Centre for ASEAN Studies

Centre for International Management
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Foreign direct investment and development of least developed countries: The case of Cambodia's textile, garment, furniture, transportation and tourism industries[1]

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CAS Discussion paper No 49

May 2006

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[1] The authors are grateful for the many detailed and unpublished data from the Cambodian Investment Board (CIB), Council for the Development of Cambodia (CDC). Paper to be presented at the 10th International Convention of the East Asian Economic Association, Beijing, 18-19 November 2006.

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Abstract

We analyse foreign direct investment (FDI) in Cambodia over the period 1994-2004, using unique and unpublished data, made available by the Cambodian Investment Board. The paper identifies the most important recipient sectors in Cambodia and analyses the distribution over the provinces, which is shown to be very uneven.

A log-linear regression model is estimated with panel data over 1994-2001 of revealed comparative advantage (RCA, see Balassa, 1965) of Cambodia's garments, textiles, tourism, furniture and transportation sectors as dependent variables, and the respective FDI inflows and FDI stock as independent variable. We allow for sector differences in the intercepts as well as in the sector slopes in the model. It is shown that FDI in the garment and textiles sector leads to a significant increase in these sectors' RCA, though much less in the textiles industry. Using similar log-linear model specifications, we also show that in the garments sector, and to a much lesser extent in the textiles sector, the impact of FDI on exports is larger than on imports.

1. Introduction

This paper examines Cambodia's inward foreign direct investment (FDI) in five selected industries—textiles, garments, furniture, transportation and tourism and its role in the Kingdom's economic development, output growth and international competitiveness in the globalizing, increasingly competitive environment.

From an economic point of view, it is often assumed that under certain conditions, inward foreign direct investment can play a vital role in economic growth and development as well as in economic integration into the world economy of small and less developed economies, such as Cambodia. Inward FDI can provide to the recipient countries not only much needed capital, but also modern technology and know-how. In addition, it is likely to create jobs[5], bring into the recipient country foreign exchange, which may be used for the imports of needed capital goods, and often contributes significantly to output growth as well as the expansion of exports. In addition, FDI might force the existing local firms to be more efficient if they are to survive, and might encourage domestic investment through demonstration and imitation effects.

Orthodox neo-classical trade theory shows that a country must have comparative advantage in producing specific goods and/or services for the world market even if showing a cost disadvantage in absolute terms. In this theory, however, international capital movements are not taken into account. Today, there is evidence that FDI and international trade are interrelated (see for example UNCTAD, 1993 and 1996, and Wei and Liu, 2000), and therefore a thorough understanding of their inter-linkages are important for economic policy formulation and implementation.

[5] Additional jobs can be created if the employment in foreign-invested firms is more than offset by that in indigenous, local firms, which are crowded out, due to fierce competition from more efficient foreign companies.

Following the UN-sponsored national elections of 1993, Cambodia started to encourage inward foreign direct investment (FDI) after the Kingdom engaged in the liberalization of its economy to the rest of the world[6], and implemented an opening up policy towards trade and investment—both domestic and foreign. The main sources of Cambodia's inward FDI were Malaysia, Taiwan, China and the United States. Manufacturing industry attracted the largest share of foreign direct investment over the period 1994-2004. Data obtained from the Cambodian Investment Board (CIB)/Council for the Development of Cambodia (CDC) shows that the textile and garment sectors are the most attractive, being responsible for 29% of the country's total FDI in fixed assets, followed by the resource-based tourism sector (hotels and restaurants) 20%, transport activities 15%, education 5%, and furniture 4% [7] (Figure 1).

The present paper seeks to elucidate the role played by inward FDI in the five major recipient industries and how it enhanced export competitiveness, and stimulated Cambodia's economic development. We will use to a large extent export-based, revealed comparative advantage (RCA) indices (Balassa, 1965), in order to analyze the country's export competitiveness in the selected industries *vis-à-vis* its neighboring countries—i.e. Lao PDR, Myanmar and Vietnam, three Asian developing countries at a similar level of economic development and member countries of the same economic integration zone (ASEAN) (Tongzon, 2002).

2. Overview of Foreign Direct Investment in selected Cambodian industries

Foreign direct investment in Cambodia over the period 1994 to 2004 shows an uneven sector distribution. Light industries, particularly the textile, garment and hotels & restaurants sectors have been very popular during this 10 year period. This success of attracting inward FDI to Cambodia's textile and garment sectors can undoubtedly be attributed to the Kingdom being granted Most Favoured Nation (MFN) status and becoming a beneficiary of the Generalized System of Preferences (GSP) from the United States, the European Union and other developed countries. As will be shown, the majority of Cambodia's inward FDI projects in the garment industries is third market-seeking FDI and thus export-oriented[8], and use Cambodia as an export platform to bypass quotas and tariffs imposed by the United States and the European Union. As for the hotel and restaurant business, its popularity is due to Cambodia's rich historical and cultural heritage, particularly the Angkor Wat temple complex and Phnom Penh as capital city. According to Porter's Diamond (Porter, 1990), the 'hotels & restaurants' sector is the 'supporting sector' for the tourism industry, and vice versa.

Although the government has encouraged FDI into agriculture and the agro-industry, the cumulative FDI in these sectors was only 5 percent (Cuyvers, Soeng and Van Den Bulcke, 2006). The lack of

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[6] Cambodia's economy was relatively controlled after the fall of the *Khmer Rouge* regime. It started to liberalize its economy in 1985, but deeper liberalization was not realized until 1989 (Hing, 2003, p. 12).

[7] The percentages are based on the realized investment projects only. The Cambodian Investment Board classifies investment projects into four categories—active/realized projects, former active projects, non-active projects and deleted projects. Realized projects refer to the investment projects in operation after approval by CIB/CDC.

[8] Using export data from Statistics Canada's CD-ROM and value added from the National Institute of Statistics (NIS) data, the ratios of textile and garment exports to value added in the garment industries on average reach 5 over the period1994-2001.

foreign investment in agriculture is due to policy factors such as land tenure[9]—the not-yet resolved problem in Cambodia, administrative barriers, a short of irrigation systems, low return on investment, and security problems (Hing, 2003, pp. 34-35).

Cambodia's inward FDI went primarily in the labour-intensive sectors, such as garment and textile production, while neglecting the relatively more capital-intensive industries, for example, construction. The combined share of realized FDI[10] in fixed assets in the combined textile and garment sectors amounted to almost 30 percent of total inward FDI in the country. The resource-based, more capital intensive hotel & restaurant sector attracted about 20% over the same period (Figure 1). By contrast, the share of construction is a negligible 0.30% (Cuyvers, Soeng and Van Den Bulcke, 2006), in spite of the Government's efforts to encourage FDI into infrastructure, which needs to be rebuilt after the destruction that occurred during the many years of civil war and political upheaval.

Figure 1 : Approved FDI in Fixed Capital in Selected Industries, 1994-2004

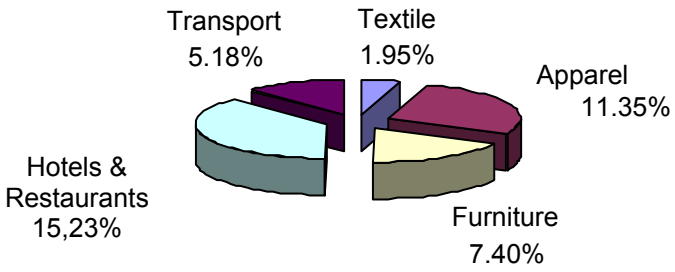
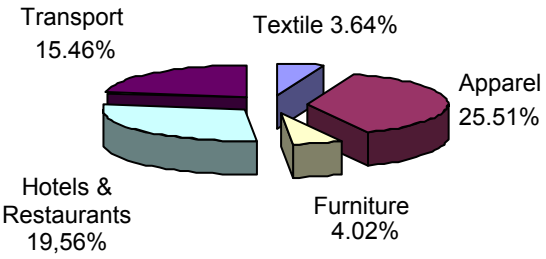


Figure 2 : Realized FDI in Fixed Capital in Selected Industries, 1994-2004



Source: Authors' own computation from unpublished data from CIB/CDC.

[9] Recently, a Commission, consisting of representatives from Cambodia's three main political parties, was set up to solve this decade-long land grabbing problem. The Commission is presently chaired by the current Deputy Prime Minister Sok An (Radio Free Asia, April 2006).

[10] Realized FDI refers to the foreign-invested projects that have been in operation after approval by the Cambodia Investment Board (CIB)/Council for the Development of Cambodia (CDC). In contrast, approved FDI refers to the foreign-invested investment projects, which have been approved by CIB/CDC, irrespective of their implementation.

3. Provincial distribution of Foreign Direct Investment in Cambodia

Cambodia covers an area of 181,035 square kilometers and consists of 24 provinces and cities.[11] The distribution of foreign direct investment in the Kingdom over these provinces and cities is extremely uneven. Among the 24 provinces and cities, only 16 was able to attract foreign-invested projects. Phnom Penh, the capital city of Cambodia, has been the most attractive to foreign investors, representing 77% in fixed assets of the national total FDI, while Sihanoukville and Kandal came second and third with only 8% and 5%, respectively, over the same period of 1994-2004 (Cuyvers, Soeng and Van Den Bulcke, 2006). The combined FDI shares in Phnom Penh, Sihanoukville and Kandal amounted to 90% of the national total FDI. In comparison with the other provinces, Phnom Penh as the capital city enjoys many advantages compared to the rest of the country, as the companies located there have access to more advanced technology, more technical experts and managers, better communication networks, more reliable transportation systems, infrastructure, and business-related services.

Although the government has promoted Development Zones[12] in the coastal provinces of Sihanoukville and Koh Kong (bordering Thailand); as well as Poipet (town of Bantey Meanchey bordering Thailand); Svay Rieng and Takeo (bordering Vietnam), these provinces attracted virtually almost no FDI, except Sihanoukville—the second city of the Kingdom. The vicinity of an international seaport, relatively better infrastructure, tourist attractions and other basic services, allowed Sihanoukville to attract 8% of inward FDI, which was responsible for only 1.6% of employment created by Cambodia's FDI inflows. The very uneven geographical distribution of Cambodia's foreign direct investment is attributable to the scarcity of technical and managerial personnel in the provinces, and to the fact that people residing in Phnom Penh may not be willing to go and work elsewhere, due to poor infrastructure, transportation, and other basic services, including lack of drinkable water.[13]

Table 1 depicts the provincial distribution of inward FDI in sectors such as textiles and garment, furniture industry, transportation, and in hotel and restaurant business. On the basis of approved investment projects, only 12 provinces succeeded in attracting FDI in these industries, leaving the other provinces virtually unpopular for foreign investors. Table 2 indicates that the approved FDI projects in the provinces of Svay Rieng and Takeo did not even come into realization.

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[11] Banteay Meanchey, Battambang, Kampong Cham, Kampong Chhnang, Kampong Speu, Kampong Thom, Kampot, Kandal, Kep, Koh Kong, Kratie, Mondolkiri, Oddar Meanchey, Pailin, Phnom Penh, Preah Vihear, Prey Veng, Pursat, Ratanakiri, Siem Reap, Sihanoukville/Kampong Som, Stung Treng, Svay Rieng, and Takeo.

[12] Personal e-mail contact with Deputy Director of Project Monitoring Department, Cambodian Investment Board, Council for the Development of Cambodia.

[13] In some provinces in Cambodia, people face a shortage of drinking water due to drought. For instance, cattle died because of lack of water in the remote areas of Kompong Speu province (Radio Free Asia, 2005).

Table 1: Provincial Distribution of Approved FDI in Selected Sectors (1994-2004)

Province	Textile		Apparel		Furniture		Hotels & Restaurants		Transport	
	Fixed Capital (US$1,000)	Labour	Fixed Capital (US$1,000)	Labour	Fixed Capital (US$1,000)	Labour	Fixed Capital (US$1,000)	Labour	Fixed Capital (US$1,000)	Labour
Bantey Meanchey	-		-		-		40,589	866	5,419	35
Kampong Cham	26,277	1,283	2,482	1,335	16,890	1,597	-		975	75
Kampong Speu	-		1,616	1,457	-		-		-	
Kandal	5,083	3,730	117,719	67,728	16,821	2,068	-		9,700	98
Koh Kong	-		-		14,148	110	-		-	
Phnom Penh	58,551	8,326	547,001	341,689	301,388	13,386	776,674	7,986	278,027	1,144
Pursat	-		-		1,980	161	-		-	
Rattanakiri	-		-		10,998	232	-		-	
Siem Reap	-		-		-		105,017	2,300	19,600	140
Sihanoukville	28,164	1,739	17,172	12,692	86,040	1,396	100	84	-	
Svay Rieng	-		183	952	-		-		-	
Takeo	-		1,053	1,154	-		-		-	
Total	118,075	15,078	687,226	427,007	448,265	18,950	922,380	11,236	313,722	1,492

Source: Computed from unpublished data, Cambodian Investment Board.

Table 2: Provincial Distribution of Realized FDI in Selected Sectors

Province	Textile		Apparel		Furniture		Hotels & Restaurants		Transport	
	Fixed Capital (US$1,000)	Labour	Fixed Capital (US$1,000)	Labour	Fixed Capital (US$1,000)	Labour	Fixed Capital (US$1,000)	Labour	Fixed Capital (US$1,000)	Labour
Bantey Meanchey	-	-	-	-	-	-	33,238	608	5,419	35
Kampong Cham	24,005	1,242	2,482	1,335	3,620	270	-	-	-	-
Kampong Speu	-	-	818	922	-	-	-	-	-	-
Kandal	5,083	3,730	100,748	55,983	1,118	152	-	-	5,700	30
Koh Kong	-		-		14,148	110	-	-	-	-
Phnom Penh	15,072	2,129	393,257	251,406	61,006	2,690	266,498	4,456	276,300	963
Siem Reap	-		-		-	-	88,725	1,629	19,600	140
Sihanoukville	28,164	1,739	9,228	10,386	-	-	-	-	-	-
Total	72,323	8,840	506,532	320,032	79,892	3,222	388,461	6,693	307,019	1,168

Source: Computed from unpublished data, Cambodian Investment Board.

The geographical concentration of inward FDI in Cambodia's textile and garment industries can be explained by agglomeration effects caused by investors following others in deciding on their investment locations (Fujita et al. 1999). There are benefits for firms to be located close to each other and forming industrial clusters, thus giving rise to spillover effects, specialized factors of production, and forward and backward linkages (Navaretti and Venables, 2004). The highly geographical concentration of inward FDI in Cambodia's hotel and restaurant business in Phnom Penh and Siem Reap are evidently attributable to the reputation of these locations as tourist destinations, but also contributes to industrial cluster creation with e.g. transportation, some spillover effects, etc.

With this extremely uneven distribution of FDI and the job creation involved, it is expected that the divide between the rich and the poor weill widen, as is argued in Sok (2005). In the rural areas, the poverty rate[14] is about four times as high as in Phnom Penh. The widening gap between the rich and the poor can cause destabilizing migration, social unrest and a rise in criminality. Additionally, unskilled workers residing in other remote provinces have to migrate to the city—Phnom Penh—to look for work. Therefore sooner or later, the capital city will become overpopulated and suffer from so-called "population" congestion.

4. Role of Inward Foreign Direct Investment in selected sectors in Cambodia

Although it is generally recognized that inward FDI may be associated with possible economic costs, it is also widely believed that it makes available to the recipient countries badly needed capital, new forms of technology, superior managerial skills, and international marketing techniques, all of which are referred to as spillovers or externalities of FDI on domestic firms. Ietto-Gillies (2005) has argued that FDI also creates job opportunities and affects the volume of international trade of the host country in the sense that foreign-invested firms import capital goods, inputs and/or intermediate goods, which are not locally available, and export the produced goods. In addition, the effects of inward FDI for the host country range from economic (performance, labour, trade and balance of payment) to effects on society, politics, environment, or population movements across borders.

Tables 3 and 4 show that output grew gradually in the most heavily-invested garment sector, and reached double digit figures in 1997, while those in textile and hotels & restaurants had positive growth in most years but negative growth in some other years (in the hotel and restaurant sector in 1998 and 2003). The output growth in the transport sector is positive almost all over the past decade, except during the election years of 1997 and 2003.

[14] The Cambodian government defines the poverty line as the sum of the minimum food and non-food expenditure. The "food poverty" line per capita per day is 2,100 Kcal, and "non-food poverty" line per person per day is 2,470 riels for Phnom Penh, 2,093 riels for provincial capitals, and 1,777 riels for rural areas. (Riel is the Cambodian currency which at present is approximately 4,120 Riel per USD). The population under the poverty line is defined as poor. (Japan Bank for International Cooperation, 2001, accessed at

Table 3: Annual output of selected sectors at constant prices (1993-2004) (values in billion Riels)*

Year	Textile	Garment	Hotels & Restaurants	Transport
1993	30.09	28.38	202.34	497.10
1994	38.15	35.10	241.76	535.20
1995	43.53	80.44	332.86	592.91
1996	49.14	149.38	342.98	652.05
1997	57.83	330.13	363.65	591.15
1998	58.81	472.46	352.19	606.64
1999	66.77	681.89	437.76	776.65
2000	80.56	1,180.09	520.93	833.16
2001	87.64	1,534.34	638.58	877.38
2002	100.89	1,862.08	758.57	921.72
2003	108.59	2,186.55	680.41	898.90
2004	113.56	2,754.31	840.91	941.25

*Output of furniture is excluded from the table as no separate data are available. Riel is the Cambodia's national currency.

Source: National Institute of Statistics.

Table 4: % Distribution of Value Added in Selected Sectors at Constant Prices* (1993-2004)

Year	Textile	Garment	Hotels & Restaurants	Transport
1993	2.73	2.58	6.20	15.24
1994	3.03	2.79	7.37	16.31
1995	2.91	5.38	9.37	16.68
1996	3.15	9.57	8.84	16.80
1997	3.17	18.11	9.10	14.80
1998	3.04	24.40	8.40	14.47
1999	2.85	29.06	9.11	16.17
2000	2.62	38.34	9.96	15.93
2001	2.56	44.81	11.76	16.16
2002	2.51	46.37	13.38	16.26
2003	2.42	48.65	11.99	15.84
2004	2.18	52.78	13.56	15.18

*Output of furniture is excluded from the table as no separate data are available. Riel is the Cambodia's national currency.

Source: National Institute of Statistics.

According to the data on realized FDI, the garment and tourism sectors are more heavily foreign-invested in comparison to other industries in Cambodia. The preferences towards these two industries are attributable to cheap, abundant labor, and for tourism, the rich cultural heritage.

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http://www.jbic.go.jp/english/oec/environ/poverty/pdf/cambodia_e.pdf) and represented 36% in 1999 (Head court index).

In order to analyze the degree of international competitiveness of the three industries *vis-à-vis* its main competitors in the region, as well as the rest of the world, we calculated the export-based revealed comparative advantage index (RCA), developed by Bela Balassa (1965):

$$\text{Export}-\text{based RCA}_{C} = \frac{\dfrac{\text{Cambodia Exports in Sector } i}{\text{Cambodia Export in all Sectors}}}{\dfrac{\text{World Exports in Sector } i}{\text{World Exports in all Sectors}}} \qquad (1)$$

In (1) '*world exports'* can be replaced by exports of sector *i* of an individual country, or group of countries in the South East Asian region or the world.

Table 5 : Cambodia's Export-Based RCA for Textiles *vis-à-vis* its ASEAN Competitors and the Rest of the World (Two-Digit-Level) (1990-2001)

Economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Lao PDR	1.68	4.87	0.32	0.18	1.08	1.32	1.05	1.06	17.71	3.44	6.31	10.85
Myanmar	5.34	0.42	0.28	1.62	1.75	6.49	4.51	2.63	4.56	1.16	2.31	4.90
Vietnam	0.20	0.22	0.04	0.08	0.05	0.13	0.21	0.18	0.31	0.15	0.35	0.68
Lao PDR, Myanmar, and Vietnam	0.27	0.29	0.05	0.10	0.06	0.16	0.25	0.21	0.37	0.17	0.40	0.80
ASEAN 9*	0.11	0.12	0.01	0.05	0.04	0.13	0.20	0.20	0.33	0.15	0.36	0.66
Rest of World	0.09	0.10	0.01	0.04	0.03	0.10	0.16	0.14	0.22	0.11	0.27	0.50

* ASEAN 9 consists of all member countries of ASEAN, excluding Cambodia. The share of textile exports and total exports of Cambodia are excluded in the computation of the export-based RCAs.

Source: Authors' own calculation from Statistics Canada CD-ROM.

Table 6 : Cambodia's Export-Based RCA for Garments *vis-à-vis* its ASEAN Competitors and the Rest of the World (Two Digit Level) (1990-2001)

Sector	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Lao PDR	0.22	6.31	0.64	0.44	0.84	0.66	1.37	1.38	4.82	2.76	2.30	2.34
Myanmar	0.83	14.20	4.58	2.57	1.47	1.86	2.95	2.50	2.89	2.71	2.18	2.63
Vietnam	0.42	4.14	1.60	1.05	0.85	1.10	2.42	3.25	5.15	6.11	6.99	7.72
Lao PDR, Myanmar, and Vietnam	0.46	5.05	1.78	1.13	0.91	1.14	2.39	3.03	4.77	5.21	5.31	5.74
ASEAN 9*	0.32	4.79	3.05	2.49	2.38	3.58	8.67	11.44	15.98	16.94	18.75	18.01
Rest of World	0.66	9.51	5.86	4.16	3.45	5.09	12.08	13.91	19.55	21.84	24.96	24.49

* ASEAN consists of all member countries of ASEAN, excluding Cambodia. The share of garment exports and total exports of Cambodia are excluded in the computation of the export-based RCAs.

Source: Authors' own calculation from Statistics Canada CD-ROM.

Table 7: Cambodia's Export-Based RCA of Tourism *vis-à-vis* its Competitors, 1992-2003

Economy	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Indonesia	1.04	0.75	1.62	0.49	0.54	0.44	0.64	0.76	0.74	0.75	0.95	0.97
Lao PDR	12.35	10.67	17.56	0.88	0.84	0.78	0.92	1.14	1.10	1.16	0.91	0.93
Malaysia	2.84	2.35	4.37	1.36	1.70	1.79	2.92	2.40	1.98	1.52	1.57	1.70
Myanmar	7.11	9.84	18.30	1.12	1.20	1.45	2.24	1.95	2.10	2.71	2.79	3.83
Philippines	2.85	1.65	4.79	3.83	4.21	2.75	3.19	1.36	1.32	1.32	1.32	1.67
Singapore	2.68	1.99	4.76	1.69	1.98	1.89	3.10	3.74	3.99	4.56	5.05	5.68
Thailand	1.93	1.66	3.26	0.86	0.94	0.87	1.29	1.50	1.32	1.33	1.46	1.49
Vietnam	9.10	6.82	24.37	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A
Lao PDR, Myanmar and Vietnam	8.95	7.55	22.66	6.00	5.75	6.31	7.71	8.34	8.64	11.50	12.11	2.09
ASEAN 8*	2.24	1.69	3.81	1.27	1.46	1.35	2.02	2.07	1.98	1.93	2.07	2.19
Rest of World	3.12	2.36	1.93	1.45	1.55	1.35	1.97	2.34	2.34	2.45	2.57	2.61

* The Ratio in the denominator is exclusive of Cambodia's tourism income and total service exports as Cambodia is one of the major tourism attractions among ASEAN nation members. Brunei is excluded due to lack of data.

Source: UNCTAD Handbook of Statistics online, 2005.

Table 5 presents the revealed comparative advantage of Cambodia in textiles production relative to three other South East Asian economies with a comparable level of economic development—Lao PRD, Myanmar and Vietnam (LMV), taken separately as well as combined, ASEAN 9 and the rest of the world. It clearly appears that Cambodia has a strong comparative advantage in textile exports, compared to the landlocked Lao PDR and Myanmar during the past decade, except for the pre-election period of 1992-93. However, the Kingdom's textile sector has a strong comparative disadvantage in comparison to Vietnam, LMV, ASEAN9 and the rest of the world. As the disadvantage has lessened over time, it can be expected a comparative advantage will be realized somewhere in the coming years. This positive change in the RCA of Cambodia's textile industry is consistent with the increases in FDI in the sector.

As could be expected from the heavy inflows of FDI into garments, Cambodia is based on the strong comparative advantage in this sector. The Kingdom's comparative advantage was established in the early 1990s, as compared to Lao PDR, Myanmar, and Vietnam (Table 6). Relative to LMV, ASEAN9 and the rest of the world, its comparative advantage developed and became almost systematically stronger after 1991 the rest of the period under consideration.

Thanks to its rich cultural heritage, and its internationally renowned Angkor Wat temple complex, which dates from the Khmer empire of the 12th century A.C., there is little doubt that Cambodia has a comparative advantage in tourism over the rest of the world, ASEAN9, and some ASEAN member countries, except Indonesia and Lao PDR for some years (Table 7). However, the comparative advantage in tourism *vis-à-vis* these latter two countries have gradually increased. The attractiveness of Cambodia for international tourism, and therefore for inward FDI in hotel and restaurant business, is also evidenced by the large amounts of FDI made in Phnom Penh, which with the renovation of Pochentong International Airport (now renamed Phnom Penh International Airport) became a major tourist destination.

5. The impact of FDI on international competitiveness, exports and imports: some econometric results

As for instance Dunning (1988) has argued, firms will engage in international production due to factors such as firm-specific, internalization and host country advantages. It follows that FDI will take place when it is more advantageous to internalize firm specific advantages, combined with the host country advantages than to license its right of using those advantages to the local firm. In addition, companies will invest in a foreign country to gain access to resources unavailable or more expensive in the home country. For instance, export-seeking FDI will locate its production in low cost countries and will then supply the markets where the costs of production including transportation costs are higher. This suggests that, particularly in low-wage countries there possibly exist linkages between inward foreign direct investment and international trade.

It can easily be demonstrated that the majority of Cambodia's inward FDI, particularly in the garment sector, is exported-oriented, and that Cambodia is used as an export platform to get access to lucrative foreign markets, particularly, the US and the EU. Therefore, the hypothesis to be tested here is that *the higher the FDI in one sector relative to total FDI, the higher the relative exports of that sector as compared to the relative world total exports of the sector. In other words, the higher the FDI in a sector to the total national FDI in Cambodia, the greater the revealed comparative advantage of the sector*.

Since exports might not be fully realized immediately after the foreign investment takes place, due to fact that the factory has to be built and machinery has to be installed, a one year lag of sectoral FDI will also be taken into account. The equations to be estimated therefore are written explicitly as follows:

$$LRCA_{it} = \alpha_{1i} + \alpha_{2i} LFDI_{it} + \varepsilon_{it} \quad (2)$$

$$LRCA_{it} = \alpha_{11i} + \alpha_{22i} LFDI_{it} + \alpha_3 LFDI_{i,t-1} + \varepsilon_{it} \quad (3)$$

$$LTRADE_{it} = \beta_{1i} + \beta_{2i} LFDI_{it} + \varepsilon_{it} \quad (4)$$

$$LTRADE_{it} = \beta_{11i} + \beta_{22i} LFDI_{it} + \beta_3 LFDI_{i,t-1} + \varepsilon_{it} \quad (5)$$

$$LEXPORT_{it} = \lambda_{1i} + \lambda_{2i} LFDI_{it} + \varepsilon_{it} \quad (6)$$

$$LEXPORT_{it} = \lambda_{11i} + \lambda_{22i} LFDI_{it} + \lambda_3 LFDI_{i,t-1} + \varepsilon_{it} \quad (7)$$

$$LIMPORT_{it} = \gamma_{1i} + \gamma_{2i} LFDI_{it} + \varepsilon_{it} \quad (8)$$

$$LIMPORT_{it} = \gamma_{11i} + \gamma_{22i} LFDI_{it} + \gamma_3 LFDI_{i,t-1} + \varepsilon_{it} \quad (9)$$

where:

L = logarithm

$LRCA_{it}$ = Cambodia's sector i relative exports as a ratio of the World's sector i relative exports

$LTRADE_{it}$ = international trade (exports + imports) of sector i relative to Cambodia's total international trade

$LEXPORT_{it}$ = exports of sector i relative to total exports of Cambodia

$LIMPORT_{it}$ = imports of sector i relative to Cambodia's total imports

$LFDI_{it}$ = realized FDI in fixed assets in sector i relative to total realized FDI in Cambodia

$LFDI_{i,t-1}$ = one year lagged realized FDI in fixed assets in sector i relative to total realized FDI in Cambodia

i = 5 (five selected sectors), and t = 8 (1994-2001)

As individual sectors have different characteristics, equations 2 to 9 are such that they capture differences in intercepts and slopes of the individual sectors. In estimating these equations, both FDI stock (cumulative FDI flows during the period considered) and flows were used. In addition, cross sectional weights and White cross section standard error and variance are applied.

Table 8: Parameter Estimates of Impact of Sectoral FDI Stock on Cambodia's RCA (Elasticities), 1994-2001.

Variable	Equation 2	Equation 3
FUR—C	-2.4879	-2.1757
TEX—C	-0.9562	-2.0639
APP—C	2.8788	3.9212
TOU—C	0.2782	0.4541
TRA—C	0.2871	-0.1356
LFDISFUR	0.0626	0.4155
	(0.0622)	(0.4437)
LFDISTEX	0.1975**	0.1267
	(0.0777)	(0.0925)
LFDISAPP	0.3337	1.1037***
	(0.7253)	(0.3407)
LFDISTOU	-0.0023	0.5914
	(0.0103)	(1.6413)
LFDISTRA	0.4659**	0.7451**
	(0.1904)	(0.2912)
LFDIS(-1)		-0.0009
	--	(0.0550)
R^2	0.9090	0.9791
Adjusted R^2	0.8817	0.9704

Note:
1. L refers to logarithm. FUR, TEX, APP, TOU, and TRA refer to the furniture, textile, apparel, tourism and transport sectors respectively. LFDIS = cumulative realized FDI stock in fixed assets in sector i relative to cumulative total realized FDI stock in Cambodia; LFDIS(-1) = lagged cumulative realized FDI stock in fixed assets in sector i relative to cumulative total realized FDI stock in Cambodia;
2. Standard errors are in parentheses.
3. *, **, and*** indicate that the estimate is significant at 10%, 5% and 1%, respectively.

The estimation results for equations 2 and 3 are presented in table 8. Regarding equation (2), the indivi-dual slope parameters of textiles and transportation are significant at 5% while the other sector specific slope parameters are not significantly different from zero at any conventional significance level. For the reasons mentioned above, we included a lagged FDI ratio explicitly in equation (3). This inclusion significantly increases the R^2 from 0.9090 to 0.9791. It is now found that specific slope parameter of the apparel sector is significant within the 1% probability interval, showing that a 1% increase in the relative FDI stock in that sector leads to an increase of its RCA of about 1.10 %. The introduction of the lagged term also leads to a higher slope parameter for the transport sector which is statistically significant at 5%, whereas the slope parameter for the textile sector, though somewhat lower than for equation (2), remains positive but statistically not significant.

Table 9 presents the estimation results, using sectoral FDI flow data, for equations (2) and (3). With regard to equation (2), the slope parameters of the textile and apparel sector are significant at the 10% and 5% level, respectively, while the slope parameters of the other three sectors are statistically insignificant at all conventional levels. Inclusion of the lagged FDI flow ratio leads to similar results for the apparel and the transport sectors, whereas the slope parameter for the textile sector declines and becomes statistically insignificant.

Table 9: Parameter Estimates of Impact of Sectoral FDI Flows on Cambodia's RCA (Elasticities), 1994-2001.

Variable	Equation 2	Equation 3
FUR—C	-2.1555	-2.0082
TEX—C	-1.2579	-1.4338
APP—C	3.1032	3.1942
TOU—C	0.4375	0.2576
TRA—C	-0.1272	-0.0098
LFDIFFUR	0.0588	0.0645
	(0.0856)	(0.0883)
LFDIFTEX	0.1263*	0.0515
	(0.0704)	(0.0540)
LFDIFAPP	0.4714**	0.4958**
	(0.1925)	(0.2246)
LFDIFTOU	-0.0055	-0.0775
	(0.0124)	(0.0828)
LFDIFTRA	0.0202	0.0338***
	(0.0152)	(0.0119)
LFDIF(-1)	--	0.0487***
		(0.0067)
R^2	0.9047	0.9556
Adjusted R^2	0.8761	0.9371

Note:
1. L refers to logarithm. FUR, TEX, APP, TOU, and TRA refer to the furniture, textile, apparel, tourism and transport sector respectively. LFDIF = annual realized FDI flows in fixed assets in sector i relative to total annual realized FDI flows in Cambodia; LFDIF(-1) = lagged realized FDI flows in fixed assets in sector i relative to total realized FDI flows in Cambodia;
2. Standard errors are in parentheses.
3. *, **, and*** indicate that the estimate is significant at 10%, 5% and 1%, respectively.

After having studied the impact of FDI in the selected sectors on their international competitive positions, we analyse the impact of FDI in the same sectors on total international trade exports plus imports of these sectors, as well as exports and imports separately.

Table 10 reports on the impact of FDI stock on relative international trade of the sectors. The estimates are obtained by using sectoral relative total international trade as the dependent variable, which is explained by sectoral FDI to the total national FDI and its one year lagged value (see equations (4) –and (5)). Without the introduction of the lagged FDI, the estimated slope coefficients of the textile and tourism are significant at the 1% and 5% level respectively. When the lagged FDI ratio is used, the slope parameters of textile, apparel, and transport branches are significant at 1% for textile and apparel and 5% for transport. However the impact of relative changes in the FDI stock on the relative position of the tourism sector in Cambodia's international flows of trade and services becomes insignificant. From the estimation results it can be deduced that a 1% increase in the relative FDI stock in

the textile, apparel and transport sector leads to an increase of 32.54%, 15.55%, and 1% in relative international flows of trade and services in these respective sectors..

The estimation results using FDI flow ratio's as explanatory variables are shown in Table 11. The slope parameters of textile, apparel, tourism are statistically significant. With inclusion of lagged FDI flows, the estimated impact on international trade in furniture and transport become significant at the 10% and 5% level respectively. The apparel and textile sectors are still significant at 1% with a slight change in the value of the respective slope parameters.

Table 10: Parameter estimates of impact of sectoral relative FDI stock on sectoral international trade position (exports + imports) (Elasticities), 1994-2001.

Variable	Equation 4	Equation 5
FUR—C	-3.3659	-3.0092
TEX—C	-0.0352	0.4372
APP—C	0.3525	-0.4333
TOU—C	1.2573	0.9897
TRA—C	1.7914	2.0156
FDISFUR	2.1290	4.0426
	(4.3826)	(6.7297)
FDISTEX	32.5374***	32.5377***
	(6.8077)	(8.2513)
FDISAPP	4.3819	15.5462***
	(8.3943)	(2.7817)
FDISTOU	2.4477**	5.9599
	(0.8996)	(4.3437)
FDISTRA	0.2964	1.0049**
	(0.5370)	(0.3754)
FDIS(-1)	--	0.1276
		(0.2163)
R^2	0.9733	0.9661
Adjusted R^2	0.9653	0.9520

Note:
1. L refers to logarithm. FUR, TEX, APP, TOU, and TRA refer to the furniture, textile, apparel, tourism and transport sector respectively. LFDIS = cumulative realized FDI stock in fixed assets in sector i relative to cumulative total realized FDI stock in Cambodia; LFDIS(-1) = lagged cumulative realized FDI stock in fixed assets in sector i relative to cumulative total realized FDI stock in Cambodia;
2. Standard errors are in parentheses.
3. *, **, and*** indicate that the estimate is significant at 10%, 5% and 1%, respectively.

Table 11: Parameter estimates of impact of sectoral relative FDI flows on sectoral international trade position (exports + imports) (Elasticities), 1994-2001.

Variable	Equation 4	Equation 5
FUR—C	-3.7310	-3.6614
TEX—C	0.0817	0.0689
APP—C	1.4725	1.6382
TOU—C	1.0315	0.8389
TRA—C	1.1453	1.1154
LFDIFFUR	0.0425	0.0534*
	(0.0308)	(0.0308)
LFDIFTEX	0.0814***	0.0745***
	(0.0220)	(0.0234)
LFDIFAPP	0.8065***	0.8429***
	(0.1908)	(0.2400)
LFDIFTOU	0.0385**	-0.0365
	(0.0163)	(0.1308)
LFDIFTRA	0.0106	0.0128**
	(0.0077)	(0.0061)
LFDIF(-1)	--	0.0280***
		(0.0028)
R^2	0.9791	0.9822
Adjusted R^2	0.9728	0.9748

Note:
1. L refers to logarithm. FUR, TEX, APP, TOU, and TRA refer to the furniture, textile, apparel, tourism and transport sectors respectively. LFDIF = annual realized FDI flows in fixed assets in sector i relative to total annual realized FDI flows in Cambodia; LFDIF(-1) = lagged realized FDI flows in fixed assets in sector i relative to total realized FDI flows in Cambodia;
2. Standard errors are in parentheses.
3. *, **, and*** indicate that the estimate is significant at 10%, 5% and 1%, respectively.

As expected, the impact of changes in the sectoral FDI flows on the relative international trade positions of the sectors is much lower than the impact of changes in the FDI stocks. It remains to be seen whether the impact is mainly due to changes in exports or imports.

Tables 12 and 13 present the estimation results for the impact of FDI on sectoral relative export positions using FDI stock and flow ratios as explanatory variables. With regard to the impact of changes in FDI stocks and disregarding a possible time lag, significantly positive results are found for the textile and transport sectors at 5% probability levels. With the inclusion of a one year time lag effect, the impact of changes of the FDI stock in the apparel sector has the expected sign and is highly significant at the 1% level, and also the slope parameter of the transport sector becomes significant at 1% with a higher estimated impact than in the absence of time lags. The model with time lags seems to explain better the impact of FDI on exports, as is evidenced by a higher R^2.

The estimation results show that a 1% increase in the FDI stock in apparel gives rise to an increase in the sector's relative export position of 1.15%. This impact is evidently much smaller if changes in sectoral FDI flows are considered, with a 1% increase in the sector's FDI inflows leading to a rise in the apparel sector's relative exports position of 0.53%.

When the estimation results of the impact of FDI on sectoral international trade performance are compared, with these on the sectoral export positions, it appears that also an impact on imports can be

expected. The estimates of this impact are shown in Tables 14 and 15. The equations that take the impact of changes in the FDI stock into consideration, the slope coefficients of the textile, apparel, tourism and transport sector are statistically significant. When a one year lag in the FDI stock is introduced, it is found that the impact on the imports of the textile, apparel and transport sectors remains significant, which is not the case for tourism. The impact of changes of FDI flows in the absence of lagged FDI, is found tot be high in the textile, apparel and tourism sector (see Table 15). The introduction of lagged FDI leaves only the textile and apparel sector with a statistically significant impact of FDI on imports.

A comparison of the results in Table 12 and 14 for FDI stocks, shows that inward FDI in the apparel and transport industry has a significant positive impact on relative exports. However, the impact of inward FDI has a comparable impact on imports in the textile and apparel sector. It is remarkable that FDI in the transport sector has a negative impact on imports, thus substituting transport services imports, on top of the positive impact on exports. Similar conclusions can be drawn from Table 13 and 15 for FDI flows, but the small negative impact on imports in the transport sector is not statistically significant.

Table 12: Parameter estimates of impact of sectoral relative FDI stocks on sectoral exports position (Elasticities), 1994-2001.

Variable	Equation 6	Equation 7
FUR—C	-4.2213	-3.8268
TEX—C	-1.8038	-2.9731
APP—C	2.4245	3.3884
TOU—C	1.9394	2.1239
TRA—C	1.6613	1.2876
LFDISFUR	0.0699	0.4768
	(0.0617)	(0.4273)
LFDISTEX	0.1731**	0.1098
	(0.0744)	(0.0897)
LFDISAPP	0.3833	1.1499***
	(0.7220)	(0.3416)
LFDISTOU	-0.0059	0.6409
	(0.0093)	(1.6076)
LFDISTRA	0.4768**	0.8467***
	(0.2226)	(0.2820)
LFDIS(-1)	--	-0.0081
		(0.0535)
R^2	0.9405	0.9491
Adjusted R^2	0.9227	0.9279

Note:
1. L refers to logarithm. FUR, TEX, APP, TOU, and TRA refer to the furniture, textile, apparel, tourism and transport sector respectively. LFDIS = cumulative realized FDI stock in fixed assets in sector i relative to cumulative total realized FDI stock in Cambodia; LFDIS(-1) = lagged cumulative realized FDI stock in fixed assets in sector i relative to cumulative total realized FDI stock in Cambodia;
2. Standard errors are in parentheses.
3. *, **, and*** indicate that the estimate is significant at 10%, 5% and 1%, respectively.

Table 13: Parameter estimates of impact of sectoral relative FDI flows on sectoral exports position (Elasticities), 1994-2001.

Variable	Equation 6	Equation 7
FUR—C	-3.9333	-3.7830
TEX—C	-2.0428	-2.2056
APP—C	2.6108	2.6935
TOU—C	2.1077	1.9262
TRA—C	1.2576	1.3690
LFDIFFUR	0.0557	0.0597
	(0.0841)	(0.0871)
LFDIFTEX	0.1101	0.0372
	(0.0668)	(0.0525)
LFDIFAPP	0.5054**	0.5283**
	(0.1903)	(0.2231)
LFDIFTOU	-0.0091	-0.0831
	(0.0110)	(0.0719)
LFDIFTRA	0.0240	0.0368***
	(0.0159)	(0.0110)
LFDIF(-1)	--	0.0503***
		(0.0071)
R^2	0.9183	0.9620
Adjusted R^2	0.8938	0.9462

Note:
1. L refers to logarithm. FUR, TEX, APP, TOU, and TRA refer to the furniture, textile, apparel, tourism and transport sector respectively. LFDIF = annual realized FDI flows in fixed assets in sector i relative to total annual realized FDI flows in Cambodia; LFDIF(-1) = lagged realized FDI flows in fixed assets in sector i relative to total realized FDI flows in Cambodia;
2. Standard errors are in parentheses.
3. *, **, and*** indicate that the estimate is significant at 10%, 5% and 1%, respectively.

Table 14: Parameter estimates of impact of sectoral relative FDI stocks on sectoral imports position (Elasticities), 1994-2001.

Variable	Equation 8	Equation 9
FUR—C	-3.2409	-3.8166
TEX—C	1.5718	1.4537
APP—C	-0.2053	0.3307
TOU—C	0.1733	0.6477
TRA—C	1.7011	1.3845
LFDISFUR	0.0121	-0.1332*
	(0.0154)	(0.0735)
LFDISTEX	0.1679***	0.1521***
	(0.0270)	(0.0254)
LFDISAPP	0.7715**	1.0939***
	(0.3628)	(0.2928)
LFDISTOU	0.0442***	0.4537
	(0.0126)	(0.6836)
LFDISTRA	-0.1322***	-0.1771**
	(0.0370)	(0.0710)
LFDIS(-1)	--	0.0498***
		(0.0124)
R^2	0.9813	0.9436
Adjusted R^2	0.9758	0.9200

Note:
1. L refers to logarithm. FUR, TEX, APP, TOU, and TRA refer to the furniture, textile, apparel, tourism and transport sector respectively. LFDIS = cumulative realized FDI stock in fixed assets in sector i

relative to cumulative total realized FDI stock in Cambodia; LFDIS(-1) = lagged cumulative realized FDI stock in fixed assets in sector i relative to cumulative total realized FDI stock in Cambodia;
2. Standard errors are in parentheses.
3. *, **, and*** indicate that the estimate is significant at 10%, 5% and 1%, respectively.

Table 15: Parameter estimates of impact of sectoral relative FDI stocks on sectoral exports position (Elasticities), 1994-2001.

Variable	Equation 8	Equation 9
FUR—C	-2.9380	-2.8438
TEX—C	1.3688	1.4000
APP—C	-0.7571	-0.7765
TOU—C	0.3043	0.1635
TRA—C	2.0221	2.0568
LFDIFFUR	0.0286	0.0340
	(0.0174)	(0.0226)
LFDIFTEX	0.1152***	0.1085***
	(0.0261)	(0.0291)
LFDIFAPP	0.5508***	0.5516***
	(0.1433)	(0.1584)
LFDIFTOU	0.0389***	-0.0371
	(0.0137)	(0.0918)
LFDIFTRA	-0.0036	-4.79E-05
	(0.0050)	(0.0095)
LFDIF(-1)	--	0.0248**
		(0.0119)
R^2	0.9889	0.9877
Adjusted R^2	0.9856	0.9826

Note:
1. L refers to logarithm. FUR, TEX, APP, TOU, and TRA refer to the furniture, textile, apparel, tourism and transport sector respectively. LFDIF = annual realized FDI flows in fixed assets in sector i relative to total annual realized FDI flows in Cambodia; LFDIF(-1) = lagged realized FDI flows in fixed assets in sector i relative to total realized FDI flows in Cambodia;
2. Standard errors are in parentheses.
3. *, **, and*** indicate that the estimate is significant at 10%, 5% and 1%, respectively.

6. Conclusions

Cambodia has, to a certain extent, been successful in attracting inward foreign direct investment since the start of it liberalization, in particular, in the textile, garment and tourism (hotels & restaurants) industries. The distribution of these heavily foreign-invested industries is very uneven. The capital city Phnom Penh is the most attractive location for the three industries due to comparatively superior advantages that it enjoys, followed by coastal Sihanoukville and the well known tourist attraction of Siem Reap. The concentration of foreign-invested projects is partly due to the absence of sufficiently skilled workers, extremely poor infrastructure/communication, and lower security in other parts of the country. It can also be explained by agglomeration effects with firms more likely to follow others and to be close to better factors of production.

In order to evoluate the international competitive position of the selected industries in Cambodia, Balassa's export-based RCA index was calculated. It appears from this index that Cambodia has a comparative advantage in textile production, relative to Myanmar and Lao PDR from 1992 and 1996 onwards. It has, however, a comparative disadvantage relative to Vietnam, ASEAN9 and the rest of the world in this sector. In contrast, Cambodia has a strong comparative advantage in the garment

industry over all individual ASEAN counterparts, Laos-Myanmar-Vietnam, ASEAN9, and the rest of the world. In tourism, Cambodia has a strong comparative advantage over some ASEAN counterparts, Laos-Myanmar-Vietnam, ASEAN8 and the rest of the world, except Indonesia and Lao PDR.

Estimation results of the impact of inward FDI on RCA, total international trade (exports plus imports), exports and imports of the textile, garments and tourism sectors were obtained by pooling time series and cross sectional data, along with the furniture and transport sectors, over the period 1994-2001. The results show that the coefficients for the garment sector have the expected sign and are highly significant, and that a 1% increase in the FDI stock in the garment sector leads to an increase of 1.10%, 15.5%, 1.15%, 1.09% in RCA, international trade position, relative exports and relative imports in the sector. Consequently can be concluded that inward FDI in the garment sector has had an important impact on overall international trade volumes, but that the net impact on the sector's external trade balance is only slightly positive.

The impact of changes in the FDI stock in the textile sector on the sector's RCA and its exports position is not statistically significant, unlike the impact on relative imports. The situation of the textile industry is therefore different from the garment sector, as inward FDI in textile production has probably contributed to a negative sectoral balance of trade of the sector.

The impact of changes in the FDI stock in the tourism sector is statistically insignificant also when the impact of time lags is taken into account. However, changes in FDI in transportation as a tourism supporting sector, show significant and positive effects on revealed comparative advantage, international flows of trade and services and exports, meaning that the locally rendered transportation services are substituting imports of transportation services. However, it should be mentioned, that such imports substitution effect is only found when changes in the stock of FDI are considered.

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