of export-platform FDI,¹¹ which incorporates both horizontal and vertical FDI. Their findings complement the other theoretical and empirical studies by showing that horizontal affiliate production processes substitute trade while vertical

¹¹ Export-platform FDI is defined as investment and production in a host country where the output is largely sold in third markets, not the parent or host-country ones (Ekholm et al., 2007).

or export-platform production activities complement trade. Horizontal FDI arises between countries with similar a level of economic development while vertical and export-platform production takes place between parents in high-cost countries and affiliates in low-cost developing countries.

Empirical evidence on the relationship between trade and FDI is mixed. Among others, many empirical studies indicate a complementary relationship between FDI and exports (Otsubo and Umemura, 1998; Marchant et al, 1999; Hejazi and Safarian, 2001; Sun, 2001; Marchant et al., 2002). The investigation by Pantulu and Poon (2003) about the US and Japan trade-FDI relationship indicates that trade creation occurs for East Asian countries as well as the advanced industrialized countries (France, Germany and UK). The explanations they provide refer to the relatively low transportation costs and the ability to exploit imperfect markets.

On the other hand, a study by Horst (1972) lends support for FDI-trade substitutability; i.e., exporting and foreign production representing alternative means of servicing foreign markets by U.S. firms. Evidence to support the substitution of FDI for trade is also found in empirical studies by Blomstrom and Lipsey (1989) and Pain and Wakelin (1998). Although these studies fail to provide clear evidence as to the FDI-trade relationship, Wei and Liu (2001) argued that, to some degree, comparative advantage can be revealed by trade performance, and that FDI is expected to have a positive impact on bilateral trade.

Hypothesis 4: The higher the bilateral trade between the home country and the host country, the higher the FDI flows into the host country.

2.5 Exchange Rates

The exchange rate between the host and home country is widely used to measure the costs of production inputs, incurred by the firm's production process. Clegg and Scott-Green (1999) and Halicioglu (2001) indicated that an appreciation of the home country's currency should increase FDI flows as it becomes cheaper to 'hire' a given amount of labor, holding the amount of the home country's currency constant. On the other hand, FDI is deterred when the host country's exchange rate appreciates.

In a similar line of argument, Dewenter (1995) and Pan (2003) posit that the exchange rate affects FDI in two different ways. First, the appreciation of the home country's currency against the host country's currency translates into an increase in investment value when the investment is denominated into the host country's currency. This effect of the exchange rate on FDI is often referred to as the 'wealth effect' (Xing and Wan, 2006). From the perspective of the home country's investors, investment in the host country becomes cheaper, which in turn gives rise to higher profits of the foreign subsidiary. A higher return on investment consequently encourages even more inward FDI in the host country. The host country's currency-denominated wealth of a foreign firm also increases as a result of the depreciation of the host country currency since the production inputs now become less expensive for foreign firms whose investments are in the home country currency, which in turn gives them an incentive to purchase more host country assets, leading to a further increase in foreign direct investment.

Second, an appreciation of the home country currency translates into a relatively higher price for home country products, denominated in the home country currency. This makes exports from the home country to the host country less competitive. Therefore, home country firms are encouraged to relocate the production to the host country, which leads to an increase in inward FDI in the host country (Froot and Stein, 1991; Pan, 2003).

Cushman (1985) models a two-period time frame where a firm maximizes its future real profits, expressed in domestic currency. Four cases are analyzed in which a firm (i) produces and sells output abroad by using foreign inputs; (ii) produces and sells output abroad with inputs purchased from the home country; (iii) produces and sells at home with imported foreign inputs; and (iv) produces at home and abroad to sell abroad. Cushman's model shows that the impact of a change in the exchange rate on the level of FDI depends on the investor's revenue and cost configuration, and that tests of the link between FDI and exchange rates could be indeterminate (Dewenter, 1995). This is because a real appreciation of the foreign currency is associated with a lower level of FDI in case (i), but a higher level of FDI in case (ii), where the lower cost of imported inputs decreases the marginal cost of foreign labor and capital. The impact of a rise in the expected change in the real exchange rate results in higher FDI in cases (i) to (iii), but the impact is ambiguous in case (iv).

Following Cushman (1985 and 1987) and Wei and Liu (2001), this paper will use the real exchange rate rather than the nominal one as domestic and foreign price levels as well as exchange rates are more relevant for long-term investment. A real depreciation of the host country's currency would increase the foreign firms' relative wealth and lead to an increase in foreign purchases of domestic assets, which will increase inward FDI in the host country (Aristotelous and Foundas, 1996). Moreover, a real depreciation would result in capital inflows since foreign countries may be encouraged to take advantage of relatively cheaper domestic labor costs. Therefore, an increase in the real exchange rate (a real depreciation of the currency of the host country) induces firms to employ more labor, and is expected to have a positive effect on FDI in the host country.

Several studies reveal a negative relationship between the exchange rate and inward FDI (Froot and Stein, 1991; Dewenter, 1995; Aristotelous and Foundas, 1996; Grosse and Trevino, 1996; and Baek and Okawa, 2001; Wei and Liu, 2001). Yet, a number of other studies come to the opposite conclusions. For instance, Kiyota and Urata (2004) examine the impact of the exchange rate on Japan's FDI and conclude that the depreciation of the host country's currency attracts FDI. Using a panel data set from 1981 to 2002, a study by Xing and Wan (2006) shows that competition between China and ASEAN 4 (Indonesia, Malaysia, the Philippines, and Thailand) for Japanese FDI in Asian manufacturing is significantly affected by the relative real appreciation of the currencies of these countries to the yen, and that the redirection of Japan's FDI from ASEAN 4 to China is largely attributed to the depreciation of the Chinese yuan, which took place during the 1980s and the early 1990s. On the other hand, other studies show that there is no clear evidence as to the long-run relationship between the exchange rate and FDI inflows (Halicioglu, 2001 and Pain and Welsum, 2003).¹²

¹² While there is no evidence as to the relationship between the exchange rate and FDI in the long run, Pain and Van Welsum (2003) find a short –run effect of the exchange rate on FDI inflows in Canada, the UK, Germany and France.

Hypothesis 5: The higher the ratio of the host country's currency per US\$ to the home country's currency per US\$, the higher the level of FDI inflows in the host country from the home country.

2.6 Country risk

Country risk is the probability that country-specific, governmental measures will adversely alter the value of the international firm (Grosse and Behrman, 1992). For instance, a host government may limit profit remittance by subsidiaries to their parent companies. Investors are likely to be concerned with the potential negative impact of a country's economic, social and political instability on their projects. It is expected that such risks are negatively related to inward FDI. Therefore, the greater the degree of host-country risk relative to that of the home country, the less attractive the host country will become to inward FDI.

Although there is a theoretical negative relationship between the FDI inflows and country risk, the results of empirical studies about this relationship are mixed. In a study about the impact of two classes of political events on U.S. manufacturing FDI,¹³ Nigh (1985) finds that the relationship between political events and U.S. manufacturing FDI differs between less developed and developed economies. The U.S. manufacturing FDI in less developed countries seems to be affected by both inter-nation and intra-nation conflicts and cooperation while the influence in developed countries appears to be limited to inter-nation conflictual situations and cooperative initiatives. Loree and Guisinger (1995) provide some support for a negative relationship between FDI flows and political risk. Their composite risk variable is statistically significant with the expected sign in 1982, but not in 1977. Using political risk indexes as a proxy for political risk and work days lost as a proxy for sociopolitical instability in the production processes, Jun and Singh (1996) show that these factors are significant determinants of the FDI inflows into developing countries. The number of work days lost is a significant determent to FDI flows for the countries with relatively low levels of FDI while the political risk has a significant impact on FDI for the developing countries that received relatively high levels of FDI inflows. Grosse and Trevino (1996) find only weak evidence that political risk has played an important role in determining FDI inflows into the United States.

On the other hand, Tu and Schive (1995) indicate that political stability is no longer considered as a significant determinant of FDI in Taiwan. They argue that it is generally a precondition for FDI, but is less significant in determining the invested amount. Sethi et al. (2003) find that political and economic stability is not significant in determining FDI flows. In a similar vein, an empirical study by Li and Resnick (2003) shows that political instability, in spite of having an expected negative sign, is not a statistically significant determinant of FDI inflows. Yet, in general it is expected that country risk would be negatively related to FDI inflows. Therefore, the hypothesis is:

Hypothesis 6: The higher the degree of host country risk relative to the home country risk, the less attractive the host country will be for inward FDI.

¹³ The two political events refer to the host country's intra-nation events such as a 'coup d' état' and to inter-nation events in which an act is directed by a host country to the United States, respectively; an example of such an event is the host country's breaking off diplomatic relations with the United States (Nigh, 1985).

2.7 Regional integration

Regional integration plays an important role in the locational choice of MNCs. The reduction of internal trade costs and the economic integration with the rest of the world may affect the volume and pattern of FDI both into and within the integrated region. The ensuing increase of market size as a result of the integration theoretically makes it more interesting for firms to invest in the area. Blomström and Kokko (1997) and Lim (2001) provide a good overview of the issues associated with the effect of regional integration. According to the former, regional economic integration promises economic benefits for the integrating countries and stimulates investment in the short run. It is expected, in the long run, that the combined effects—larger market size, stronger competition, more efficient resource allocation, and various positive externalities—will raise growth rates of the participating countries' economies. Based on the integrating region as it becomes more attractive for foreign investors when the combined market size grows.

In a similar line of reasoning, Bajo-Rubio and Sosvilla-Rivero (1994) point out that the integration of a country's economy with the other economies in the region may imply a change in the expectations held by foreign investors established in the country. Even though the lowering of trade barriers might result in higher exports instead of FDI, firms might develop more positive expectations about an economy indefinitely integrated with other countries, and may use the country as an export platform to service the markets of other member nations in the integrated region. Aristotelous and Fountas (1996) indicate that the creation of a common market with a common external tariff may result in two conflicting effects on inward FDI in the integrated countries. First, the implementation of a common external tariff will give rise to defensive FDI; i.e., firms want to maintain market share and invest in the region. Second, the relaxation of internal barriers will allow foreign firms to supply the complete market of the integrated area from a single location. Therefore, the direction of the effect on FDI flows is ambiguous for the participating countries.

There are a host of theoretical approaches in the literature, attempting to explain the relationship between a single market and FDI inflows. Detailed discussions of three approaches are provided in Aristotelous and Foundas (1996) and Halicioglu (2001). The first approach is primarily based on the standard Heckscher-Ohlin theorem, which predicts that the increase in external barriers in the integrated area will increase income of import-competing industries that are mostly capital intensive. As the return on capital increases in the area relative to that of the foreign countries, inward FDI is also expected to increase. The second explanation takes the theory of international production as a starting point, and predicts that their production activities for exports. As mentioned earlier, firms producing goods for a larger market enjoy economies of scale and can take advantage of the dynamic effects to improve their ownership advantages. The third explanation refers to the theory of customs unions, which suggests a host of effects on FDI arising from the creation of a common market. For instance, FDI will respond to the international differences in production costs created by the common market.

The above discussion mainly deals with the static effects of regional economic integration on FDI. However, regional integration may also generate dynamic effects that influence inward FDI. For instance, a larger market as a result of integration allows firms to produce larger volumes and to enjoy economies of scale. Larger firms are able to engage more easily in research and development (R&D), which in turn may lead to the creation of new intangible assets that further stimulate investment both from within and outside integrated regions (Blomström and Kokko, 1997).

Donnenfeld (2003) showed that Spain and Portugal benefited significantly from inflows of FDI, as a result of their participation in the European Union. For example, the annual net FDI flows into Portugal increased from US\$2 billion in 1980 to US\$11 billion in 1990 and US\$6 in 1993. A study by Balasubramanyam et al. (2002) found that regional investment agreements result in an autonomous expansion in FDI between the member countries, but that such an increase may be offset by the dampening effect of distance if the capital cities are far, say, more than 3,300 kilometers away from each other. Similarly, Egger and Pfaffermayr (2004) provided evidence about the FDI volume between three new member countries and the EU12 had grown 26 percent faster than intra-EU12 FDI.¹⁴ Guerin (2006) found that participating in regional trade agreements is statistically significant for North-South FDI flows and that FDI is diverted to Southern host countries, which is interpreted as tariff-jumping FDI.

Hypothesis 7: The more a country takes part in regional integration and the more the host economy is integrated into the rest of the world economy, the higher will be the level of FDI.

2.8 Geographic Distance

Geographic distance is generally regarded as an important determinant of the locational choice of international production since market accessibility is one of the main motivations for firms to invest abroad (Wei and Liu, 2001). Distance should be seen as a measure of transaction costs of undertaking investment activities in a foreign country. For example, the costs of transportation and communications, those of dealing with cultural and language differences and of sending personnel abroad, and the informational costs of institutional and legal factors (local property rights, regulations and tax systems) can all be assumed to increase with distance (Bevan and Estrin, 2004).

Geographic distance may discourage a firm from setting up a plant in a far-away host country if it constitutes a less important market than nearby countries. However, if a subsidiary is established there, the share of its sales in total foreign sales of MNCs may very well be higher if the host country is further away. Higher transportation costs will then encourage the firm to supply the market through affiliate sales rather than via exports (Navaretti and Venables, 2004).

Davidson (1980) and Wei (2004) argue that geographic proximity affects FDI by reducing informational and managerial uncertainty, lowering transportation and monitoring costs and allowing multinational enterprises to be less exposed to risks. This can be explained by the fact that, after having decided to

¹⁴ EU 12 consisted of Belgium, Luxembourg, Denmark, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal, Spain, the United Kingdom. The three new member countries were Austria, Finland, and Sweden.

invest in the foreign country, subsidiaries may import raw materials as well as intermediate goods such as machinery from the home country for their foreign production processes. The transportation costs for imports from the parent company will normally be higher if the home country is further away from the host countries. Therefore, multinational enterprises, *ceteris paribus*, will prefer to invest in nearby host countries. It will be apparent from the above overview that the larger is the distance between the home and host country, the less successful it may be to lure inward FDI. However, transportation costs and the costs of acquiring information from the host country are likely to become gradually less important, because of the continued improvement of communication and transportation technology.

The empirical results of studies about geographic distance as a determinant of FDI flows are also mixed. Wei (1995), Grosse and Trevino (1996), Frenkel et al. (2004) and Gao (2005) find evidence to support the hypothesis of a negative relationship between geographic distance and FDI inflows, i.e. FDI inflows are inversely related to the distance between the home and FDI-receiving countries. These findings therefore are in accordance with the view that a larger distance implies higher costs, meaning that FDI activities are preferred to exports. However, Wei and Liu (2001) and Pan (2003) fail to confirm this for China. They argue that geographic distance is less important for FDI in China as technological progress in communication and transportation allows more efficient coordination of the international business activities.

Hypothesis 8: The higher the geographic distance between the home country and the host country, the less FDI will be undertaken in the host country.

2.9 Other variables

A set of additional control variables has been chosen as possible determinants of FDI in Cambodia. These variables include the relative inflation rate (INFLA), measured by the annual percentage change of the GDP deflator, the impact of the Asian crisis on the host country (CRISIS), and the impact of China's accession to the WTO on the host country's (Cambodia's) ability to attract inward FDI (CHINA).

The inflation rate can be viewed as a determinant of FDI in the host country. High inflation rates are often seen as a measure of overall economic instability, which is expected to increase the user cost of capital in the host country and to negatively affect the profitability of firms in the host country (de Mello, 1997; Onyeiwu and Shrestha, 2004; Asiedu, 2006; Busse and Hefeker, 2007). A high inflation rate is attributed to irresponsible monetary and fiscal policies such as an excessive money supply and a high budget deficit. As investors will rather invest in host countries which enjoy economic stability and a lower degree of uncertainty, it is expected that inflation is negatively related to FDI inflows. Several empirical studies subscribe to this negative inflation-FDI relationship (Kahai, 2004; Onyeiwu and Shrestha, 2004; Asiedu, 2006). Conversely, this also means that a host country's low inflation rate and more stable macroeconomic policies will encourage FDI inflows.

Hypothesis 9: The larger the difference between the host country's inflation rate and that of the home country, the less attractive the host country will be to FDI.

China's admission to the World Trade Organization (WTO) in 2001 might have had a negative impact on inward FDI in Cambodia. As a WTO member, China was able to export directly to the previously protected markets of the United States, the European Union and other lucrative markets and no longer needed Cambodia or some other Southeast Asian countries as an export platform. Cuyvers et al. (2008) argue that companies, which initially intended to invest in Cambodia, may well have considered investing in China instead.

The Asian crisis of 1997-1998 may also have adversely affected FDI inflows in the Kingdom as a lion's share of the country's inward FDI came from ASEAN countries and other Asian economies (Cuyvers et al., 2008). The adverse impact of the Asian crisis can be explained based on the relative costs of investment in Cambodia and those in the country of origin of the FDI. The crisis caused substantial depreciation of the ASEAN home countries' currencies against the dollar, which implied that *ceteris paribus* payments in domestic currencies to the factors of production in FDI home countries were relatively less costly than payments to production factors in US dollars—the currency heavily used in business transactions in Cambodia (Kang, 2005).

Hypothesis 10: China's accession to the WTO and the Asian crisis have negatively affected FDI in Cambodia.

3. Stochastic Economic Model of FDI Determinants

During the last years of the 1990s and the beginning of the new millennium, Cambodia has been able to attract a certain amount of FDI, especially, from its neighboring Asian developing countries (Cuyvers et al., 2006). However, the factors that have determined this inward foreign direct investment in Cambodia have not yet been studied in detail. A good understanding of the factors influencing inward FDI into the Cambodian economy may be relevant for policy purposes. This paper seeks to identify the most important determinants of FDI flows into the Cambodian economy during the 1995-2005 period and elaborate on some possible policy implications based on this empirical analysis.

In the light of the discussions presented in section 2, the relationship between FDI and its influencing factors in Cambodia is modeled as follows:

FDI = f(RGDP, DGROWTH, RER, RTRADE, RIR, DINFLA, RPOLRISK,RLP, DIST, ASEAN, CRISIS, CHINA)(1)

where:

FDI	= annual inflows of real FDI in Cambodia
RGDP	= ratio of real Cambodian GDP to the home country real GDP
RER	= ratio of the real exchange rate of the US\$ to the home country currency ¹⁵

¹⁵ Normally this variable should be defined as the ratio of real Cambodian riels per US\$ exchange rate to real home country's currency per US\$ exchange rate. However, as the Cambodian economy is highly dollarized, the exchange rate of the riel to the dollar is irrelevant for all practical purposes.

DGROWTH	= difference between the annual GDP growth in Cambodia and the home country
RTRADE	= real Cambodia's external trade (exports and imports) to and from the home country
RIR	= ratio of Cambodia's real interest rate to the real interest rate in the home country
DINFLA	= difference between the inflation rate in Cambodia and the home country
RPOLRISK	= ratio of the annual political risk scores in Cambodia to the home country
RLP	= ratio of labor productivity in Cambodia to the home country
DIST	= geographic distance between Cambodia and the home country in kilometers
ASEAN	= dummy for number of years Cambodia was a member of ASEAN (1999-2005)
CRISIS	= dummy for number of years since the Asian crisis, defined as being equal to 1 for 1997
	and 1998, and 0 otherwise
CHINA	= dummy variable, defined as being equal to 1 for the years China became a member of
	the World Trade Organization (WTO) (2001-2005) and 0 otherwise

In equation (1), inward FDI is, in relative terms, explained by real market size (RGDP), real GDP growth (DGROWTH), the real exchange rate (RER), real external trade to and from the home country (RTRADE), the real interest rate (RIR), the inflation rate (DINFLA), political risk (RPOLRISK), labor productivity (RLP) used as a proxy for wage rate, geographic distance between Cambodia and the home country (DIST) and a set of dummy variables ASEAN, CRISIS and CHINA, used to capture their effect on FDI inflows into the Cambodian economy. The relationship between the dependent variable and the explanatory variables in equation (1) can be re-written explicitly in the following log-linear form:

$$\begin{aligned} LFDI_{ict} &= \alpha_1 LRGDP_{ict} + \alpha_2 DGROWTH_{ict} + \alpha_3 LRER_{ict} + \alpha_4 LRTRADE_{ict} + \alpha_5 LRIR_{ict} \\ &+ \alpha_6 DINFLA_{ict} + \alpha_7 LRPOLRISK_{ict} + \alpha_8 LRLP_{ict} + \alpha_9 LDIST_{ict} \\ &+ \alpha_{10} ASEAN_{1999-05} + \alpha_{11} CRISIS_{1997-98} + \alpha_{12} CHINA_{01-05} + \varepsilon_{ict} \end{aligned}$$

$$(2)$$

$$i = 1, 2, ..., N \text{ and } t = 1, 2, ..., T \text{ (from 1995 to 2005, inclusive)}$$

The subscripts *i*, *c*, and *t* refer to the home country, Cambodia and time, respectively. ε_{it} , denoting a composite error term, is equal to $\alpha_i + u_{it}$, where α_i is host country-specific, accounting for the unobserved heterogeneity among the host countries, and u_{it} is a white noise. The model choice in equation (2) is in line with the current theoretical and empirical literature on the determinants of FDI flows (see e.g. Wei and Liu, 2001; Pan, 2003; Bevan and Estrin, 2004; Gao, 2005). As the assumption of an instantaneous impact of the explanatory variables on the dependent variable may not be met¹⁶ because the process of choosing and implementing FDI abroad is time-consuming, equation (2) is estimated both in levels and with one year lagged explanatory variables. Wei and Liu (2001) argue that the included variables in equation (2) are weakly exogenous. Consequently, it should be possible to use the standard panel data estimation techniques in estimating the equation.

¹⁶ Some authors assume that the impact of all independent variables on FDI occurs instantaneously (see e.g. Wei and Liu, 2001).

In equation (2), both the dependent variable and the explanatory variables are in logarithms and differences, and are denoted by L and D, respectively. The use of the variables in logarithms has three advantages. First, it makes it relatively easy to interpret the slope parameters of the explanatory variables. The coefficients of the logged explanatory variables are the elasticities of the dependent variable with respect to a one percent change in the explanatory variables (except the coefficients of the dummy variables). Secondly, the use of logged values can reduce the problem of outliers. Thirdly, log-transformation of both dependent and independent variables can linearize the non-linear relationship between the variables.

Equation (2) is estimated by using both approved FDI and realized FDI. The difference between the two measures is that the approved FDI is the qualified investment project that was authorized by the Cambodian Investment Board (CIB) or the Cambodian investment authorities. Realized FDI shows the direct investment projects that have started their operations after having received approval from the Cambodian investment authorities (see Cuyvers et al., 2008). The difference between approved and realized FDI is due to delays and cancellations of approved projects. Based on the data obtained from CIB, it is found that the approved FDI and realized FDI in Cambodia are, for some years, significantly different.

4. Data and Variables

This paper uses detailed, unpublished data, provided by CIB and supplemented by surveyed and estimated data from the National Bank of Cambodia (NBC). Based on the approved FDI projects, there were thirty-two home countries that have companies with investments in Cambodia during 1995-2005.¹⁷ Because some of these countries accounted for only a few projects, the number of home countries included in the analysis was reduced to seventeen.¹⁸ Of this latter group of countries, data from CIB for one or two years are equal to zero, yet NBC estimated that the FDI inflows from those home countries were positive.¹⁹ This is why the zero figures from CIB are replaced by positive ones from NBC since the firms from those countries actually did invest in Cambodia in those years. Although only seventeen out of the thirty-two home countries are included in the analysis, they represent 99.48 percent of total approved FDI during 1995-2005.

As far as could be verified, no official figures about realized FDI in Cambodia have been made available for Cambodia yet. Therefore, the realized FDI data from CIB, which were classified as "active" and "former active" by the Project Monitoring Department (PMD) of CIB are used. PMD visited the approved

 ¹⁷ The CIB was created after Cambodia's first-ever national election in 1993, and data on inward FDI in the country became available from August, 1994 onwards. As FDI data in 1994 only cover a few months, it is therefore excluded from the analysis.
 ¹⁸ The 17 countries include Australia, Canada, China, France, Hong Kong, Indonesia, Japan, Korea, Malaysia, Portugal, Singapore, Switzender, Trainer, The Internet Victorem.

Switzerland, Taiwan, Thailand, United Kingdom, United States, and Vietnam. ¹⁹ National Bank of Cambodia estimated FDI inflows from data from CIB and its own survey, with technical assistance from the IMF Office in Cambodia. Unfortunately, country-level data from NBC are available only from 1998 onwards, and are based on balance of payment statistics.

investment projects and labeled them as "active", "former active", "non-active" or "deleted"20. As for approved FDI, a few missing values for some home countries were replaced with data from NBC for realized FDI.

Portugal and Vietnam have only a few observations for realized FDI between 1995 and 2005 and were dropped from the analysis. Consequently, the number of home countries is further reduced to fifteen in the analysis of realized FDI.²¹ Yet, they account for almost 99 percent of the total estimated realized FDI in Cambodia during that period. Contrary to previous studies of the determinants of FDI in developed and developing countries, the variables in the present paper are deflated to remove the influence of price changes, except political risk, distance, and a set of dummy variables. All of the explanatory variables, except the set of dummies, are in relative real terms, and integrate "push" and "pull" factors in both home and host countries into the analysis.

The reason for using explanatory variables in relative terms rather than absolute values is the following. Based on the general assumption and belief, investors are rational in assessing and choosing foreign countries for the location of FDI activities. When the investors in the home country decide to set up production facilities in a particular host country, they normally will compare the economic, political and institutional factors between the home and potential host countries. As a result, the home county factors also come into play because they are used as a frame of reference. Thus, the attractiveness of the business environments in the host countries in which the investors may conduct their business, lies in the differences between the home and host countries factors, at least as perceived by the investors, and the FDI decisions made thereafter. For example, a higher degree of risk in the home country relative to the host country, ceteris paribus, will encourage the firms from the former to consider investment in the latter.

The data for the dependent variables, approved FDI and realized FDI in Cambodia, are made available by CIB and NBC. The explanatory variables are, however, in relative real terms, and the data are from international institutions such as the International Monetary Fund, the World Bank, the Asian Development Bank, or other sources such as Euromoney Magazine and Taiwan's Ministry of Economic Affairs (MOEA). The definitions of the variables and descriptions of the data as well as their sources are presented in the appendix.

5. Estimation methodology

Although Cambodia already received FDI in the mid-1950s (Chap, 2005), official data on FDI inflows became only available officially after August 1994. As FDI data for 1994 only cover a few months, the analysis will concentrate on 1995-2005. Taking into account the short time period covered by these FDI data, it is not appropriate to use time series analysis for the estimations. Cross-sectional estimations are

²⁰ By "active" and "former active" investment projects, it is meant that the projects were operational and were implemented several years after receiving approval from CIB, respectively. "Non-active" and "deleted" projects refer respectively to the ones that were never implemented after the approval and consequently are deleted. ²¹ The fifteen countries include Australia, Canada, China, France, Hong Kong, Indonesia, Japan, Korea, Malaysia, Singapore, Swit-

zerland, Taiwan, Thailand, United Kingdom, and United States.

also known to be inefficient as only seventeen and fifteen host countries for approved FDI and realized FDI, respectively, are available. Due to the inappropriateness and inefficiency of estimations with time series and cross-sectional estimations, it was decided to opt for a panel data set, i.e. the data containing time series of a number of individuals, in the estimations of equation (2).

Panel data have several advantages over the usual cross-sectional or time series data (Hsiao, 2003, 2005, 2006; Plasmans, 2006). Plasmans (2006) has shown that panel data are more efficient with respect to random sampling and ease of identification, present less multicollinearity and are better for aggregation as the aggregation may vary over time. Similarly, Hsiao (2005) has indicated that an important advantage of panel data is that it allows to control for the impact of omitted variables, and contain information on the inter-temporal dynamics, and also that the individuality of the entities allows the effects of missing or omitted variables to be controlled for. Wei and Liu (2001) have argued that the use of panel data takes into account the diversity and the specificity of unobservable behavior of different investors, which is not shown in the regression equation (2).

Panel data sets allow to use three estimation procedures: pooled OLS, fixed-effects (FE), or random effects (RE) estimations. If the assumption holds that the unobservable individual country-specific effects are not very different, pooled OLS estimations are the most simple and efficient method. The FE estimations allow for the unobservable country heterogeneity. However, the use of a fixed-effects model will "kill" the time-invariant variable DIST, and will make FE estimations less efficient than the RE estimation counterpart. Like the FE model, RE estimations take into consideration the unobservable country heterogeneity effects, but incorporate these effects into the error terms, which are assumed to be uncorrelated with the explanatory variables.

To choose the appropriate model for the panel data set from these three competing models, three tests are available (Plasmans, 2006): the F test, the Hausman specification test (Hausman, 1978), and the Lagrange multiplier test (LM test) (Breusch and Pagan, 1980). The F test is used to carry out a test for the FE model against the pooled OLS. The null hypothesis of the F test is that all individual effects are equal,

or algebraically, $H_0: \alpha_{11} = \alpha_{12} = ... = \alpha_{1N} = \overline{\alpha_1}$, with the F test statistic for the joint significance of the individual effects as follows:

$$F_{N-1,NT-N-K+1} = \frac{(R_{FE}^2 - R_{pooled}^2)/(N-1)}{(1 - R_{FE}^2)/(NT - N - K + 1)}$$

where N is the number of FDI-investing countries, and K is the number of explanatory variables. A small value for F will lead to the rejection of the null hypothesis in favor of the FE model. The Hausman test is for testing the appropriateness of the FE model against the RE model. The Hausman test statistic is relatively easy to compute as it is included as a routine in some econometric packages.

Since the regression equation (2) contains both time-variant and time-invariant variables, the use of FE estimation is deemed inappropriate as it will drop the time invariant variables. Therefore, this paper will opt for the estimation of pooled OLS and RE models. One model against other model will be tested using the LM test. If individual country-specific effects do not exist, the pooled OLS model is known to be the best linear unbiased estimators (BLUE), while RE estimators are not efficient. The opposite is true if individual country-specific effects do exist in the panel data set.

The OLS model assumes that the individual specific effect, α_i , is a constant while the RE model assumes that it is random, independently and identically distributed, that is, $\alpha_i \sim iid(0, \sigma_{\alpha}^2)$; u_{it} is assumed to be normally distributed with zero mean and constant variance, that is, $u_{it} \sim iid(0, \sigma^2)$. It has been shown that, under the null hypothesis $H_0: \sigma_{\alpha}^2 = 0$ against the alternative hypothesis $H_1: \sigma_{\alpha}^2 > 0$, the LM test statistic is as follows:

$$LM_{BP} = \frac{NT}{2(T-1)} \left[\frac{\sum_{i=1}^{N} \left(\sum_{t=1}^{T} \hat{e}_{it}\right)^{2}}{\sum_{i=1}^{N} \sum_{t=1}^{T} \hat{e}_{it}^{2}} - 1 \right]^{2}$$

which is asymptotically χ^2 – distributed with one degree of freedom; \hat{e}_{it} denotes OLS residuals obtained under H_0 . A large value for the LM test statistic will reject the null hypothesis in favor of the RE model.

To avoid spurious regression results, it is important to carry out unit root tests for stationarity of each variable before sound estimations and useful analysis can be performed. A number of panel unit root tests are available in the econometric literature (see, for instance, Quah, 1994; Choi, 2001; Levin, Lin and Chu, 2002; Im, Pesaran and Shin, 2003). Since the time span of the individual series in the available panel data set is relatively short, the recently-developed panel unit root test (see Im, Pesaran and Shin, 2003), known as the IPS test, will be used, as it allows for residual serial correlation and heterogeneity of error variances across groups, and also as it is more powerful even with relatively short sample periods.²²

The IPS test starts with the specification of a separate Augmented Dickey-Fuller (ADF) regression for each cross section:

$$\Delta y_{it} = \alpha_i + \beta_i y_{i,t-1} + \sum_{j=1}^{p_i} \rho_{ij} \Delta y_{i,t-j} + \varepsilon_{it}$$

$$i \in [1, N], \quad t \in [1, T]$$
(3)

Since almost all time series have deterministic trends, incorporating the trend into growth equation (3) leads to equation (4):

$$\Delta y_{it} = \alpha_i + \gamma_i t + \beta_i y_{i,t-1} + \sum_{j=1}^{p_i} \rho_{ij} \Delta y_{i,t-j} + \varepsilon_{it}$$

$$i \in [1, N], \quad t \in [1, T]$$
(4)

where Δ represents the operator for the first-order difference, y_{it} denotes each dependent and explanatory variable, p_i is the number of lags of Δy_{it} , ρ_{ij} is the slope parameters of the lagged changes, and ε_{it} is assumed to be independently and normally distributed with mean zero and finite heterogeneous variances. The null hypothesis of unit roots to be tested is: $H_0: \beta_i = 0$ for all i versus the alternative, $H_1: \beta_i = 0$ for some i's and $\beta_i < 0$ for at least one i.

The IPS test statistic, which is referred to as the t-bar statistic, is based on the ADF statistic averaged across the groups. The standardized t-bar statistic is of the following form:

$$W_{t-bar} = \frac{\sqrt{N} \{\frac{1}{N} \sum_{i=1}^{N} t_{iT}(p_i, \rho_i) - \frac{1}{N} \sum_{i=1}^{N} E[t_{iT}(p_i, 0) \mid \beta_i = 0]\}}{\sqrt{\frac{1}{N} \sum_{i=1}^{N} Var[t_{iT}(p_i, 0) \mid \beta_i = 0]}} \Longrightarrow N(0, 1)$$
(5)

Im, Pesaran and Shin (2003) tabulated the values of $E[t_{iT}(p_i,0) | \beta_i = 0]$ and $Var[t_{iT}(p_i,0) | \beta_i = 0]$ for different values of T and p. Under the null hypothesis, the t-bar statistic has a standard normal distribution. Under the alternative hypothesis of stationarity, the t-bar statistic diverges to $-\infty$. The rejection of the null hypothesis will lead to the conclusion that the variable considered is stationary.

To obtain stable and unbiased estimated slope parameters, additional collinearity, autocorrelation and heteroskedasticity tests are needed. The collinearity test is based on the variance inflation factor (VIF), which has been shown to be equal to $1/(1-R_i^2)$, where R_i^2 is obtained from the multiple correlation coefficient of an explanatory variable X_i regressed on the remaining explanatory variables. Evidently, a higher VIF_i indicates R_i^2 to be near unity and therefore points to collinearity. The commonly-used rule of thumb states that if VIF > 10, there is evidence of collinearity (Baum, 2006).²³ To test for autocorrelation in

²² Im, Pesaran and Shin (2003) indicate that their panel unit root test technique is generally better than previously-proposed tests, and is usually simpler.

²³ There are a number of tests for detecting near-collinearity. See e.g. collinearity tests—degrading collinearity (DCL) and harmful collinearity (HCL)—proposed by Belsley (1991). However, Baum (2006) argues that we can safely ignore near-collinearity that does not affect key parameters.

panel data, the Wooldridge (2002) test is employed.²⁴ Rejection by the Wooldridge test will indicate the presence of autocorrelation in the panel data set. Greene (2003) proposes a test for groupwise heteroskedasticity, which is based on the Wald statistic. Under the null hypothesis of common variance, the Wald test statistic is shown to be of the following form:

$$W = \sum_{i=1}^{n} \frac{(\hat{\sigma}_i^2 - \sigma^2)^2}{Var(\hat{\sigma}_i^2)}$$

W is χ^2 – distributed with *n* degrees of freedom. Failure to reject the null indicates the absence of groupwise heteroskedasticity.

6. Estimation results

Tables 1 and 2 show the unit root test results and the statistics for approved FDI and realized FDI, respectively.²⁵ IPS-test statistics and the standard descriptive statistics are reported together with the estimation results.

Variable	Minimum	Maximum	Mean	Standard Deviation	t-bar Test
LAFDI	0	21.236	13.839	5.417	-2.120**
LRGDP	-6.179	-1.280	-3.273	1.283	-16.292***
DGROWTH	-4.650	18.090	4.123	4.243	-3.012***
LRER	-9.642	0.718	-2.675	3.113	-16.858***
LTRADE	10.755	21.062	17.877	1.749	-3.992***
LRIR≠	-0.756	2.252	0.980	0.518	-2.110**
DINFLA	-65.040	12.18	1.015	7.052	-4.461***
LRPOLRISK	-2.046	-0.287	-1.413	0.400	-4.200***
LRLP	-4.818	0.006	-3.363	1.420	-10.229***
LDIST	6.273	9.575	8.201	1.029	_

Table 1: Unit root test results for Approved FDI

Notes:

L and D refer to the values in logarithms and in differences, respectively.

** and *** refer to significance level at 5% and 1%, respectively.

 \neq refers to unit root test for the variable covering only sixteen countries from 1996-2004.

LAFDI =logarithm of annual approved FDI in Cambodia; LRGDP = logarithm of ratio of Cambodia's real GDP to home country's real GDP; DGROWTH = difference between Cambodia's real GDP growth and home country's real GDP growth; LRER = logarithm of the real exchange rate of the US\$ to the home country's currency; LTRADE = logarithm of Cambodia's real trade from and to home country; LRIR = logarithm ratio of real lending interest rate in Cambodia to real lending interest rate in home country; DINFLA = difference between Cambodia's inflation rate and home country's inflation rate; LRPOLRISK = logarithm of ratio of political risk scores in Cambodia to political risk scores in home country; LDIST = logarithm of distance between capital city of Cambodia to that of home country.

²⁴ The Wooldridge (2002) test is widely used in the recent literature, see for example, Winner (2005) and Houston and Richardson (2006).

Variable	Minimum	Maximum	Mean	Standard Deviation	t-bar Test
LRFDI	0	19.358	13.924	5.014	-3.892***
LRGDP	-6.180	-1.280	-3.441	1.273	-16.158***
DGROWTH	-4.650	18.090	4.255	4.208	-2.998***
LRER	-9.182	0.670	-2.284	2.690	-8.933***
LTRADE	14.203	21.062	18.105	1.368	-4.611***
LRIR	-0.753	2.260	1.015	0.519	-2.834***
DINFLA	-65.040	12.180	1.318	7.320	-4.440***
LRPOLRISK	-2.046	-0.287	-1.447	0.380	-4.229***
LRLP	-4.818	-0.275	-3.559	1.251	-11.859***
LDIST	6.273	9.575	8.209	1.007	_

Table 2: Unit Root Test Results for Realized FDI

Notes:

LRFDI = logarithm of annual realized FDI in Cambodia. See notes in Table 1 for variable names.

As can be seen from Tables 1 and 2, the coefficients of almost all variables are highly statistically significant at 1%, except LAFDI and LRIR which are statistically significant at the 5% level. These results show that both dependent and explanatory variables are all stationary. However, on the basis of the intercorrelations, Belsley's condition number and the variance inflation factor (VIF), it is found that labor productivity LRLP, used as proxy for the relative real wage rate, is highly correlated with some other explanatory variables. Dropping LRLP significantly reduces the Belsley's condition number and VIF, suggesting less collinearity between the remaining explanatory variables, which in turn increases the usefulness and the degrees of stability for the estimated coefficients.26 Additionally, when included in the regression, the LRLP variable is highly insignificant. Consequently, LRLP has been excluded from the model for both approved and realized FDI. The test for heteroskedasticity and the Wooldridge test for first-order autocorrelation, and the collinearity test are also carried out, and the statistics are reported along with the econometric results.

It is likely that FDI may not instantaneously react to changes in the explanatory variables as the investors' decisions to carry out FDI abroad take some time. Therefore, the determinants of approved and realized FDI are estimated using both unlagged and one-year lagged explanatory variables.

Table 3 shows the estimation results for approved FDI. Both the pooled OLS model and the RE model were estimated together with the Breusch and Pagan LM test for random effects. The LM statistic (23.64) is significant at 1%, suggesting that the RE model is statistically superior to the OLS model.27 Similarly, for the estimation with one year lagged explanatory variables, the LM statistic (19.20) is statistically significant at 1%, indicating that RE is statistically better than the OLS model.

²⁵ Stata 9.2 was used for computing these statistics and for estimations and testing

²⁶ The reader is reminded that it is widely accepted that VIF > 10 will be the indication of high collinearity (Baum, 2006). ²⁷ Since the RE model is better than its OLS counterpart in all the cases as shown by the LM tests, only results of the RE model are reported.

As for realized FDI, however, the LM statistic for the estimations with and without one-year lagged explanatory variables (2.01 and 0.96, respectively) is insignificant at any conventional significance level, suggesting that the pooled OLS model is statistically better than the RE for estimating realized FDI. Therefore, approved FDI and realized FDI are estimated by RE and OLS, respectively.

From Table 3, the diagnostic test for groupwise heteroskedasticity shows that the null hypothesis is strongly rejected at less than the 1% level, suggesting that heteroskedasticity is present across the countries in all the regressions. Consequently, the model is estimated by taking into consideration this heteroskedasticity.28 The autocorrelation test or the Wooldridge test indicates that no first-order autocorrelation is present in the models. The VIF statistics are ranging from 2.46 to 2.57 for the realized FDI and the approved FDI data sets, suggesting no damaging multicollinearity among the included variables.

	Regression 1	Regression 2
Variable	(without lagged	(with one-year lagged
Constant	explanatory variables)	explanatory variables)
Constant	29.30/0	(7 3085)
IRGDP	(11.0 4 39) _1 0988	-0.5603
ERODI	(0 7004)	(0.5015)
DGROWTH	0.0520	-0.0459
	(0.0608)	(0.0880)
LRER	0.5928**	Ò.6096**́
	(0.2845)	(0.2748)
LTRADE	0.0736	0.7559**
	(0.3987)	(0.3373)
LRIR	-0.4346	-0.6889
	(1.2138)	(0.9849)
DINFLA	-0.0491	-0.0304
	(0.0457)	(0.0401)
LRPOLRISK	-1.0754	-0.5806
I DIST	(1./038)	(1.3283)
LDIST	-2.1592***	-1.1385"
ASEAN	(0.9398)	(0.0802)
ASEAN	-1.0419 (1.3125)	-1.4705
CRISIS	_1 /338	(0.9491)
	(1 0402)	(0.9251)
CHINA	-1 6857**	-2 6021***
	(0.7698)	(0.6576)
No. of Obs.	179	164
Overall R2	0.2633	0.2866
	0.2000	0.2000
VIF	2.57	-
LM statistic $\chi^2(1)$	23.64***	19.20***
Wooldridge test statistic for first-order autocorrelation	0.647	_
Wald test statistic for groupwise heteroskedasticity	4222.20***	813.83***

Table 3: Slope Parameter Estimates of Elasticities for Approved FDI in Cambodia

²⁸ The authors are grateful to Christopher F. Baum for suggesting the Stata command for the estimations.

Notes:

L and D refer to values in logarithms and in differences, respectively.

*, **, and *** denote that the slope parameter estimates are statistically significant at the levels of 10%, 5%, and 1%, respectively.

Standard errors are robust standard errors in parentheses. See notes below Table 1 for variable names.

From Table 3, it can be seen that the slope parameter estimates of relative GDP are negative, and insignificant at any conventional significance level. This is the case without and with one year lagged explanatory variables, which suggests that the market size of Cambodia and/or home country's market size do not influence FDI inflows. Similarly, a number of other variables such as the rate of growth, the relative interest rate, the inflation rate as well as political risk, and CRISIS are all not statistically different from zero.

The relative exchange rate variable has the expected positive sign, and is significant at less than the 5% level, with and without one year lagged terms. This provides some evidence that the exchange rate is positively related to FDI inflows into Cambodia. As mentioned earlier, since Cambodia's economy has been highly dollarized, the exchange rate variable is defined as the ratio of the US dollar in real terms to home country's currency-per-dollar real exchange rate. There are several reasons why a real depreciation in Cambodia possibly leads to an increase in FDI from the home country. Firstly, a real depreciation of the US dollar relative to the home country's currency will provide investors from the home country a cost advantage in terms of Cambodian labor costs. Secondly, a depreciation of the dollar makes assets, valued in dollars, cheaper in Cambodia. This provides an incentive for foreign investors to buy Cambodian assets. Thirdly, a depreciation of the US\$ will make goods produced in Cambodia relatively cheaper than the same goods produced in the home country. Therefore, foreign investors may be enticed to invest in the Kingdom.

The coefficient estimate of the geographical distance variable has, as expected, a negative sign, and is significant at less than 5% and 10 % in Regressions 1 and 2, respectively. This implies that geographical distance is a significant deterrent, rather than a determinant of FDI inflows into Cambodia. The result is consistent with the theory of economic geography, which postulates that geographical distance is positively associated with the costs of obtaining relevant and detailed local information as well as the costs of managing foreign production facilities in the host country. Geographical distance therefore acts as a measure for international transaction costs between the home and host countries of the investors. Therefore, the larger the distance between Cambodia and the home countries, the less effective Cambodia is in attracting FDI inflows into its economy.

In Regression 2, the estimated coefficient for the total trade variable shows the expected positive sign and is significant at the 5% level, indicating that bilateral trade between Cambodia and the FDI home countries is positively related to inward FDI in the Kingdom. This result is consistent with Yamagata (2006) and Cuyvers et al. (2006, 2008). FDI projects were found to import raw materials and machinery from the home country, for use in their final production activities in Cambodia, the output of which is destined for the rich countries, in particular, the United States and the European Union. The imports of these materials are encouraged by the incentives in Cambodia's investment law, which eliminates the import tax on intermediate goods for FDI projects and by the lack of these inputs in Cambodia.

It should be noted, from Table 3, that the significant parameter estimates (in absolute values) in Regression 1 are, on average, smaller than those in Regression 2 (one year lagged explanatory variables). This suggests that the impact of the explanatory variables on FDI inflows does not occur instantaneously and that it takes time for the full impact to be realized. In addition, results from the estimations with one-year lagged explanatory variables are statistically better than these without lagged terms, as shown by the higher overall R2 for approved FDI and adjusted R2 for realized FDI. Moreover, while maintaining the significance levels of the other variables, the dummy variable CRISIS turns significant at the 10% level when the one-year lagged terms of the time-variant explanatory variables are introduced. The significant coefficient for CRISIS indicates that the Asian crisis negatively affected inward FDI in Cambodia.

An interesting result is the significant 'China' factor in Regression 1 and 2. As mentioned before, the CHINA variable is used to capture the effect of China's WTO accession and membership on the FDI inflows into Cambodia. The negative, significant parameter associated with the CHINA variable suggests that China's membership in the WTO has had a negative impact on Cambodia's ability to attract inward FDI. This result clearly contrasts with several other studies on the impact of the China's rise on Asian developing countries (Chantasaswat et al., 2003, 2005; Zhou and Lall, 2005; Liu et al., 2007; Eichengreen and Tong 2007), which stress that China's emergence actually complemented, rather than crowded out, FDI inflows into Asian developing economies. However, Cambodia was not included in any of these studies. A closer look at Cambodia FDI inflows provides some support for China's FDI complementarity to the Cambodian economy over the period 1994-2005, and shows that FDI from China increased during this period. However, annual total FDI inflows into Cambodia declined from about US\$ 977 million during the sub-period 1994-1996, to US\$ 366 million during 1997–2000 and to US\$ 304 million from 2001 to 2004 (Cuyvers et al., 2006, 2008).

Table 4 presents the estimates for realized FDI in Cambodia. Compared with the findings obtained for approved FDI (Table 3) the estimation results for realized FDI are consistent, both in terms of the estimations without and with one-year lagged explanatory variables. The main difference is that more estimated coefficients turn out to be significant in the estimations of realized FDI with one year lagged explanatory variables. As with the estimations of approved FDI, the slope parameter of the GDP variable, along with some other variables mentioned above, is not statistically different from zero, suggesting that these variables do not influence the inflows neither of approved nor realized FDI in Cambodia.

Variables	Regression 3 (without lagged explanatory variables)	Regression 4 (with one-year lagged explanatory variables)	
Constant	9.3839	4.8567	
	(9.9694)	(7.8800)	
LRGDP	-0.4852 (0.4564)	-0.1707 (0.3743)	
DGROWTH	0.0169	-0.1674**	
20100111	(0.0736)	(0.0725)	
LRER	0.4731**́	0.4736**	
	(0.1826)	(0.1934)	
LTRADE	1.0844***	1.2267***	
	(0.3982)	(0.3386)	
LRIR	-0.8554	-1.0205	
	(1.0689)	(1.0661)	
DINFLA	-0.0743	-0.0253	
	(0.0467)	(0.0368)	
LRPULRISK	-0.7530	0.0440	
IDIST	(1.9137) 1 7324**	0.0861#	
EDIOT	(0.7196)	-0.9001# (0.5975)	
ASEAN	-0.9815	0.0999	
	(1.3351)	(1.2249)	
CRISIS	-2.4951	-3.2827***	
	(1.6119)	(1.2055)	
CHINA	-1.2681	-2.7874***	
	(1.1274)	(1.0181)	
No. of Obs.	165	150	
Adjusted R2	0.2678	0.2959	
VIF	2.46	_	
LM statistic $\chi^2(1)$	2.01	0.96	
Special White test for heteroskedasticity	34.075***	30.459***	

Table 4: Slope Parameter Estimates of Elasticities for Realized FDI in Cambodia

Notes:

*, **, and *** denote that the slope parameter estimates are statistically significant at the levels of 10%, 5%, and 1%, respectively.

the coefficient is only significant at 10.1%.

Standard errors are White heteroskedasticity-corrected standard errors in parentheses.

See notes below Table 1 for variable names.

In Regression 4, the coefficient of the growth variable now becomes significant at 5%, implying that a higher growth rate in the FDI home country relative to Cambodia's growth rate results in a higher level of realized FDI in Cambodia. The coefficients of the CRISIS and CHINA variables are significantly different from zero at less than the 1% level, signifying that the Asian crisis and China's membership in the WTO negatively affected FDI inflows into Cambodia.

The estimated coefficient of bilateral trade between Cambodia and FDI home countries is positive and statistically different from zero at less than the 5% level. Therefore, as in the case of approved FDI, realized FDI is positively associated with total international trade (imports plus exports) of Cambodia.

The coefficient of the distance variable is now marginally significant at 10%, providing some evidence for a negative relationship between distance and realized inward FDI in Cambodia. As shown in Cuyvers et al. (2006, 2008), Cambodia was most successful in attracting FDI from its Asian neighbours, while investment from the developed countries was limited, a phenomenon which may be explained by the longer geographic distance between these developed countries and the Kingdom. From 1994 to 2004, Cambodia's inward FDI from ASEAN member countries represented 48.1 percent, Greater China (China, Taiwan and Hong Kong) 26.7 percent and other Asian countries 7. 8 percent, while FDI flows into Cambodia from the developed countries—the United States, Canada and the European Union combined—accounted for only 17.4 percent over the same period (Cuyvers et al., 2008).

It should also be noted that the estimations with lagged explanatory variable, on average, provide both higher statistical and economic significance of the explanatory variables. Although the results of approved FDI and realized FDI are highly similar, Tables 3 and 4 show that the sets of determinants of approved and realized FDI do not perfectly coincide. This should not be too surprising, however. A possible explanation is that the conditions under which approved FDI is arranged and planned are different from those of realized FDI. As economic, political and institutional conditions are changing over time, the level of realized FDI is likely to deviate from approved FDI.

To sum up, the econometric analysis shows that the home country's economic growth rate, the exchange rate and bilateral trade are determinants of FDI inflows into Cambodia, showing a significant positive effect, while geographic distance as a determinant has a significant negative impact. In addition, China's WTO membership and the Asian crisis have both adversely affected Cambodia's ability to attract FDI inflows. Other variables such as the relative lending interest rate and inflation are not significantly different from zero at any conventional significance level, which suggests that these are not FDI determinants in the country.

7. Concluding remarks

This paper has examined the factors that might affect the inflows of FDI into Cambodia's small open economy over the period 1995-2005. Panel data sets were used for both approved and realized FDI. The data from seventeen home countries for approved FDI and fifteen home countries for realized FDI were pooled over 1995-2005. Even though some countries are not included, these panel data sets for the approved and realized FDI represent almost all (about 99 percent) of Cambodia's total FDI inflows during this period.

The major difference between the above findings and a number of previous empirical studies on other countries resides in the use of explanatory variables in relative terms and in the application of several diagnostic tests for choosing the best econometric estimation technique. The use of relative values rather than level values stems from the belief that investors are rational in choosing and implementing FDI in host countries in which they set up affiliates, and are comparing both countries in terms of economic,

political and institutional factors. Another important feature of this paper is that unit root tests were conducted for all time-variant variables to avoid spurious regression results.

Random effects estimation proved to be the most suitable model for estimating approved FDI, while a pooled OLS model performed statistically better for the estimations of realized FDI. Levels and one-year lagged explanatory variables were used to estimate their impact on FDI inflows. The results show that the determinants of approved FDI and realized FDI are consistently similar, but not identical. The FDI home country's GDP growth rate, its bilateral trade with the host country, and the exchange rate have a positive impact on inward FDI flows into Cambodia. The magnitudes of the economic significance of the estimates are, on average, larger for both approved and realized FDI with one-year lagged explanatory variables, which implies that it takes some time for investors to launch their FDI in an unfamiliar environment abroad, i.e. taking into consideration the conditions under which they planned and finally implemented their investment initiatives.

Geographic distance negatively affects the level of FDI inflows in Cambodia. This explains that a large share of FDI inflows over the period under consideration largely came from developing Asian neighbouring countries (Cuyvers, et al. 2006, 2008). The Asian crisis in 1997 and 1998 as well as China's WTO membership are found to have a significant negative impact on the Cambodia's ability to attract FDI.

With respect to the policy implications for Cambodia, it is interesting to stress that international trade is shown to have a significant impact on FDI inflows into the country. Therefore, a further liberalization of Cambodia's international trade will attract more inward FDI, which in turn is expected to generate some positive externalities in the economy. As the home country rates of economic growth are a main driving force of inward FDI flows into Cambodia, it follows that the country's ability to attract inward FDI is, to some extent, beyond its control and depends on the growth of the world economy and specific home countries. Thus, the Cambodian Government should devote much more effort in creating "pull factors" for the country, e.g., by improving its institutions, infrastructures and legal systems, by the removal of administrative barriers, etc., which can result in dynamic positive effects of inward FDI and economic growth, in addition to stimulating technology transfer to the country.

Variable Name	Definitions and Data Sources
AFDI	Real annual approved FDI inflows into Cambodia from 1995 to 2005. Real approved FDI is computed as approved FDI in current dollars divided by Cambodia's GDP deflator in the corresponding years. Data on approved FDI is from the Project Monitoring Department, Cambodian Investment Board, and GDP deflator from the International Monetary Fund's International Financial Statistics Yearbooks (various issues).
RFDI	Real annual realized FDI inflows into Cambodia from 1995-2005. Real realized FDI is annual realized FDI in current dollars divided by Cambodia's GDP deflator. Data on realized FDI is estimated from the Project Monitoring Department, Cambodian Investment Board, and GDP deflator is from the International Monetary Fund's International Financial Statistics Yearbooks (various issues).
RGDP	Relative real GDP—the ratio of Cambodia's real GDP, measured in Purchasing Power Parity, to the home country's real GDP in Purchasing Power Parity. Cambodia's real GDP is derived from GDP in Purchasing Power Parity in current US\$ deflated by Cambodia's GDP deflator in the corresponding years. Real GDP is computed similarly. Sources: IMF's World Economic Outlook's database
DGROWTH	Difference between GDP growth rates of host and home country, i.e. the difference between Cambodia's real GDP growth rate and the home country's real GDP growth rate. Source: World Development Indicators. Data on Taiwan are from Taiwan's Ministry of Economic Affairs (MOEA).
LRER	Relative real exchange rate, defined as the real exchange rate of the US\$ to the home country's currency. ²⁹ Real exchange rate computed as official nominal exchange rate divided by the consumer price index of the country. Source: IMF's International Statistical Yearbooks. Data on Taiwan are from IMF's World Economic Outlook database and Taiwan's Ministry of Economic Affairs (MOEA).
RTRADE	Cambodia's real international trade (exports plus imports) to and from the home country, derived from Cambodia's trade in current US\$ deflated by Cambodia's GDP deflator in the corresponding years. Sources: IMF's Direction of Trade Statistics CD-ROM, Direction of Trade Statistics Yearbooks, and World Development Indicators.
RIR	Relative real interest rate, defined as the ratio of Cambodia's real interest rate to the home country's real interest rate. Real interest rate is the nominal interest rate divided by the consumer price index of the country. Data on Taiwan are from the Asian Development Bank's Key Economic Indicators, and Taiwan's Ministry of Economic Affairs (MOEA).
DINFLA	Difference between the inflation rate of Cambodia and the home country. Inflation rate is the rate of change in GDP deflator. Source: IMF's International Financial Statistics Yearbooks. Data on Taiwan are from the Asian Development Bank's Key Economic Indicators, and Taiwan's Ministry of Economic Affairs (MOEA).
RPOLRISK	Relative political risk, defined as the ratio of the annual political risk score of Cambodia to the home country in the corresponding year. The annual political risk scores for each country are computed from the average of the country's political risk scores in March and September. The country's political risk scores range between 0 and 25. The higher the score, the better a country is. Source: Euromoney (various issues). Euromoney Magazine publishes the political risk in March and September of each year.
RLP	Relative labor productivity, computed as the ratio of real GDP to the labor force of the country. Sources: IMF's International Financial Statistics. Data on Taiwan are from the Asian Development Bank's Key Economic Indicators and Taiwan's Ministry of Economic Affairs (MOEA). ³⁰

 ²⁹ In this paper, Cambodia's currency-per-US\$ exchange rate is equal to 1 (dollar-per-dollar exchange rate) since Cambodian economy has been highly dollarized. Payments for wages and other business transactions are mainly in dollars.
 ³⁰ A better measure for labor productivity is the ratio of real GDP to labor employed. However, some countries included in the present study do not report data on annual employment.

DIST	Geographic distance between Cambodia and the home country, measured in kilometres between Cambodia's capital city (Phnom Penh) and the home country's capital city. Source: Great Circles Distance.
ASEAN	Dummy variable, equal to 1 for the years 1999-2005 when Cambodia was admitted to the Association of Southeast Asian Nations (ASEAN) and 0 in the previous years.
CRISIS	Dummy variable, equal to 1 for 1997 and 1998, the years of the Asian crisis, and 0 in the other years.
CHINA	Dummy variable, equal to 1 for the years 2001-2005, when China was a member of the World Trade Organization (WTO), and 0 in the previous years.

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