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Intégration économique, investissement direct étranger et compétitivité du Cambodge

Sopheak Srun

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Présentée par

Sopheak SRUN

Titre de la thèse:

INTÉGRATION ÉCONOMIQUE, INVESTISSEMENT DIRECT ÉTRANGER ET COMPÉTITIVITÉ DU CAMBODGE

Directeur de thèse: M. Nicolas PÉRIDY

Soutenue le 18 octobre 2018 devant le jury composé de:

M. Thomas VALLEE Professeur des Universités, Université de Nantes	**Rapporteur**
Mme. Dalila NICET-CHENAF Maître de Conférences-HDR, Université de Bordeaux	**Rapporteur**
M. Jérôme BLANC Professeur des Universités, Sciences Po Lyon	**Examinateur**
M. Mohamed Ali MAROUANI Maître de Conférence-HDR, Université Paris 1 Panthéon-Sorbonne	**Examinateur**
Mme. Alexandra SCHAFFAR Professeur des Universités, Université de Toulon	**Examinateur**
M. Nicolas PÉRIDY Professeur des Universités, Université de Toulon	**Directeur de thèse**

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Sopheak SRUN

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ECONOMIC INTEGRATION, FOREIGN DIRECT INVESTMENT, AND COMPETITIVENESS OF CAMBODIA

PhD advisor: Prof. Nicolas PÉRIDY

Defended on October 18th, 2018 in front of the committee members:

Prof. Thomas VALLEE Professor, University of Nantes	**Referee**
Dr. Dalila NICET-CHENAF Associate Professor, University of Bordeaux	**Referee**
Prof. Jérôme BLANC Professor, Sciences Po Lyon	**Examiner**
Dr. Mohamed Ali MAROUANI Associate Professor, University of Paris 1 Panthéon-Sorbonne	**Examiner**
Prof. Alexandra SCHAFFAR Professor, University of Toulon	**Examiner**
Prof. Nicolas PÉRIDY Professor, University of Toulon	**Advisor**

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To my parents,

my sisters,

my brother.

Abstract

This thesis discusses the essential parts of Cambodia's economy, in which trade, foreign direct investment, and tourism are the main research questions. It shows that the three sectors are the key components for economic development and the sources of welfare and prosperity for the country. We mainly use empirical approaches to investigate the problem that is raised. We also take advantage of recent theoretical advances in the area of research to complement the formulation of empirical models and to interpret and describe the significance of our findings in light of what theories have already proposed. The analysis of export patterns reveals that Cambodia has large comparative advantages in agricultural, textile and footwear products. Further analysis using gravity models shows that foreign direct investment, logistics, and quality of regulation promote exports, while tariffs and distance with importing countries are barriers to international exports of goods. The study on the determinants of foreign direct investment using a static and dynamic panel data analysis reveals that the inflows of foreign direct investment are not influenced by local attractiveness factors such as market size or quality of public governance. In contrary, factors like bilateral trade and membership of the World Trade Organisation have attracted more foreign investments. We also found that trade and tourism have a complementary effect in the sense that tourist arrivals promote trade and vice versa. The outcomes of the four chapters in this thesis reveal notable and complementary effects between the three main sectors in Cambodia's economy. Accordingly, an increase in exports encourages more inflows of foreign direct investment and tourist visits. The reciprocal effects are also confirmed in the sense that foreign direct investment and international tourist arrivals encourage bilateral trade.

Keywords: international trade, competitiveness, foreign direct investment, tourism, Cambodia.

Résumé en français

Cette thèse élucide certains questionnements qui pourraient être soulevés au sujet de l'économie cambodgienne en prenant le commerce, l'investissement direct étranger et le tourisme comme sujets d'interrogation de notre recherche. Ces trois secteurs sont considérés comme secteurs clés du développement économique et source de bien-être et de prospérité économique du pays. Nous utilisons principalement les modèles empiriques pour étudier les problématiques évoquées. Nous profitons également des développements récents des modèles théoriques pour justifier la construction des modèles empiriques et expliquer les résultats d'estimations. L'examen des structures d'exportation révèle que le Cambodge dispose de forts avantages comparatifs dans les produits agricoles, les produits de textiles et de chaussures pour les exportations vers l'ASEAN et vers les marchés mondiaux. Les estimations obtenues sur la base du modèle de gravité montrent que les investissements directs étrangers, la logistique, et la qualité de la réglementation sont des facteurs qui favorisent les exportations, tandis que les droits de douane et la distance avec les pays importateurs constituent des obstacles aux exportations internationales. L'étude sur les déterminants de l'investissement direct étranger utilisant une analyse statique et dynamique des données de panel révèle que les facteurs d'attractivité locaux tels que la taille du marché ou la qualité de la gouvernance n'influencent pas les entrées des investissements directs étrangers au Cambodge. En revanche, des facteurs tels que les échanges commerciaux et l'adhésion à l'Organisation Mondiale du Commerce ont attiré davantage d'investissements étrangers. Nous avons également mis en lumière des effets complémentaires entre le commerce et le tourisme dans le sens où le tourisme favorise le commerce et réciproquement. D'après les analyses développées à travers ces quatre chapitres qui constituent notre recherche, cette thèse a révélé les effets pertinents et complémentaires des trois principaux secteurs de l'économie du Cambodge. Une augmentation des exportations du pays encourage davantage les investissements directs étrangers et le développement du tourisme au Cambodge. Les effets réciproques sont également confirmés par le fait que les investissements directs étrangers et le tourisme accroissent les exportations.

Mots-clés : commerce international, compétitivité, investissements directs étrangers, tourisme, Cambodge.

Contexte général

L'Histoire a démontré que le commerce a toujours été une source importante de richesse et d'ascension d'une nation au sein de l'échiquier mondial. Les États cherchent ainsi constamment à accroître leurs échanges avec le monde extérieur, le commerce permettant en effet non seulement un apport de produits de grande valeur pour approvisionner leur marché local, mais aussi induisant un transfert bénéfique de technologie et d'innovations provenant de différentes régions du monde (Maddison, 2006). En général, la puissance commerciale d'un État va de pair avec sa domination politique qu'elle soit au niveau régional ou mondial. Au siècle dernier, la compétition entre les pays a parfois utilisé voire instrumentalisé la voie commerciale comme un vecteur de cette lutte entre pays : les embargos commerciaux étant à cette fin considérés comme les sanctions économiques les plus lourdes qu'un pays puisse imposer à un autre. En effet, les importations et les exportations de nouveaux produits, de nouvelles technologies et les avantages comparatifs des facteurs spécifiques sont des éléments clés contribuant à générer la croissance et le bien-être d'un pays. L'isolement économique, le repli sur soi et le détachement de l'économie mondialisée apparaissent comme pratiquement impossibles dans le monde moderne. Chaque pays garde un grand intérêt à l'expansion de son commerce international via l'intégration dans les marchés régionaux et mondiaux. Ainsi, la littérature moderne sur le commerce international s'intéresse à étudier les structures commerciales d'un pays ou d'une région et les facteurs qui affectent le commerce tels les coûts commerciaux ainsi que les effets de détournement et de création des échanges.

De nombreuses études théoriques et empiriques ont été développées et l'un des thèmes de recherche qui semble retenir l'attention des chercheurs en commerce international consiste en l'étude des modèles commerciaux dans le contexte de l'intégration économique régionale et mondiale. La théorie de l'intégration commerciale explique qu'un certain nombre de pays s'efforcent de combiner des stratégies de libéralisation du commerce avec des politiques protectionnistes en réduisant au minimum les restrictions commerciales et en appliquant des politiques discriminatoires avec les pays tiers. Après l'intégration, la réduction des coûts commerciaux et la réaffectation des ressources augmentent le bien-être commercial et économique des pays membres (Balassa, 1961). Anderson and Van Wincoop (2002) expliquent que les coûts commerciaux ont d'importantes répercussions sur le bien-être. Ils sont étroitement liés à la politique économique. Les coûts actuels liés à ces politiques valent souvent plus de 10% du revenu national. Anderson and van Wincoop (2004) estiment les coûts du commerce international entre les pays développés, y compris les barrières commerciales directes et les barrière

commerciales liées aux frontières, ont un équivalent de 74% aux taxes, dont 21% sont consacrés aux coûts de transport (y compris les coûts de transport et la valeur temporelle des marchandises en transit), 17% sur les coûts inférés (information, exécution des contrats, coûts juridiques et réglementaires), 8% sur les barrières de la politique commerciale (barrières tarifaires et non tarifaires) et 14% sur les barrières monétaires (coût lié à l'utilisation des différentes monnaies). La libéralisation du commerce mondial joue un rôle crucial pour réduire une part importante des coûts du commerce international. À cet égard, 168 pays sont, officiellement, à la fin de l'année civile 2017, membres de l'Organisation Mondiale du Commerce, espérant ainsi bénéficier de la réduction de droits de douane et des barrières non tarifaires. Dans le même temps, les accords commerciaux régionaux ont également augmenté en taille et en portée dans différentes régions du monde. Les tendances actuelles de l'intégration commerciale avec les nouvelles technologies et innovations rendent le commerce mondial plus compétitif non seulement au niveau régional mais également avec des concurrents situés aux différents confins de la planète. Dans ce monde devenu ultra-compétitif, chaque pays doit ainsi produire toujours plus d'efforts pour augmenter sa compétitivité vis-à-vis de ses concurrents. Ainsi, les études sur les avantages comparatifs d'une nation fournissent des informations précieuses pour les décideurs politiques afin de mettre en œuvre des politiques et des mécanismes appropriés pour renforcer le positionnement du pays sur le marché mondial. Par exemple, les études basant sur la théorie des avantages comparatifs de Ricardo (1817) et les études empiriques des avantages comparatifs révélés de Balassa (1965) pour étudier les modèles des avantages comparatives et des désavantages des biens et services d'exportation afin de comparer l'efficacité d'un pays à un autre dans la production de ces biens ou services.

La littérature sur le commerce international est étroitement liée à l'investissement direct étranger (IDE). Lorsqu'une entreprise multinationale décide d'entrer sur un marché étranger, elle doit choisir entre l'investissement direct ou l'exportation en fonction de la situation du pays d'accueil et du type d'investissement. Bombarda (2011) estime que les entreprises multinationales et leurs filiales sont responsables de 75% des échanges mondiaux. Bernard et al. (2013) constatent que 90% des exportations et des importations des États-Unis se font par l'intermédiaire des sociétés multinationales. L'IDE permet donc d'espérer des retombées technologiques, aide à la formation de capital humain, contribue à l'intégration du commerce international, crée un environnement commercial plus concurrentiel et favorise le développement des entreprises. L'IDE est un outil efficace pour réduire la pauvreté dans les pays en développement. En outre, au-delà des avantages strictement économiques, l'IDE contribue à l'amélioration des conditions environnementales et sociales dans le pays d'accueil en transférant des technologies plus propres et

en encourageant les entreprises à mener une politique sociale plus responsables (OCDE, 2002). Au fil des années, de nombreuses théories et paradigmes ont été développés pour expliquer les déterminants de l'investissement direct étranger. Faeth (2009) explique que les facteurs mentionnés dans des différents modèles théoriques sont utilisés pour expliquer les déterminants de l'IDE tels que la taille et les caractéristiques du marché, les facteurs de coût, les coûts de transport, la protection, l'avantage spécifique, ou les économies d'agglomération. Les études sur l'influence de ces facteurs sur l'IDE peuvent être trouvées dans des études empiriques et des modèles théoriques tels que (1) la théorie néoclassique du commerce, (2) le modèle des avantages de propriété, (3) le modèle d'OLI (Ownership, Location, and Internalisation advantage), (4) les modèles des IDE horizontaux et verticaux et le modèle de capital de connaissances, et (5) les études récentes sur les modes des IDE complexes. Les études sur à la fois les modèle du commerce et sur les déterminants de l'investissement direct étranger fournissent une information complète sur les caractéristiques du commerce et de l'investissement d'un pays afin d'élaborer des recommandations appropriées sur les facteurs communs et spécifiques qui affectent ces deux secteurs.

En sus du commerce et de l'investissement, la littérature économique ne sous-estime pas l'importance du tourisme comme l'un des moteurs de la croissance économique d'un pays. La relation entre le commerce et le tourisme existait bien avant que la question ne soit mise en lumière par les économistes. On peut citer pour exemple le voyage de Marco Polo (1254-1324) de Venise en Chine, voyage à visée commerciale et lucrative, a ouvert la voie de la route de la soie qui a été suivie pendant de nombreux siècles. Cette hypothèse a attiré l'attention des chercheurs spécialisés dans le commerce international et le tourisme afin d'étudier cette relation. L'analyse causale du commerce international et du tourisme dans les pays développés et en développement au cours des dernières décennies montre que ces deux séries chronologiques ont très souvent une tendance similaire. Dans un sens, le développement de l'industrie touristique augmentera les importations, ce qui se reflétera dans la balance commerciale. Les touristes fournissent généralement des informations qui peuvent améliorer l'image du lieu de destination touristique ainsi que de ses produits à travers le monde. Le rapport de l'Organisation Mondiale du Tourisme montre que le tourisme a connu une croissance et un développement progressifs pour devenir l'un des secteurs économiques les plus importants et les plus dynamiques au cours des six dernières décennies. Le nombre de touristes internationaux est passé de 25 millions en 1950 à 1 235 millions en 2016 qui ont généré 216 milliards de dollars d'exportations dans le service de transport international de passagers rendu aux non-résidents. Le tourisme représente 7% des exportations mondiales de biens et services en 2016 (WTO, 2017b). Avec le rôle

crucial du tourisme dans le commerce mondial, il est systématiquement intégré dans la théorie du commerce international. Hazari and Sgro (2004) et Nowak et al. (2003) incluent le tourisme dans les modèles de Heckscher-Olin, dans lesquels le tourisme est considéré comme un mouvement temporaire des consommateurs d'un pays vers un autre pour consommer des biens et services non échangeables. En plus des explications théoriques, de nombreuses recherches empiriques portent également sur le lien entre le tourisme et le commerce tels que les études de Kulendran and Wilson (2000), Santana-Gallego et al. (2011a), (Massidda and Mattana, 2013), et (Khan et al., 2005). Les données théoriques et empiriques prouvent que l'augmentation des flux du commerce international conduit à une augmentation des flux de voyages internationaux et réciproquement.

Pour le Cambodge, la preuve du commerce transfrontalier peut être retrouvée dès le premier siècle de l'époque du Funan[1]. Les vestiges trouvés à O Keo[2], un port maritime occupé de l'ancien royaume khmer entre le 1er et le 7ème siècle font apparaître la présence de bijoux en or et des pièces de monnaie de l'empire romain, les médaillons d'or romains du règne d'Antonin le Pius, et d'autres preuves de commerce transfrontalier avec la Chine et l'Inde, ses principaux partenaires commerciaux. Tout au long de sa longue histoire, la relation commerciale du Cambodge avec le monde extérieur a évolué avec le temps. Pendant la période d'Angkor du 9ème au 15ème siècle après J.C., le Cambodge était un centre pour le commerce international de l'empire khmer qui était alors puissant, prospère, et étendu sur un vaste territoire de l'Asie du Sud-Est[3]. Après la chute de l'empire Khmer, le Cambodge a généralement connu des périodes difficiles, y compris l'invasion des pays voisins, la guerre civile et le génocide. L'évolution des idéologies politiques et des régimes après avoir reçu l'indépendance de la France en 1953 a fortement influencé la structure économique et les modèles commerciaux actuels. Le régime de Sihanouk (1953-1970) a tenté de construire une base du secteur industriel en encourageant à la fois le capital d'investissement public et privé. Le régime de la République Khmère (1970-1975) a adopté une approche du laisser-faire. Le Kampuchea démocratique ou « régime Khmer Rouge » (1975-1979) était un régime fondé sur la mise en pratique d'un « ultra-communisme » , qui a conduit à la nationalisation de toutes les propriétés privées, à la désindustrialisation et au génocide. Après l'effondrement du régime du Kampuchea démocratique, la République populaire du Kampuchea (1979-1989) s'est

[1]Funan est un nom chinois, il peut être une translittération de l'ancien mot khmère *« Phnum »* (montagne)

[2]O Keo est maintenant un site archéologique dans le district de Thoại Son dans la province d'An Giang au Vietnam, dans le delta du Mékong

[3]Les détails de la période Angkorienne ont été enregistrés dans le rapport de Zhou Daguan en 1296. Zhou a passé près d'un an pour observer la société khmère détaillant la religion, la justice, la royauté, l'agriculture, l'esclavage, les oiseaux, les légumes, la baignade, les vêtements, les outils, les animaux de trait et le commerce.

concentrée uniquement sur l'agriculture. Le régime a adopté l'idéologie socialiste et a subis les embargos économiques des pays occidentaux jusqu'à la fin de la guerre froide. L'État du Cambodge et l'Autorité Provisoire des Nations Unies au Cambodge (1989-1993) ont marqué une période de transition entre l'économie planifiée et l'économie de marché. Le régime actuel, le Royaume du Cambodge (depuis 1993), est une économie de marché basée principalement sur les investissements étrangers et l'orientation vers les marchés internationaux (Chhair and Ung, 2013).

Depuis 1993, le pays a finalement recouvré la paix via le truchement d'un long processus de réconciliation nationale, ce qui est favorable à la reconstruction et au développement. Cependant, la reconstruction du Cambodge fut confrontée à d'énormes défis tels la pauvreté ou encore l'insuffisance du capital humain et des infrastructures, la plupart des infrastructures physiques ayant été détruites et les intellectuels ayant péri pendant le régime khmer rouge. Après une longue période de tragédie qui a détruit la plupart des infrastructures économiques et sociales, un nouveau gouvernement issu des élections démocratiques nationales de 1993 a considéré l'intégration dans l'économie régionale et mondiale comme l'une des stratégies nationales de reconstruction et de développement. Le Cambodge a ensuite rejoint l'ASEAN en 1999 et est devenu membre de l'Organisation Mondiale du Commerce en 2004. La participation aux différentes économies internationales et l'adoption de la politique d'ouverture à des investissements étrangers ont contribué à une croissance économique rapide avec un taux de croissance annuel moyen d'environ 7% entre 2010-2017. Cependant, des études empiriques sur les modèles commerciaux, les avantages et défis auxquels le Cambodge est confronté dans le contexte de l'intégration économique mondiale demeurent encore très rares voire n'existent pas ou sous la forme d'études très parcellaires.

L'examen des modèles de commerce et d'investissement du Cambodge est intéressant, d'une part, pour comprendre une série de situations économiques actuelles et, d'autre part, pour formuler des politiques économiques et commerciales pertinentes. Notre thèse étudie cette problématique sous la forme de quatre chapitres. Les applications empiriques ne prennent en compte que le cas particulier du Cambodge. Ce choix a été motivé par la réintégration du Cambodge dans l'économie régionale et mondiale après une longue absence due à la guerre civile, l'augmentation significative du volume et de la structure des échanges, et en particulier les réformes profondes des politiques commerciales et des institutions qui ont été poursuivi depuis vingt-cinq ans. La deuxième motivation est d'autant plus ambitieuse car le fait d'étudier uniquement le cas du Cambodge dans cette thèse pose d'énormes défis en raison du manque de données et d'informations et de l'absence de recherches universitaires antérieures sur lesquelles notre étude aurait pu s'appuyer. Cette thèse vise également à contribuer au développement de la culture

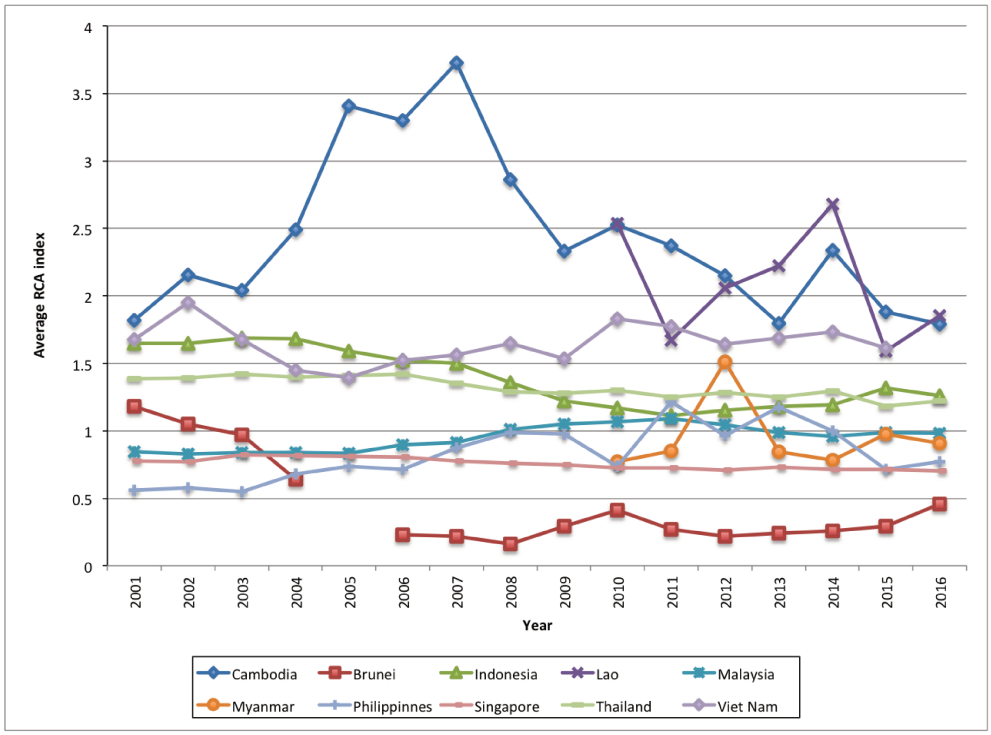
de la recherche au Cambodge dans un pays où l'école doctorale et le laboratoire de recherche économique sont pratiquement inexistants et les installations de recherche académique locales sont à un stade encore très embryonnaire de développement. Cette thèse est structurée selon les chapitres suivants :

Chapitre 1 : Compétitivité et intégration économique du Cambodge dans la communauté économique de l'ASEAN

Ce chapitre est essentiellement consacré à l'analyse de la compétitivité des produits d'exportation du Cambodge vers le marché de l'ASEAN et le marché mondial. La première partie de ce chapitre présente une description générale du Cambodge et de ses structures économiques, le contexte historique de la création de l'ASEAN et la progression de l'intégration économique régionale. Ces informations générales fournissent des données et des hypothèses importantes pour comprendre les caractéristiques des structures économiques du Cambodge et pour développer une analyse approfondie dans les chapitres suivants. En effet, après l'adoption de l'économie de marché au début des années 90, l'intégration dans l'économie régionale et mondiale est considérée comme une stratégie privilégiée de reconstruction et de développement. Par exemple, la communauté économique de l'ASEAN, qui doit normalement être entièrement mise en œuvre par tous les membres de l'ASEAN d'ici 2020, devrait apporter deux avantages économiques majeurs pour le Cambodge : elle doit permettre l'accès aux marchés des pays de l'ASEAN et devenir une plateforme pour l'investissement direct étranger. Cependant, cette communauté économique présente également des défis majeurs pour le Cambodge tels la perte de revenus tarifaires, la faiblesse des infrastructures juridiques, le manque de ressources humaines qualifiées. Par conséquent, les analyses des structures économiques cambodgiennes ainsi que des avantages et des défis de l'intégration économique régionale permettront de mieux comprendre les impacts de l'intégration économique régionale et mondiale sur les structures économiques et commerciales du Cambodge. La deuxième partie consiste à étudier les structures d'exportation et la compétitivité des produits d'exportation du Cambodge. Nous comparons la compétitivité des dix principales catégories de produits d'exportation du Cambodge en relation avec celle des pays membres de l'ASEAN et avec les exportations mondiales de ces produits. La comparaison se concentre essentiellement sur les dix principaux produits d'exportation, car le niveau de diversification des exportations est très limité sur ces groupes de produits. Les dix groupes de produits représentent 87% de la valeur totale des exportations

du Cambodge vers l'ASEAN en 2016. Les analyses utilisent l'indice de l'avantage comparatif révélé (RCA) de Balassa (1965) pour étudier la structure de l'avantage comparatif et du désavantage des produits d'exportation. Il mesurera ensuite le niveau de commerce intra-industrie des produits exportés en utilisant l'indice du commerce intra-industrie (IIT) de Grubel and Lloyd (1975). Enfin, un test de corrélation sera appliqué pour tester s'il existe une relation entre RCA et IIT.

Figure 1: Indice de RCA moyenne du commerce intra-ASEAN 2001-2016



Note: Missing data of Brunei in 2005 and Viet Nam in 2016.
Data of Lao and Myanmar are available from 2010

Figure 2: Indice de RCA moyenne de l'exportation des pays de l'ASEAN vers le marché international 2001-2016

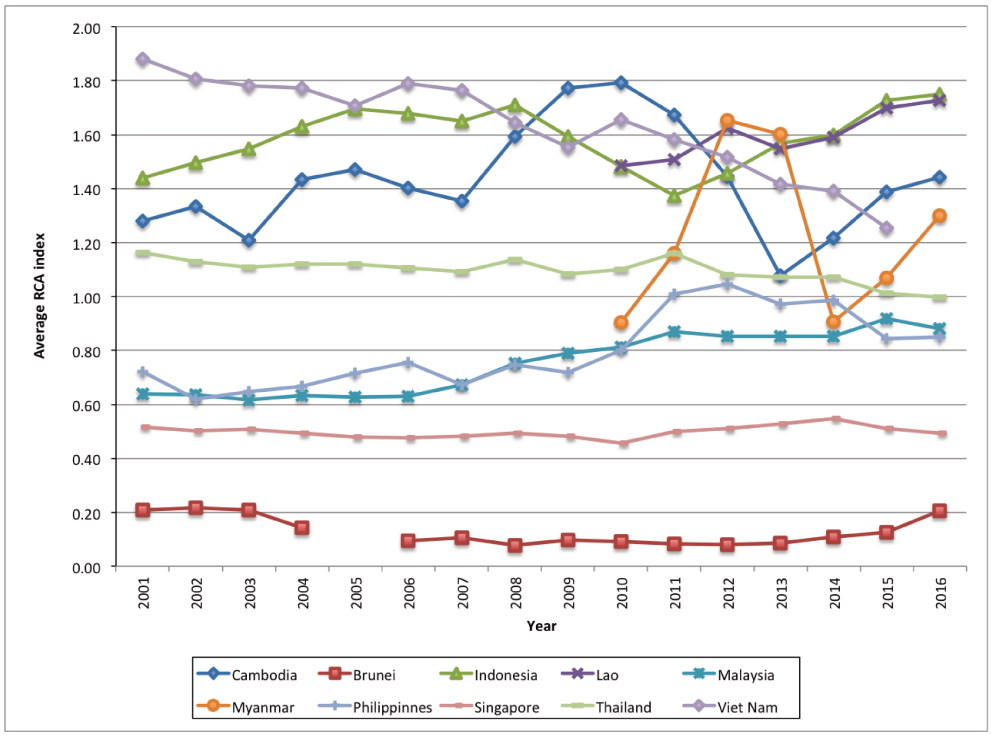


Table 1: Comparaison de l'indice de RCA des dix principaux produits d'exportation du Cambodge vers le marché de l'ASEAN en 2016

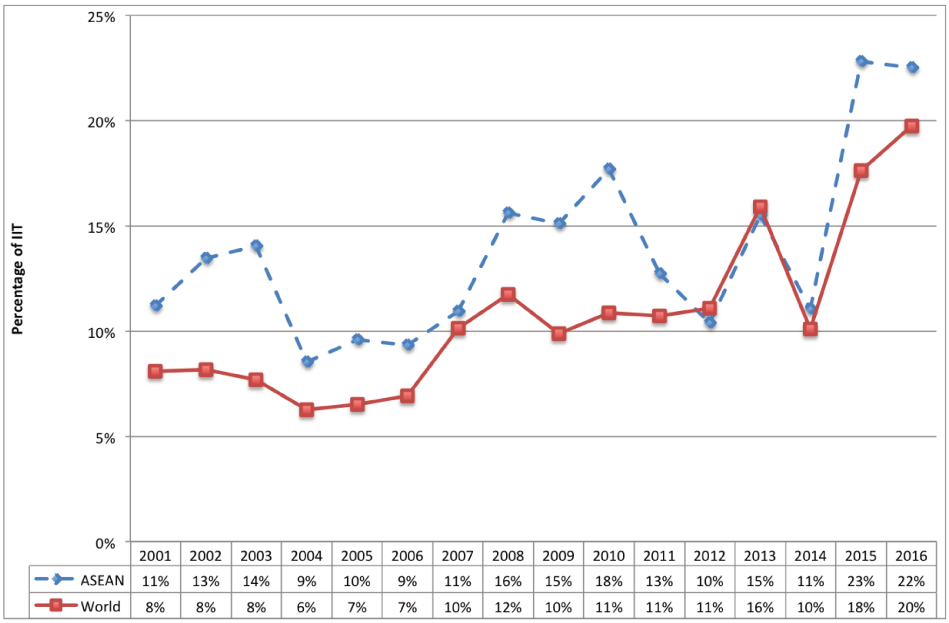
Rank	HS Code	Commodity	Cambodia	Brunei	Indonesia	Lao	Malaysia	Myanmar	Philippinnes	Singapore	Thailand
1	71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ...	11.1	0.1	3.1	0.2	0.5	0.1	0.0	0.4	1.7
2	85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television..	0.8	0.2	0.3	0.9	1.2	0.2	2.6	1.2	0.5
3	40	Rubber and articles thereof	11.9	0.2	0.8	2.7	0.6	0.9	0.4	0.4	2.4
4	61	Articles of apparel and clothing accessories, knitted or crocheted	34.1	0.1	1.0	0.2	0.7	0.3	0.3	0.8	0.5
5	35	Albuminoidal substances; modified starches; glues; enzymes	32.2	0.1	0.4	0.0	0.8	0.0	0.5	0.9	1.4
6	10	Cereals	8.2	0.7	0.0	6.0	0.1	1.3	0.0	0.0	2.9
7	17	Sugars and sugar confectionery	5.2	0.0	0.4	4.1	0.2	0.1	0.2	0.0	4.1
8	84	Machinery, mechanical appliances, nuclear reactors, boilers; parts thereof	0.3	0.5	0.5	0.1	1.0	0.9	1.0	1.2	1.2
9	64	Footwear, gaiters and the like; parts of such articles	5.8	0.1	1.0	1.2	0.4	0.5	0.1	0.7	0.4
10	24	Tobacco and manufactured tobacco substitutes	2.8	0.0	2.8	6.3	0.6	0.4	2.4	1.0	0.2

Note: Data for intra-ASEAN exports of Viet Name are not available for 2016

Table 2: Comparaison de l'indice d'RCA des pays de l'ASEAN selon les dix principaux produits d'exportation du Cambodge vers le marché international en 2016

Rank	HS Code	Commodity	Cambodia	Brunei	Indonesia	Lao	Malaysia	Myanmar	Philippines	Singapore	Thailand	Viet Nam
1	61	Articles of apparel and clothing accessories, knitted or crocheted	44.5	0.1	1.7	1.0	0.4	0.6	0.8	0.2	0.6	4.0
2	64	Footwear, gaiters and the like; parts of such articles	9.2	0.0	3.8	1.2	0.1	1.4	0.1	0.2	0.3	9.9
3	62	Articles of apparel and clothing accessories, not knitted or crocheted	3.8	0.1	2.0	2.5	0.1	9.4	0.5	0.1	0.3	4.3
4	85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television..	0.3	0.1	0.4	0.8	2.1	0.1	3.1	2.4	1.0	2.5
5	87	Vehicles other than railway or tramway rolling stock, and parts and accessories thereof	0.4	0.1	0.5	0.1	0.1	0.0	0.3	0.1	1.5	0.1
6	10	Cereals	5.0	0.2	0.0	3.5	0.0	9.4	0.0	0.0	3.5	1.3
7	71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ...	0.5	0.0	1.1	1.1	0.3	0.9	0.3	0.6	1.6	0.1
8	43	Furskins and artificial fur; manufactures thereof	34.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.3	1.7
9	40	Rubber and articles thereof	1.6	0.1	3.8	2.5	3.0	1.2	0.2	0.5	5.6	1.3
10	42	Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles ...	3.3	0.1	0.5	0.1	0.1	0.3	2.3	0.9	0.4	3.8

Figure 3: Moyenne pondérée de l'indice d'IIT entre Cambodge avec l'ASEAN et avec le reste du monde , 2001-2016



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
ASEAN	11%	13%	14%	9%	10%	9%	11%	16%	15%	18%	13%	10%	15%	11%	23%	22%
World	8%	8%	8%	6%	7%	7%	10%	12%	10%	11%	11%	11%	16%	10%	18%	20%

Source: Author's calculations

Les données indiquent que, sur le plan économique, le Cambodge a fortement progressé au cours de la dernière décennie avec un taux de croissance moyen du PIB de 7%. Cependant, l'analyse des structures économiques révèle que la croissance dans chaque secteur principal est alimentée par un nombre limité de sous-secteur économique. Le secteur de l'agriculture dépend principalement de la production de riz, tandis que le secteur de l'industrie est dominé par le secteur textile, et le tourisme occupe une grande part du secteur des services.

En termes d'intégration économique, l'ASEAN se concentre sur la réduction des barrières commerciales et des investissements intra-régionaux afin de concurrencer plus efficacement avec le reste du monde. Cependant, la part du commerce intra-ASEAN ne représente que 28,9% du commerce total en 2015, ce qui est bien inférieur à celui de l'ALENA (Accord de Libre Echange Nord-Americain) et de l'Union Européenne, dans laquelle la part du commerce intra-zone représente 50% et 63% du commerce total de la zone respective (WTO, 2017b).

Ce chapitre ne se limite pas seulement à l'analyse descriptive des données, il fournit également certaines estimations sur les avantages comparatifs des produits exportés vers l'ASEAN et vers le marché mondial ainsi que sur le niveau du commerce intra-branche de ces produits et sur l'analyse de corrélation entre les deux indices. Les résultats obtenus dans les figures 1 et 2 montrent que les indices RCA moyens des produits exporté du Cambodge vers l'ASEAN et vers le marché mondial sont supérieurs à 1. Ce qui indique les avantages comparatifs sur leurs marchés respectifs. Cependant, le rapport entre le nombre de produits qui ont

Table 3: Corrélation entre RCA et IIT des principaux produits d'exportation du Cambodge

HS	Commodity	Correlation RCA-IIT	
		ASEAN	World
10	Cereals	-0.2388	-0.7690*
40	Rubber and articles thereof	-0.4024	-0.4310
61	Articles of apparel and clothing accessories, knitted or crocheted	-0.5394*	-0.6720*
62	Articles of apparel and clothing accessories, not knitted or crocheted	0.5761*	-0.6554*
64	Footwear, gaiters and the like; parts of such articles	0.8633*	0.2381

* Correlation coefficient significant at 5% level

des avantages comparatifs et ceux qui n'ont pas des avantages comparatifs est très faible. Cela signifie qu'il y a un niveau élevé de concentration des avantages comparatifs sur un petit groupe de produits (Tableau 1 et 2) dans les exportations totales.

En ce qui concerne l'analyse du commerce intra-industrie, la figure 3 montre un faible niveau des échanges bilatéraux de marchandises au sein de la même industrie entre le Cambodge avec l'ASEAN et avec le reste du monde. Les résultats montrent que les échanges du Cambodge avec les pays partenaires sont principalement basés sur des produits de différent niveau de technologie et de ressource. Cela peut s'expliquer par le fait que les échanges internationaux entre pays, dont le niveau de technologie, de capital et de main-d'œuvre qualifiée est comparable, prennent généralement la forme d'échanges bidirectionnels dans la même industrie, ce qui se traduit par un niveau intra-industriel élevé. L'analyse de corrélation entre RCA et IIT dans le Tableau 3 montre les liens négatifs entre les deux indices. Nous pouvons donc conclure que dans une économie basée sur l'agriculture et sur les ressources naturelles, et dans l'industrie à faible technologie, une augmentation des avantages comparatifs des produits exportés n'encourage pas les flux d'échanges bidirectionnels dans la même industrie.

Chapitre 2 : Déterminants des exportations et commerces potentiels

Dans ce deuxième chapitre, nous décidons d'étudier les déterminants des flux d'exportation du Cambodge vers les 40 principaux pays importateurs, en utilisant le modèle de gravité. Contrairement aux travaux antérieurs sur le commerce du

Cambodge qui utilisent peu de variables traditionnelles du modèle gravitationnel, ce chapitre se concentre non seulement sur les effets marginaux des variables traditionnelles, mais aussi sur des coûts commerciaux multilatéraux, des facteurs liés à la gouvernance et des accordes des échanges régionaux et mondiaux. Le choix d'utiliser le modèle de gravité dans cette étude est motivé par le fait que cette approche fournit des résultats intuitifs car elle présente certains faits stylisés sur les déterminants du commerce bilatéral et détecte les facteurs qui ont un impact simultané sur l'exportation. De plus, le manque de recherche en modélisation sur l'économie et le commerce du Cambodge est un autre déterminant qui nous incite à privilégier ce modèle comme outil d'estimation dans cette étude. Nous appliquons des techniques d'estimation de plusieurs modèles économétriques pour tester et comparer les résultats de chaque estimateur afin de minimiser les biais dans les résultats. L'estimateur des Moindres Carrés Ordinaires sera appliqué comme première étape de cette étude. Dans la deuxième étape, l'estimateur du Pseudo-Maximum de Vraisemblance de Poisson sera utilisé pour résoudre le problème du flux commercial nul. Ensuite, l'estimateur à effet aléatoire, à effet fixe et Hausman-Taylor seront utilisés pour comparer différents résultats de chaque estimateur. Cette étude contribue au développement d'un nouveau modèle de gravité et de méthodologies d'estimation, notamment en ce qui concerne le modèle de gravité spécifique au pays. Notre modèle est basé sur des données panels composant de 11 variables explicatives pour mesurer leurs impacts sur les exportations du Cambodge vers 40 pays entre 2000 et 2013. Le signe et l'ampleur de chaque variable clé sont utiles pour mesurer le niveau d'influence de chaque facteur sur les exportations. À partir du résultat des estimations selon les approches économétriques, nous pouvons calculer les potentiels d'exportation du Cambodge vers différents pays et régions.

Table 4: Resultats d'estimations de l'équation de gravité

VARIABLES	Dependent: ln $EXPORT_{cjt}$				
	OLS	PPML	RE	FE	HT[a]
$lnGDP_{ct}$	1.398***	0.0830***	1.904***	1.614***	1.818***
	(0.208)	(0.0124)	(0.170)	(0.277)	(0.232)
$lnGDP_{jt}$	0.274***	0.0159***	0.386**	1.104**	0.689*
	(0.0835)	(0.00537)	(0.190)	(0.449)	(0.353)
$lnDIS_{cj}$	-0.183	-0.0153	-0.0412	-	-0.999
	(0.153)	(0.0106)	(0.431)	-	(1.385)
$lnFDI_{jt}$	0.416***	0.0292***	0.148***	0.105***	0.114***
	(0.0395)	(0.00570)	(0.0348)	(0.0353)	(0.0345)
$lnLPI_{ct}$	4.342	0.240*	4.103**	4.167***	4.122***
	(2.650)	(0.141)	(1.641)	(1.610)	(1.583)
$lnTAR_{cjt}$	-0.399***	-0.0233***	-0.134*	-0.0128	-0.0566
	(0.0675)	(0.00510)	(0.0783)	(0.0842)	(0.0801)
$lnNTB_{cj}$	0.872***	0.0513***	0.985***	-0.000401	0.427
	(0.114)	(0.00822)	(0.266)	(0.576)	(0.421)
$lnRQ_{ct}$	1.288*	0.0683*	1.131***	1.083**	1.096***
	(0.698)	(0.0404)	(0.432)	(0.424)	(0.417)
$BORD_{cj}$	4.163***	0.265***	3.182***	-	2.938
	(0.368)	(0.0283)	(1.093)	-	(2.162)
$ASEAN_{cj}$	0.237	0.00671	-0.0498	-	-3.061
	(0.332)	(0.0212)	(0.972)	-	(3.996)
Constant	-38.34***	-0.417	-51.35***	-61.49***	-47.15***
	(6.875)	(0.355)	(6.135)	(7.628)	(15.16)
Observations	541	541	541	541	541
R-squared	0.635	0.643	0.600	0.505	—
VIF	2.37	—	—		—
Hausman test FE vs RE[b]				4788.89***	
chi-2				chi-2(8)	
Hausman test HT vs RE[c]					21.52**
Chi-2					chi-2(10)
Test of over-id[d]					5.01
chi-2					chi-2(7)
Canonical correlation[e]					0.90

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

[a]HT: endogenous variables= ln GDP_c ln GDP_j ln FDI_{jt} $ASEAN_{cj}$ LPI_{ct}.
[b]This test is applied to the differences between Fixed effect and Random effect estimators.
[c]This test is applied to the differences between Random effect and Hausman-Taylor estimators.
[d]This test is applied to the differences between Fixed effect and Hausman-Taylor estimators.
[e]Geometric average of the canonical correlation coefficients

Table 5: Rapport des exportations réelles aux exportations potentielles entre le Cambodge et les pays partenaires

Importing country	**OLS**	**RE**	**HT**
Brunei Darussalam	0.80	0.82	0.92
Myanmar	__*	__*	__*
Indonesia	1.08	1.00	0.84
Lao People's Dem. Rep.	1.09	0.97	0.94
Malaysia	1.04	1.05	1.10
Philippines	1.07	1.02	0.98
Singapore	1.07	1.15	1.30
Viet Nam	1.08	1.06	1.06
Thailand	0.89	0.97	0.99
ASEAN AVERAGE	**1.02**	**1.01**	**1.02**
China	0.99	0.94	0.85
Japan	0.95	0.97	0.96
Rep. of Korea	0.94	0.94	0.93
ASEAN3 AVERAGE	**0.96**	**0.95**	**0.91**
Austria	1.01	1.03	1.06
Belgium	1.15	1.13	1.15
Denmark	0.98	1.02	1.09
Finland	0.89	0.92	0.98
France	0.96	0.98	1.02
Germany	1.02	1.05	1.07
Greece	0.99	0.98	0.99
Ireland	1.08	1.11	1.19
Italy	0.93	0.94	0.95
Luxembourg	1.08	1.11	1.32
Netherlands	1.00	1.04	1.13
Portugal	0.83	0.83	0.87
Spain	1.01	1.02	1.05
Sweden	1.07	1.11	1.12
United Kingdom	1.02	1.05	1.10
EU15 AVERAGE	**1.00**	**1.02**	**1.07**
Canada	1.03	1.05	1.11
Mexico	1.10	1.05	0.94
USA	1.09	1.10	1.07
NAFTA AVERAGE	**1.07**	**1.06**	**1.04**
Australia	0.94	0.96	0.99
Brazil	0.97	0.92	0.80
China, Hong Kong SAR	1.13	1.20	1.35
Pakistan	0.83	0.71	0.66
Russian Federation	0.97	0.91	0.83
India	0.97	0.90	0.75
South Africa	0.97	0.94	0.88
Switzerland	0.97	1.01	1.08
United Arab Emirates	1.05	1.03	0.98
Turkey	1.01	0.97	0.89

Source: Author's calculation

*The estimation models exclude data for Myanmar.

En raison des évolutions dans les modèles des échanges internationaux, en prenant en compte notamment l'impact des nouvelles technologies, le système logistique moderne et l'augmentation de l'intégration commerciale régionale et mondiale, diverses variables macroéconomiques ont été incluses dans cette étude. Nous évaluons non seulement les impacts de certaines variables traditionnelles du modèle de gravité (PIB, distance et frontière commune) mais aussi d'autres aspects, y compris l'investissement direct étranger, les barrières tarifaires et non tarifaires, la performance logistique et la qualité réglementaire. Les résultats présentés dans le Tableau 4 montrent que l'IDE, la performance logistique, la réglementation et la frontière jouent un rôle important dans l'augmentation des exportations du pays, tandis que les droits de douanes et la distance constituent les obstacles aux exportations du Cambodge. Étonnamment, les barrières non tarifaires n'ont pas d'impact négatif sur les exportations. Cela pourrait être expliqué par des efforts des exportateurs qui cherchent de nouveaux marchés pour leurs produits. Cela reflète également la caractéristique du Cambodge, pays en développement, qui bénéficie souvent du régime de nation la plus favorisée de la part de nombreux partenaires commerciaux, notamment les États-Unis et l'Union Européenne. Les résultats des calculs du potentiel des exportations dans le Tableau 5 nous permettent de conclure également que les exportations du Cambodge vers les zones de libre-échange telles que l'ASEAN, l'UE-15 ou l'ALENA ont atteint leur plein potentiel, mais que des exportations potentielles modérées pourraient être développées avec certains pays et avec les pays de l'ASEAN3 (Corée du Sud, Japon et Chine).

Chapitre 3 : Attractivité des IDE et le rôle de la gouvernance et les traités bilatéraux d'investissement

L'expansion du marché international à travers l'investissement direct étranger des entreprises multinationales est un aspect essentiel de la mondialisation. Les impacts de l'IDE sur les économies ont été bien documentés dans la littérature. L'IDE joue un rôle très important dans le développement d'une nation, en particulier, dans les pays sous-développés et les pays en développement. Anitha (2012) souligne que les caractéristiques de ces pays résident dans le fait qu'ils n'ont pas le niveau d'épargne et de revenu nécessaire pour atteindre le niveau d'investissement requis pour soutenir leur croissance économique. Dans ce contexte, les IDE sont considérés comme des ressources ou des fonds disponibles nécessaires pour répondre aux besoins en ressources ou en fonds dans le pays d'accueil. C'est l'un des principaux moteurs de développement du pays qui fournira au pays d'accueil non seulement une source de capitaux mais aussi des retombées technologiques afin de renforcer la compétitivité

de l'économie locale, améliorer les infrastructures, favoriser la formation du capital humain et accroître la productivité. Au Cambodge, l'IDE est considéré comme un outil de développement compte tenu de son importance en tant que source de capital, de technologie et de transfert des compétences. Bien que les IDE soient une source essentielle de développement au Cambodge, les facteurs déterminant des flux d'IDE ne sont pas encore bien compris en raison de l'absence d'études empiriques antérieures et de la disponibilité d'un ensemble de données longitudinales fiables. À cet égard, ce chapitre vise à étudier ces déterminants dans lesquels le rôle de la gouvernance et des traités bilatéraux d'investissement sont au centre de notre intérêt de recherche afin de mesurer leurs impacts sur les flux d'entées des IDE au Cambodge. La motivation qui nous incite à considérer ces deux aspects particuliers dans ce modèle provient du fait que l'amélioration de la gouvernance et de la qualité institutionnelle et la signature des traités bilatéraux d'investissement entre deux pays sont perçus comme une opportunité d'attirer les investissements directs étrangers, en particulier ceux en provenance des pays développés vers les pays en développement.

Il existe des recherches sur les déterminants des IDE, qui proposent d'inclure les traités bilatéraux d'investissement et les aspects liés à la gouvernance pour étudier leurs effets sur les entrées des IDE dans les pays en développement, y compris celles de Hallward-Driemeier (2003), Tobin and Rose-Ackerman (2005), Neumayer and Spess (2005a), Salacuse and Sullivan (2005), Gani (2007), Alshammari et al. (2015), Busse and Hefeker (2007), Morrissey and Udomkerdmongkol (2012), et Loree et al. (1999). Cependant, les résultats non concluants sur des effets des traités d'investissement bilatéraux et des facteurs de gouvernance issues des études de ces auteurs nous ont incités à examiner les impacts de ces deux indicateurs dans notre étude. D'un point de vue théorique, les économistes ont développé de nombreuses théories et paradigmes pour expliquer les déterminants des IDE. Nous ne prétendons pas de pouvoir couvrir toutes ces théories car nous nous concentrons spécifiquement sur le rôle relatif aux aspects macroéconomiques, à la gouvernance et aux accords commerciaux, qui attirent les types spécifiques des IDE tels que les IDE consacrés à l'exploitation de ressources naturelles ou à la recherche des nouveaux marchés.

Table 6: Résultats d'estimation de l'equation de déterminants des IDE avec les modèles statiques

Dependent Variable	*OLS*	*Random Effects*					
Log of FDI inflows	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$lnRGDP_{jct}$	-0.140	-0.406	-0.286	-0.385	-0.647**	-0.400	-0.200
	(0.134)	(0.260)	(0.266)	(0.260)	(0.266)	(0.260)	(0.271)
$lnGDPG_{ct}$	-0.169	-0.182*	-0.102	-0.219**	-0.265***	-0.0417	-0.0690
	(0.108)	(0.0990)	(0.106)	(0.0991)	(0.0984)	(0.118)	(0.110)
$lnRER_{jct}$	0.00450	0.00988	0.0124	0.0254	0.0285	0.000816	0.0192
	(0.0490)	(0.112)	(0.112)	(0.112)	(0.113)	(0.112)	(0.111)
$lnTRADE_{jct}$	0.389***	0.268**	0.359***	0.264**	0.0559	0.276**	0.406***
	(0.0855)	(0.123)	(0.131)	(0.122)	(0.132)	(0.123)	(0.136)
$lnRIR_{jct}$	-0.123**	-0.104*	-0.0973*	-0.0920*	-0.0726	-0.0926*	-0.0938*
	(0.0573)	(0.0548)	(0.0546)	(0.0545)	(0.0539)	(0.0547)	(0.0546)
$lnRLP_{jct}$	-0.0445	-0.133	-0.0937	-0.140	-0.234	-0.121	-0.0509
	(0.101)	(0.222)	(0.223)	(0.222)	(0.224)	(0.222)	(0.222)
$lnINFLA_{ct}$	0.0996	0.0928	-0.0190	0.156	0.253**	-0.102	0.0289
	(0.0992)	(0.0926)	(0.108)	(0.0950)	(0.0984)	(0.128)	(0.0958)
$lnDIST_{jc}$	-0.668***	-1.109**	-0.881*	-0.995**	-1.456***	-1.144**	-0.682
	(0.229)	(0.446)	(0.460)	(0.448)	(0.453)	(0.446)	(0.477)
BIT_{jc}	0.125	-0.603*	-0.522	-0.549	-0.672*	-0.596*	-0.473
	(0.234)	(0.352)	(0.353)	(0.350)	(0.346)	(0.350)	(0.353)
WTO_{jc}	0.965***	1.350***	1.429***	1.751***	1.500***	1.080***	1.967***
	(0.276)	(0.300)	(0.301)	(0.336)	(0.294)	(0.323)	(0.398)
$ASEAN_{jc}$	-0.190	-0.0763	-0.0355	0.143	0.149	-0.205	0.0708
	(0.394)	(0.648)	(0.646)	(0.651)	(0.642)	(0.648)	(0.645)
GE_{ct}			-2.687**				
			(1.355)				
RQ_{ct}				2.377**			
				(0.936)			
RL_{ct}					4.697***		
					(1.161)		
CC_{ct}						-3.089**	
						(1.424)	
$POLS_{ct}$							-1.311**
							(0.561)
Constant	2.335	5.836	1.109	5.519	14.50***	3.067	0.592
	(2.143)	(3.828)	(4.500)	(3.819)	(4.352)	(4.027)	(4.396)
VIF	2.2	-	-	-	-	-	-
Breusch and Pagan		37.58***	36.64***	40.23***	47.73***	39.34***	37.86***
Hausman *p-value*		0.5650	0.8136	0.5241	0.0000	0.7198	0.8427
Observations	289	289	289	289	289	289	289
R-squared	0.352	-	-	-	-	-	-
Number of ID		17	17	17	17	17	17

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Les résultats des tests Hausman dans le Tableau 6 indiquent que les effets aléatoires est l'estimateur le plus efficace dans le modèle statique. Les résultats issus de cet estimateur montrent que l'amélioration de la qualité de réglementation (RQ_{ct}) et de l'état de droit (RL_{ct}) au Cambodge permet d'accroître le niveau d'investissement direct étranger dans le pays. Cela indique clairement que le rôle et la qualité de l'état de droit sont considérés comme importants par les entreprises étrangères quand elles s'apprêtent à investir au Cambodge : le déficit de sécurité juridique semble constituer un frein à l'investissement. . Pour exemple,

l'absence de tribunal commercial pour juger les litiges commerciaux ou le déficit d'effectivité de la loi sur les droits de la propriété intellectuelle ne permettent pas de rassurer des investisseurs qui souhaiteraient investir dans les nouvelles technologies et l'innovation. L'efficacité du gouvernement (GE_{ct}), le contrôle de la corruption (CC_{ct}) et la stabilité politique ($POLS_{ct}$) n'encouragent pas non plus les flux d'entrée des IDE au Cambodge. Pourtant, cela ne signifie pas nécessairement qu'une gouvernance faible, un niveau élevé de corruption ou la présence de violence attirent davantage des IDE au Cambodge. En fait, en examinant le score des indicateurs de gouvernance très bas conjugués avec un déficit d'amélioration au fil des ans, ces effets négatifs ne nous ont pas surpris. Ainsi, les mesures nécessaires doivent être mises en œuvre pour améliorer la qualité et l'efficacité des services publics, lutter contre la corruption qui sévit dans la plupart des services publics et maintenir la sécurité et la stabilité politique dans le pays pour attirer davantage d'investissements étrangers, en particulier pour diversifier les différentes formes d'investissements étrangers autres que les investissements axés sur l'exploitation des ressources naturelles. Les traités bilatéraux d'investissement (BIT_{cj}) ont également un effet négatif sur les IDE mais leur impact est marginal. Ainsi, le fait de signer un BIT entre deux pays n'a pas incité les entreprises étrangères à investir au Cambodge. Nous avons également remarqué que les échanges entre les deux pays ($lnTRADE_{cjt}$) et l'adhésion à l'OMC (WTO_{cj}) sont les principaux factors qui attirent les flux entrés des IDE. Ces résultats indiquent une implication de la libéralisation des échanges et l'intégration dans le commerce international sont importantes pour le Cambodge car elles produisent des externalités positives en augmentant davantage le flux d'IDE. Le PIB du Cambodge par rapport au PIB du pays partenaire ($lnRGDP_{cjt}$) et le taux de croissance du PIB ($GDPG_{cjt}$) du Cambodge n'attirent pas les IDE en raison de la très petite taille de l'économie cambodgienne par rapport au pays d'origine des investisseurs. Le taux d'intérêt relatif ($lnRIR_{cjt}$) a également induit négativement les entrées d'IDE. Par conséquent, le gouvernement devrait envisager une politique monétaire appropriée qui pourrait abaisser le taux d'intérêt afin d'encourager la collecte des fonds locaux pour les investissements directs étrangers.

Table 7: Résultats d'estimation de l'equation de déterminants des IDE avec l'estimateur dynamique GMM

Dependent Variable	*GMM*[a]					
ln_FDI$_{jct}$	(1)	(2)	(3)	(4)	(5)	(6)
ln_FDI$_{jct-1}$	0.247***	0.241***	0.247***	0.256***	0.229***	0.280***
	(0.0857)	(0.0852)	(0.0830)	(0.0911)	(0.0817)	(0.0896)
ln_RGDP	-1.242**	-1.037*	-1.248**	-1.221**	-0.890*	-0.440
	(0.507)	(0.597)	(0.512)	(0.528)	(0.536)	(1.057)
ln_GDPG	-0.0972	-0.0193	-0.0947	-0.108	0.0950	0.148
	(0.181)	(0.212)	(0.187)	(0.202)	(0.253)	(0.297)
ln_RER	-0.156**	-0.167**	-0.156**	-0.157**	-0.159**	-0.128*
	(0.0687)	(0.0667)	(0.0690)	(0.0696)	(0.0679)	(0.0746)
ln_TRADE	0.395	0.450	0.392	0.417	0.370	0.898*
	(0.349)	(0.391)	(0.332)	(0.385)	(0.337)	(0.496)
ln_RIR	-0.00466	-0.00720	-0.00467	-8.23e-05	-0.000996	-0.00152
	(0.0602)	(0.0600)	(0.0603)	(0.0607)	(0.0595)	(0.0607)
ln_RLP	0.671***	0.708***	0.671***	0.659***	0.648***	0.694***
	(0.210)	(0.206)	(0.210)	(0.211)	(0.205)	(0.210)
ln_INFLA	0.0221	-0.0511	0.0188	0.0670	-0.217	-0.112
	(0.146)	(0.181)	(0.160)	(0.180)	(0.248)	(0.203)
ln_DIST	-1.386***	-1.214*	-1.394***	-1.396**	-1.157**	-0.331
	(0.503)	(0.634)	(0.494)	(0.566)	(0.527)	(1.165)
BIT	-2.559*	-2.782*	-2.574*	-2.875*	-2.552*	-1.843
	(1.500)	(1.464)	(1.525)	(1.507)	(1.481)	(1.629)
WTO	1.314**	1.342***	1.312**	1.230**	1.249**	1.319**
	(0.513)	(0.517)	(0.510)	(0.524)	(0.510)	(0.526)
ASEAN	0.674	0.492	0.678	0.663	0.350	0.126
	(0.572)	(0.616)	(0.577)	(0.580)	(0.587)	(0.882)
GE		-1.009				
		(1.767)				
RQ			-0.0830			
			(1.250)			
RL				2.074		
				(1.894)		
CC					-2.716	
					(1.979)	
POLS						-1.287
						(1.336)
Constant	5.298	3.537	5.347	7.489	2.605	-6.740
	(5.548)	(7.672)	(5.176)	(8.110)	(6.053)	(11.20)
Sargan-overid. *p-value*	0.391	0.352	0.392	0.295	0.436	0.391
AR(1) *p-value*	0.000	0.000	0.000	0.000	0.000	0.000
AR(2) *p-value*	0.182	0.203	0.192	0.219	0.251	0.391
No. of Instruments	27	28	28	28	28	28
Observations	272	272	272	272	272	272

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

[a]All models are one-step system GMM estimates.

Ensuite, nous utilisons l'estimateur du système GMM d'Arellano-Bond pour traiter le problème de l'autocorrélation et de l'endogénéité des variables indépendantes. Les résultats dans le Tableau 7 affichent des changements en termes de niveau de significativité des variables. Par exemple, les échanges (TRADE) et

la distance (DIST) conservent les mêmes signes mais le niveau significatif est plus faible dans cette estimation dynamique que dans l'estimation statique. De plus, l'appréciation du dollar américain par rapport à la monnaie du pays origine des investisseurs (RER) se traduit par la réduction des entrées des IDE au Cambodge. Le Cambodge est un pays fortement dollarisé qui n'a qu'un pouvoir limité pour mettre en œuvre sa propre politique monétaire. Le taux de change avec les devises étrangères dépend donc beaucoup de la situation de la monnaie américaine.

À partir des résultats des estimations statiques et dynamiques, nous concluons que les IDE au Cambodge sont principalement des IDE orientés vers la recherche des ressources plutôt que d'autres types des IDE mentionnés dans le paradigme OLI de Dunning puisque les flux d'entrés des IDE ne sont pas influencés par les facteurs de l'attractivité locale. Au contraire, l'augmentation du commerce bilatéral et l'adhésion à l'OMC ont attiré davantage des IDE. Cela indique clairement l'importance du marché étranger en comparaison avec le marché cambodgien.

Chapitre 4 : Relations entre le tourisme et le commerce

L'idée de la relation entre le tourisme et le commerce international est reconnue depuis des siècles. Suivant les hypothèses concernant la relation entre le tourisme et le commerce international et l'importance croissante du secteur touristique dans l'économie cambodgienne, l'étude empirique sur les liens entre ces moteurs de croissance économique fournit des informations complètes sur les influences causales de ces deux secteurs principaux qui sont utile pour toutes les parties prenantes. Le Cambodge était l'une des destinations touristiques les plus célèbres en Asie du Sud-Est dans les années 1960 recevant un nombre annuel de touristes estimé entre 50 000 à 70 000 personnes (Chheang, 2008). Malheureusement, l'industrie du tourisme a été totalement détruite par les guerres civiles, en particulier le régime génocidaire des Khmers rouges dans les années 1970. Depuis les années 1990, après la fin de la guerre civile et avec le soutien de la communauté internationale, le développement et la reconstruction du secteur touristique ont émergé à une vitesse remarquable. Le tourisme est considéré comme l'un des principaux pourvoyeurs de devises et créateurs d'emplois dans la reconstruction économique et sociale du Cambodge. Il est également considéré comme un mécanisme permettant de changer l'image de la culture et de l'histoire cambodgiennes, montrant non plus un pays de massacres et de mines anti-personnelles mais un pays de paix et de stabilité (Chheang, 2008). Après plus de 20 ans de développement, le tourisme devient l'un des moteurs de la croissance du Cambodge avec une contribution directe de 2,4

milliards de dollars, soit 12,2% du PIB en 2016 (World Travel and Tourism Council 2017). Il est également un élément clé du secteur des services avec un taux de croissance prévu de 10,7% en 2017 et d'environ 6,5% entre 2017-2027. En termes de contribution à l'emploi, le tourisme emploient directement 998 000 personnes (11,4% du marché de l'emploi total) et environ 2,2 millions d'emplois directs et indirects en 2016.

Table 8: Résultats des estimations PMG and MG pour les tests de cointégration et les relations à long terme

(a) Tour vs. Imports

Parameters	PMG	MG	Parameters	PMG	MG
Imports $\longrightarrow$Tour			Tour $\longrightarrow$ Imports		
λ_1	0.753***	1.158**	λ_2	0.641***	1.841***
	(15.88)	(2.22)		(7.56)	(3.16)
θ_1	-0.297***	-0.502***	θ_2	-0.183***	-0.314***
	(-4.45)	(-6.77)		(-6.58)	(-6.68)
Constant	0.830***	2.314***	Constant	0.664***	-2.744**
	(3.98)	(3.02)		(9.53)	(-2.51)
Hausman	0.48	-	Hausman	1.02	-
	[0.49]	-		[0.31]	-
Observations	352	352	Observations	352	352

(b) Tour vs. Exports

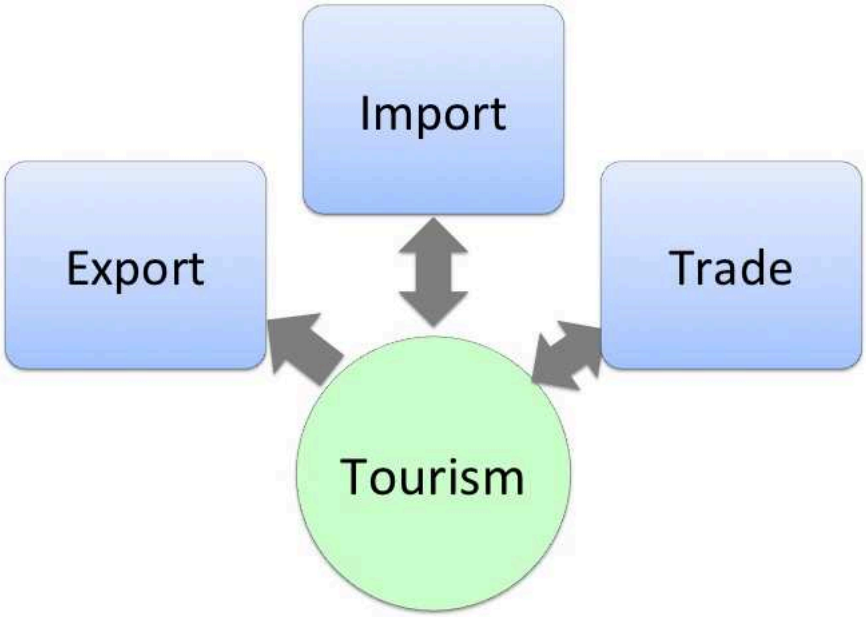
Parameters	PMG	MG	Parameters	PMG	MG
Exports $\longrightarrow$ Tour			Tour $\longrightarrow$Exports		
λ_1	0.825***	0.767***	λ_2	0.517***	0.330
	(15.86)	(3.86)		8.29	0.88
θ_1	-0.231***	-0.353***	θ_2	-0.185***	-0.210***
	(-4.19)	(-5.71)		-6.75	-7.14
Constant	0.433***	0.519	Constant	1.071***	0.237
	(3.27)	(0.81)		7.77	0.30
Hausman	0.06		Hausman	0.22	
	[0.80]			[0.64]	
Observations	352	352	Observations	352	352

(c) Tour vs. Trade

Parameters	PMG	MG	Parameters	PMG	MG
Trade $\longrightarrow$ Tour			Tour $\longrightarrow$ Trade		
λ_1	0.757***	0.611***	λ_2	0.517***	2.116**
	(15.89)	(7.19)		(9.10)	(1.27)
θ_1	-0.192***	-0.307***	θ_2	-0.185***	-0.316***
	(-3.47)	(-5.22)		(-6.33)	(-7.00)
Constant	0.263**	1.689***	Constant	1.071***	-2.186**
	(3.73)	(4.56)		(7.69)	(0.07)
Hausman	3.56		Hausman	2.29	
	[0.06]			[0.13]	
Observations	352	352	Observations	352	352

t-Student are in parentheses*** p<0.01, ** p<0.05, * p<0.1

Figure 4: Graphique de Granger-Causality entre le tourisme et le commerce



Nous analysons ces relations avec deux cas distincts. Premièrement, nous utilisons des modèles panels dynamiques pour étudier les liens entre les variables dans le cas de 23 pays partenaires. Ensuite, nous utilisons des approches de données de séries temporelles appliquées au cas du Cambodge avec la Chine et l'ASEAN, qui sont les deux principaux partenaires commerciaux et touristiques. Pour la première étude de cas, les résultats présentés dans le Tableau 8 suggèrent qu'il existe un lien positif à long terme entre le commerce et le tourisme. Il fournit une réponse claire à notre hypothèse de recherche qui est que le tourisme et le commerce sont complémentaires et il n'y a aucune preuve de relation inverse entre les deux flux. Une relation de complémentarité forte entre le tourisme et le commerce peut être utile aux décideurs des entreprises privées, en particulier les opérateurs de transport, les agents de voyages et les hôtels pour élaborer des stratégies ciblant les pays qui commercent avec le Cambodge comme la Chine et l'ASEAN. Compte tenu des liens simultanés entre le tourisme et le commerce, les prévisions de croissance des arrivées de touristes internationaux sont des signaux qui aident à chronométrer l'offre de biens et de services, en particulier la planification de l'achat et la vente de produits de/et vers le pays d'origine du touriste. Lorsqu'on examine la relation entre le tourisme et le commerce du Cambodge avec la Chine et l'ASEAN, les résultats de l'analyse de cointégration indiquent qu'il n'existe aucun lien à long terme entre le tourisme et les deux variables, à savoir l'importation et le commerce total. Les preuves d'une relation à long terme existent seulement entre le tourisme et les exportations du Cambodge vers ces pays.

Table 9: Résultats de Granger-Causality du modèle VAR

Granger causality	China	ASEAN
	x^2	x^2
Tour→Import	64.27	4.22
	(0.000)	(0.040)
Import→Tour	21.24	0.92
	(0.000)	(0.338)
Tour→Export	17.53	17.77
	(0.002)	(0.000)
Export→Tour	52.73	3.74
	(0.000)	(0.154)
Tour→Trade	72.51	5.1851
	(0.000)	(0.075)
Trade→Tour	24.36	5.9365
	(0.000)	(0.051)

p-value are in parentheses
→indicates the direction of causality

En ce qui concerne la relation causale à court terme dans la première étude de cas, le figure 4 montre qu'il existe des relations bidirectionnelles entre l'arrivée du touriste et l'importation ainsi qu'entre l'arrivée du touriste et le commerce total, alors qu'il n'y a qu'une seule relation causale dans le sens où l'arrivée du touriste augment les exportations du Cambodge vers le pays d'origine du touriste. Dans le cas du tourisme chinoise, le tableau 9 indique que des relations de causalité bidirectionnelles à court terme existent entre l'arrivée du touriste avec toutes les variables du commerce, à savoir l'importation, l'exportation, et le commerce total. Pour l'ASEAN, les relations de causalité bidirectionnelle à court terme existent entre l'arrivée du tourisme et l'importation ainsi que le commerce total, tandis qu'une seule relation unidirectionnelle dans le sens où l'arrivée du touriste augmente les exportations est trouvé.

Conclusion

Cette thèse élucide certains questionnement que l'on pourrait avoir au sujets de l'économie cambodgienne en prenant le commerce, l'investissement étranger et le tourisme comme sujet d'interrogation et de questionnement de notre recherche. Ces trois secteurs sont les éléments clés du développement économique et les sources du bien-être et de la prospérité du pays. L'exploration des structures d'exportation révèle que des avantages comparatifs sont concentrés dans seulement quelques catégories de produits, y compris les produits agricoles et les produits de textiles et de chaussures pour les exportations vers l'ASEAN et vers les marchés mondiaux. Ensuite, les estimations basées sur les modèles empiriques montrent

que les IDE, la logistique, la qualité de la réglementation, et les pays voisins sont les facteurs qui augmentent les exportations du Cambodge, tandis que la présence de droits de douane et la distance constitue les obstacles aux exportations internationales. En outre, le commerce accroit également les entrées des IDE selon nos analyses sur les déterminants des IDE. Cette thèse a également mis en exergue la complémentarité du commerce et du tourisme dans le sens où le tourisme favorise le commerce et réciproquement. D'après les analyses développées à travers ces quatre chapitres qui constituent notre recherche, cette thèse a révélé les effets pertinents et complémentaires des trois principaux secteurs de l'économie du Cambodge. Une augmentation des exportations du pays encourage davantage les investissements étrangers et les visites des touristes au Cambodge. Les effets réciproques sont également confirmés par le fait que les investissements étrangers directs et les touristes accroissent les exportations. Les liens positifs encouragent la mise en œuvre des politiques commerciales, de l'investissement et de la promotion du tourisme axées sur la réduction des coûts de transaction dans le commerce, le tourisme et l'investissement, y compris la réduction des procédures coûteuses et longues pour les exportations et les investissements, l'amélioration de la qualité de la gouvernance et de la réglementation, l'abaissement des redevances portuaires et aéroportuaires, l'amélioration de la qualité d'infrastructures et de transport et de communication, l'intégration plus largement aux accords de libre-échange et aux unions douanières, qui peuvent bénéficier à tous les opérateurs de chaque secteur grâce à ces relations complémentaires.

Enfin, cette thèse ouvre la voie à des recherches futures, en particulier sur le commerce et l'investissement étranger. À ma connaissance, cette thèse est un travail de recherche empirique pionnière sur le commerce et l'investissement cambodgiens. L'élaboration de cette thèse a été confrontée à de nombreux obstacles dont les plus importants ont eu trait au manque de données et d'informations disponibles, l'absence de recherches antérieures sur ce sujet afin de mieux comprendre et comparer la situation précédente et actuelle, la fiabilité des différentes sources, notamment la quasi-indisponibilité des données provenant de sources locales. Cela nous a empêché de développer des analyses plus sophistiquées telles que l'utilisation de modèles économétriques plus avancés, l'application des modèles analytiques basés sur des données au niveau des entreprises, et l'application limitée des tests de robustesse en raison de la courte période des données disponibles. Les quatre chapitres empiriques traités dans cette thèse sont basés sur les analyses au niveau macroéconomique. Les recherches futures pourrait être axées sur des analyses au niveau microéconomique lorsque des données seront disponibles telles que les demandes globales et l'offre de produits, la nature et le type des investissements étrangers au Cambodge.

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DOCKSIDE

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List of Acronyms

ADF Augmented Dickey-Fuller

AEC ASEAN Economic Community

AFTA ASEAN Free Trade Area

ARDL Autoregressive Distributive Lag model

ASEAN Association of Southeast Asia Nations

BIT Bilateral Investment Treaties

CDC Council for the Development of Cambodia

CES Constant Elasticity of Substitution

DC Developed Countries

DOLS Dynamic Ordinary Least Squares

DPC Developing Countries

EBA Everything-But-Arms

EIA Economic Integration Area

FE Fixed Effects

FMOLS Fully Modified Ordinary Least Squares

GMM Generalized Method of Moments

HS Harmonized System

HT Hausman-Taylor

IIT Intra-Industry Trade

ITC International Trade Center

LPI Logistics Performance Index

MFN Most Favored Nation

MG Mean-Group

MNC Multinational Corporations

MTR Multilateral Trade Resistance

NAFTA North American Free Trade Agreement

NTBs Non-Tariff Barriers

ODA Official Development Assistance

OECD Organization of Economic Cooperation and Development

OLI Ownership Location and Internalization

OLS Ordinary Least Squares

PANIC Panel Analysis of Nonstationarity in the Idiosyncratic and Common components

PMG Pooled Mean-Group

PPML Poisson Pseudo-Maximum Likelihood

QIP Qualified Investment Project

RCA Revealed Comparative Advantage

RE Random Effects

SBIC Schwarz Bayesian Information Criterion

SEZs Special Economic Zones

TBT Technical Barriers to Trade

UNCTAD United Nations Conference on Trade and Developmen

UNTAC United Nations Transitional Authority in Cambodia

UNWTO World Tourism Organization

VAR Vector Autoregression model

VIF Variance Inflation Factor

WITS World Integrated Trade Solution

WTO World Trade Organization

General introduction

"Every man lives by exchanging."

— Adam Smith

History shows that trade has been an important source of wealth and power in the rise of any nation. Countries always seek to open up their trade with the outside world since trade not only brings in high value commodities to supply local markets, but also eases the transfer of technology and institutional innovations from different parts of the world (Maddison, 2006). Generally speaking, leading trading countries often achieve regional and even global political domination. Competition between countries in the last century used trade as a tool for putting pressure on each other as an alternative to using weapons and armed forces, because a trade embargo is the most efficient form of economic sanction that one country can impose on another. Indeed imports and exports of new products and new technologies, and factor-specific comparative advantages are the key components in generating growth and welfare for countries. Economic isolation and withdrawal from the global economy are virtually impossible in the modern world, and every country continues to see a lot of interest in expanding cross-border trade through integration within regional and global markets. Thus the modern literature on international trade is interested in studying the trade patterns of countries or regions and the factors that affect trade such as trade costs, trade diversion and trade creation.

As a result, numerous theoretical and empirical studies have been written and one popular research topic among scholars of international trade has been the study of trade patterns in the context of regional and global economic integration. The theory of trade integration explains that a group of countries makes an effort to combine trade liberalisation strategies with protectionist policies by reducing trade restrictions to a minimum level between themselves and applying discriminatory policies to countries outside the group. After integration, the reduction in trade costs and the reallocation of resources increase the trade and economic welfare of the member countries (Balassa, 1961). Anderson and Van Wincoop (2002) argue that trade costs have substantial implications for welfare. Trade costs are strongly related to economic policy, and the current policy-related costs are often worth

more than 10% of national income. Anderson and van Wincoop (2004) estimate international trade costs between developed countries, including direct observed and inferred border-related trade barriers, as equivalent to a 74% tax, with 21% going on transport costs for both freight costs and the time value of goods in transit, 17% on inferred costs like information, contract enforcement, legal and regulation costs, 8% on trade policy barriers in the form of tariffs and non-tariff barriers, and 14% on currency barriers from the costs arising from the use of different currencies. The liberalisation of global trade plays a crucial role in reducing international trade costs by a substantial proportion. By the end of 2017, 168 countries had joined the WTO, hoping to benefit from the reduction in tariffs and non-tariff barriers. At the same time, regional trade agreements had also expanded in both size and scope in different parts of the world. The current trends of trade integration together with new technologies and innovations make global trade more competitive not only within regions but also between competitors from around the globe. Faced with the current competitive world, each country has increased their efforts to boost their competitiveness capacity against that of their rivals. In consequence, studies of the comparative advantages of a nation provide valuable information for policy makers looking to implement the appropriate policies and mechanisms to improve a country's position in global markets. Such studies of a country's competitiveness may use the comparative advantage theory of Ricardo (1817) for instance, or the empirical study of revealed comparative advantages of Balassa (1965), to investigate the pattern of comparative advantage and disadvantage in export goods in order to compare how efficient a country is next to another in its production of goods or services.

International trade literature also focuses closely on foreign direct investment (FDI). When a multinational firm decides to enter a foreign market, it has to choose between exporting directly and foreign direct investment depending on the conditions of the host country and the type of investment. Bombarda (2011) estimates that multinational firms together with their subsidiaries are responsible for 75% of the world's trade in commodities. Bernard et al. (2013) find that 90% of US exports and imports go through multinational firms. Since FDI triggers technology spillovers, assists the formation of human capital, contributes to the integration of international trade, helps create a more competitive business environment, and enhances the development of enterprise, it is one of the most potent tools for alleviating poverty in developing countries. Moreover, beyond its strictly economic benefits, FDI may help improve environmental and social conditions in the host country through the transfer of cleaner technologies and the introduction of more socially responsible corporate policies (OCDE, 2002). Over the years, numerous theories and paradigms have been developed to explain the

determinants of foreign direct investment. Faeth (2009) argues that the various factors mentioned in different theoretical models can be jointly used to explain such determinants of FDI as market characteristics, cost factors, protection, ownership advantage or agglomeration economics, risk factors, and policy variables. Analysis of how these factors influence FDI can be found in econometric studies and theoretical models like (1) neoclassical trade theory, (2) ownership advantages, (3) the Ownership, Location and Internalisation (OLI) advantage framework, (4) horizontal and vertical FDI models and the knowledge-capital model, and (5) recent studies on complex modes of FDI. Hence the study of both patterns of trade and determinants of foreign direct investment provides clear additional information about the trade and investment characteristics of a country that allows proper recommendations to be made for the common and specific factors that affect both trade and investment.

The literature on economics does not underestimate the importance of tourism alongside trade and investment as one of the drivers of growth in national economies. However, the relationship between trade and tourism existed long before economists started to pay it attention, for instance in the travels of Marco Polo (1254-1324) from Venice to China, which was mostly seen as business travel along the Silk Road that had been followed for centuries. This hypothesis has attracted scholars who specialise in international trade and tourism to investigate this relationship. A casual inspection of international trade and tourism in both developed and developing countries over the past several decades shows that these two time series very often have similar trends. This is partly because the development of the tourism industry in the tourist destination increases its imports, which is then reflected in the trade balance. Moreover, tourist visits generally provide information that may improve the image of the tourist destination and of its products around the world, creating new opportunities for trade. A report by the World Tourism Organisation shows that tourism has experienced a steady increase over the past six decades and has developed to become one of the largest and fastest-growing economic sectors. International tourist arrivals have surged, from 25 million worldwide in 1950 to 1,235 million in 2016, generating USD 216 billion in exports through international passenger transport services rendered to non-residents, and accounting for 7% of the world's exports in goods and services in 2016 (WTO, 2017b). With its crucial role in world trade, tourism is systematically integrated into the pure theory of international trade. Hazari and Sgro (2004) and Nowak et al. (2003) include tourism in their Heckscher-Olin models, considering it as a temporary movement of consumers from one country to another to consume non-traded goods and services. The non-traded goods are those goods that are not able to move across boundaries since the cost of moving them is, by definition,

extraordinary high or infinite. In addition to the theoretical explanations, a large amount of empirical research has also looked at the nexus between tourism and trade, for example Kulendran and Wilson (2000), Santana-Gallego et al. (2011a), Massidda and Mattana (2013), and Khan et al. (2005). The diverse theoretical and empirical evidence shows that an increase in international trade flows leads to an increase in international travel flows and vice versa since the countries become more open to the outside world.

Evidence of cross-border trade for Cambodia has been found dating back to the Funan period[4] in the 1st century AD. The remains found at O Keo[5], a busy seaport of the ancient Khmer kingdom between the 1st and 7th centuries AD, include gold jewellery and imitations of coins from the Roman Empire, golden Roman medallions from the reign of Antonius Pius, and other evidence of cross-border trade with China and India, the kingdom's main trading partners. Cambodia's trade relations with the outside world have evolved throughout its long history. During the Angkor period from the 9th to the 15th century AD, Cambodia was a centre for the international trade of a powerful and prosperous empire extended over a vast territory in mainland Southeast Asia[6]. However, after the fall of the Khmer empire, Cambodia generally experienced periods of trouble, with invasion from neighbouring countries, civil war, and genocide. The evolution of political ideologies and regimes after independence was gained from France in 1953 has strongly influenced the current economic structures and trade patterns. The Sihanouk Regime (1953-1970) started to build industrial sectors by encouraging both private capital and state investment capital, while the Khmer Republic regime (1970-1975) attempted to take a laissez faire approach. The Democratic Kampuchea regime, or the Khmer Rouge regime, (1975-1979) was an ultra-communist regime, under which there was nationalisation of all private property, deindustrialisation, and genocide. After the collapse of the Democratic Kampuchea regime, the People's Republic of Kampuchea (1979-1989) focused only on agriculture as the government adopted socialist ideology and endured economic embargoes from western countries. The State of Cambodia and The United Nations Transitional Authority in Cambodia (1989-1993) marked a transition period from a planned economy to a market economy, and the current regime, the Kingdom of Cambodia, (1993-present) is a market economy that is mainly based on foreign investment and international markets (Chhair and Ung,

[4]Funan is a Chinese name, and it may be a transliteration of the ancient Khmer word Phnum (mountain).

[5]O Keo is now an archaeological site in the Thoai Son District in southern An Giang Province, Vietnam, in the Mekong River Delta.

[6]The details of the Angkor period were recorded in a report by Zhou Daguan, a Chinese diplomat who visited in 1296. Zhou spent almost one year recording Khmer society, detailing its religion, justice, kingship, agriculture, slavery, birds, vegetables, bathing, clothing, tools, draft animals, and commerce.

2013).

Since 1993, the country has finally been at peace and has achieved national reconciliation, which is favourable for reconstruction and development. However, there were enormous challenges in the reconstruction of Cambodia, such as poverty, and a shortage of human capital and infrastructure as a majority of the physical infrastructure was destroyed and most intellectuals were killed under the Khmer Rouge regime, and the long period of tragedy destroyed most of the economic and social infrastructure. In this context, the new government formed after the national democratic election in 1993 considered integration with the regional and world economies as one of its national strategies for reconstruction and development. Cambodia has since joined ASEAN in 1999, and became a member of the World Trade Organisation in 2004. Participation in different international economies and openness to foreign investment policy helped boost economic growth to a rapid average annual rate of around 7% in 2010-2017. However, there is little information and few empirical studies on trade patterns and the benefits and challenges faced by Cambodia in the context of global economic integration in academic research.

As mentioned earlier, study of Cambodia's trade and investment patterns is interesting, partly to give an understanding of the current economic situation, and partly for the input it can give for formulating economic and trade policies. This thesis investigates this problematic in four chapters. The empirical applications consider the particular case of Cambodia with its major partner countries for trade, investment, and tourism. This choice was motivated by the reintegration of Cambodia into the regional and world economies after a long absence because of civil war, the significant increase in the volume and structure of its trade patterns, and in particular the deep trade policy and institutional reforms that have been pursued for the past twenty-five years. Moreover, the second motivation is even more ambitious, as choosing only Cambodia as the case study in this dissertation presents enormous challenges because of the lack of data and information and the absence of any previous academic research. The aim is to contribute to the development of research culture in Cambodia, where doctoral schools and economic research laboratories are virtually non-existent and the local academic research facilities are at an early stage of development. In addition to contributing to the academic research literature in Cambodia, the present research examines a large number of factors, including macroeconomic and finnacial indicators, governance indicators as well as bilateral and multilateral agreements, which have been considered important in explaining trade and foreign investiments in a developing country. By focusing on the country-specific models, this research provides fresh insight into the recently developed techniques in econometrics to deal with the problems regarding small sample size. Finally, a new conclusion can be drawn

from the outcomes of the four chapters that an increase in exports encourages more inflows of foreign direct investment and tourist visits. The reciprocal effects are also confirmed in the sense that foreign direct investment and international tourist arrivals encourage bilateral trade. This thesis is organised into the following chapters:

Chapter one is essentially devoted to analysis of the competitiveness of export products from Cambodia to ASEAN and to world markets. The first part of this chapter presents general descriptions of Cambodia and its economic structures, the historical background of the foundation of ASEAN, and the progress of regional economic integration. The general background information provides important data and hypotheses for understanding the characteristics of Cambodia's economic structures so that in-depth analysis can be developed in the subsequent chapters. In fact, after the market economy was introduced in the early 1990s, integration with the regional and world economies has been seen as the key to unlocking Cambodia's export potential. The ASEAN Economic Community for instance, which will be fully applied in all members of ASEAN by 2020, is expected to bring two major economic advantages to Cambodia by granting access to the ASEAN market and becoming a platform for foreign direct investment. However, this economic community also presents some major challenges for Cambodia such as a loss of tariff revenues, the weakness in legal infrastructures, and the lack of skilled human resources. Therefore, investigating Cambodian economic structures and the benefits and challenges of regional economic integration will give a better understanding of how regional and global economic integration impact the economic and trade structures of Cambodia. The second part of the chapter investigates export structures and the competitiveness of export products from Cambodia. We compare the competitiveness of the ten top export products from Cambodia with those of ASEAN member states and with global exports. The comparison is limited to the top ten export commodities because the level of export diversification is concentrated in those commodities. The top ten export products, which are classified at the 2-digit level of the Harmonised Systems, accounted for 87% of the total value of exports from Cambodia to the ASEAN market in 2016. The analyses use the Revealed Comparative Advantage of Balassa (1965) to investigate the pattern of the comparative advantage and disadvantage of export goods. We then measure the level of intra-industry trade in products exported from Cambodia using the Intra-Industry Trade (IIT) index of Grubel and Lloyd (1975). Finally, the correlation test is applied to test whether there is a relationship between RCA and IIT. The study finds that on average export products from Cambodia are competitive on both the ASEAN and world markets. However, the proportion of products with comparative advantage is very low next to the proportion with comparative disadvantage. This is because the

comparative advantage exists largely in a few export products, as explained earlier. Moreover, the degree of intra-industry trade that Cambodia has with ASEAN and with the world indicates a low level of two-way exchange of goods within particular industries. The results imply that Cambodia trades mostly with countries that have a different level of technologies and resources. This assumption can be drawn because international trade between countries that have similar levels of technology, capital and skilled labour takes the form of two-way exchanges within industries, resulting in a high level of intra-industry trade. The study also found negative links between RCA and IIT, leading us to conclude that in agriculture, resource-based and labour intensive industry, and low technology industry, an increase in comparative advantage in export goods does not increase the two-way trade flows within that industry.

The analyses of the comparative advantages of export products in chapter one provide preliminary hypotheses for more in-depth analysis using theoretical and empirical models. In the *second Chapter*, we apply the gravity model to investigate the determinants of bilateral export flows from Cambodia to 40 main importing countries. This chapter focuses not only on the marginal effects of traditional gravity model variables, but also on additional variables, covering multilateral trade costs, governance and political factors, and regional and global trade agreements. The gravity model was chosen for this study because this approach provides intuitive results as it presents certain stylised facts about the determinants of bilateral trade and detects the factors that impact exports simultaneously. Moreover, the lack of econometric modelling research for Cambodia's economy and trade is another motivation for choosing the gravity model as an estimation tool in this study. We apply several techniques to test and compare the results of each estimation method in order to minimise bias in our estimations. The Ordinary Least Squares estimator is applied as the first step in this study. In the second step, the Poisson Pseudo Maximum Likelihood estimator is used to address the problem of zero trade flow. Next, the Random Effect, Fixed Effect, and Hausman-Taylor estimators are used so the different results of each estimator can be compared, along with several validity tests to select the most efficient estimator. This study contributes to the development of a new gravity model and to the estimation methodologies, particularly in its use of the country-specific gravity model, which is based on panel data covering the exports and imports of a particular country with its trading partners. The main objective is to provide modelling-based explanations for the export patterns of Cambodia and to calculate the export potential, drawing on the results of the gravity model estimations. The sign and magnitude of each key variable are useful for measuring the degree of influence that each factor has on exports. For example, we find that ASEAN does not have any impact on exports,

whereas FDI, the performance of logistics, regulation, and borders are factors that increase exports from Cambodia.

The *third chapter* focuses on investigating the determinants of foreign direct investment in Cambodia. The expansion of the international market through foreign direct investment by multinational firms is an essential aspect of globalisation. Moreover, the benefits and impacts of FDI for developing economies have been well documented in the economics literature. FDI plays a very important role in the development of a nation, especially in underdeveloped and developing countries. Anitha (2012) argues that a characteristic of these economies is that they do not have the level of savings and incomes needed to meet the level of investment required for economic growth to be sustained. In consequence, foreign direct investment is the only available resource for funds to support the needs of the host country. It is one of the major drivers of development in the country, not only acting as the source of capital but also triggering technology spillovers that can enhance the competitiveness of the local economy. FDI also strengthens infrastructure, assists in human capital formation, increases productivity, and contributes to integration with international trade. In Cambodia, FDI is regarded as a development tool given its importance as a source of capital, and the technology and skills transferred since the country started openly receiving FDI in 1993. Although FDI is an essential source of development in Cambodia, its empirical determinants are not yet well understood due to the lack of any previous empirical studies and the unavailability of any reliable longitudinal data set. In this regard, this chapter aims to study the determinants of FDI, taking into account not only various macroeconomic factors as the centre of our research interest but also the role of governance and bilateral investment treaties, and a measurement of their impact on inflows of FDI to Cambodia. The motivation for considering these two particular aspects in this empirical model is that improving governance and institutional quality and the signing of bilateral investment treaties between two countries are seen as ways to attract foreign direct investment, especially from developed to developing countries. There is a lot of literature that proposes including bilateral investment treaties and governance factors in the empirical models that study the effects of those factors on FDI inflows in developing countries, such as Hallward-Driemeier (2003), Tobin and Rose-Ackerman (2005), Neumayer and Spess (2005a), Salacuse and Sullivan (2005), Gani (2007), Alshammari et al. (2015), Busse and Hefeker (2007), Morrissey and Udomkerdmongkol (2012), and Loree et al. (1999). However, the estimated results for the impacts of bilateral investment treaties and governance factors on FDI are inconclusive. This makes it interesting to examine the impacts of the two indicators using our empirical models to explore their effect on the inflows of FDI in Cambodia. Furthermore, economists taking the theoretical point of view

have developed numerous theories and paradigms to explain the determinants of foreign direct investment. We do not pretend to cover all of those theories because we focus specifically on the relative role of the country-level factors, including macroeconomic, governance, and trade agreement factors, that attract the inflows of specific types of FDI such as resource-seeking or market-seeking investment. Applying both dynamic and static econometric approaches to panel data from 1998-2014 with 16 independent variables, we find evidence of both negative and positive effects from different governance indicators on the inflows of FDI. However, we find that bilateral investment treaties have only a marginal negative effect on FDI, which leads us to believe that the signing of investment agreements between Cambodia and the home countries of foreign investors has no strong influence on the decision of those multinational firms to invest.

The fourth and last chapter addresses the relationship between tourism and international trade. The idea of a relationship between tourism and international trade has been recognised for centuries and hypotheses about it can be found covering various angles, including the historical point of view, the causal inspection of empirical data on international trade and tourism, and the economic theory perspective. Following the hypotheses of the relationship between tourism and international trade, and given the increasingly important role of the tourism sector in Cambodia's economy, the empirical study of the links between these major drivers of economic growth provides a comprehensive picture of the complementary effects of these two main sectors that may be useful for all the stakeholders in both tourism and trade. Cambodia used to be one of the best-known tourist destinations in Southeast Asia in the 1960s, receiving 50,000 to 70,000 annual tourist visits (Chheang, 2008). However, the tourism industry was totally destroyed by the civil wars, particularly the genocidal regime of the Khmer Rouge in the 1970s. After the end of the civil war and with support from the international community, the development and reconstruction of tourism since the 1990s has occurred at remarkable speed. Tourism is considered one of the major earners of foreign exchange and creators of jobs in the post-conflict economic and social reconstruction of Cambodia. It is also seen as a mechanism for changing the image of Cambodian culture and history from one of mass killing fields and land mines to that of a country of peace and stability (Chheang, 2008). After more than 20 years of development, tourism has become one of the main industries in Cambodia, making a direct contribution of USD 2.4 billion or 12.2% of GDP in 2016 (World Travel and Tourism Council 2017). It is also the key component of the service sector with a forecast growth rate of 10.7% in 2017 and about 6.5% in 2017-2027. Travel and tourism contributes directly to employment by employing 998,000 people, or 11.4% of total employment, and providing about 2.2 million direct and indirect jobs in 2016. This chapter uses

the newly developed dynamic heterogenous panel data techniques to analyse both the long-run and short-run relationships between the variables. It covers the 22 main countries of origin for tourists and trading partners over the period 2000-2016. It also applies time series analysis to the specific case of Cambodia's trade and tourism relationships with China and with ASEAN, as these are the main trading partners and the top sources of tourist visits to Cambodia. The study finds evidence of a long-run relationship between tourist arrivals and trade variables in the sense that tourist arrivals promote trade and vice versa. When Cambodia's long-run tourism and trade relationships with China and ASEAN are examined, the results of cointegration analysis indicate that there is no evidence of a long-run nexus between tourism and imports or tourism and total trade. Evidence can be found for short-run relationships between tourism and some trade variables in the case of relationship with 22 partners, and also in the relationship with China and ASEAN.

This thesis presents and explores the essential parts of the main sectors of the Cambodian economy, which are little covered by academic research. It starts with descriptive analysis of Cambodia's economic structures and its export patterns in the context of regional and global economic integration in the first chapter to give an introductory background that will aid in understanding the country. The second chapter uses the gravity model to carry out an in-depth analysis of the determinants of exports and to calculate the potential for trade that lies between the actual and estimated results from the gravity equation. The third chapter examines the factors that have influenced inflows of foreign direct investment to Cambodia. We apply both dynamic and static econometric approaches to estimate equations for the determinants of FDI. Finally, the last chapter studies the empirical links between trade and tourism, as tourism is another of Cambodia's key economic sectors. The use of scientific methods of analysis in all the chapters provides an objective and standardised approach that can minimise the influence of prejudice or bias and keep the focus on the situation of Cambodia in each period studied. Moreover, the results presented in the different chapters may provide some useful answers to the problematic regarding trade, investment, and tourism in Cambodia.

Chapter 1

Trade competitiveness and the economic integration of Cambodia in the ASEAN Economic Community

1.1 Introduction

Economic integration through trade and investment has been an important driving force for growth in the ASEAN countries in the recent decades. The ASEAN member countries have been moving forward from the ASEAN Free Trade Area (AFTA) toward the creation of an ASEAN Economic Community (AEC). The AEC will be brought about by intensifying current economic initiatives and accelerating the integration of eleven sectors identified as priorities within ASEAN. The AEC aims to remove barriers to enable the free flow of goods, services, and skilled labour, and a freer flow of capital. It also helps develop the essential elements or conditions needed for ASEAN to function as a single market and production base through measures that enhance the attractiveness of ASEAN as an investment destination.

For Cambodia, integration in the regional and global economies is one of the national strategies for reconstruction and development. Thanks to its openness and its participation in different global economic groupings, Cambodia's economy was one of the world's fastest growing in the first decade of this century. Membership of the AEC is expected to bring two major economic advantages and benefits to Cambodia as it will give access to the ASEAN market while becoming a platform for foreign investment. However, Cambodia is also facing some major challenges in this new economic community such as a loss of tariff revenue, the weakness in legal infrastructure, the lack of skilled human resources, and ignorance about ASEAN

and AEC among local people and investors. The main objective of the first part of this thesis is to provide detailed analysis of the competitiveness of Cambodia in the context of economic integration with both ASEAN and the world economy. The analysis uses the Revealed Comparative Advantage (RCA) developed by Balassa (1965) to investigate the pattern of comparative advantages and disadvantages of export goods. It then measures the level of intra-industry trade of products exported from Cambodia using the Intra-Industry Trade (IIT) index of Grubel and Lloyd (1975). Finally, a correlation test is applied to test whether there is any relationship between RCA and IIT.

This chapter is organised in the following sections: Section 1.2 provides a general presentation of Cambodia and its economic structures and performance. Section 1.3 presents some historical background of the ASEAN foundation and the progress of AEC integration. Section 1.4 focuses on comparative analysis of Cambodia with other ASEAN members. Section 1.5 analyses the comparative advantages and disadvantages of Cambodian products within intra-ASEAN trade and in trade with the rest of the world. Section 1.6 measures the level of intra-industry trade. Finally, some concluding remarks with policy recommendations are offered Section in 1.7.

1.2 General presentation of Cambodia

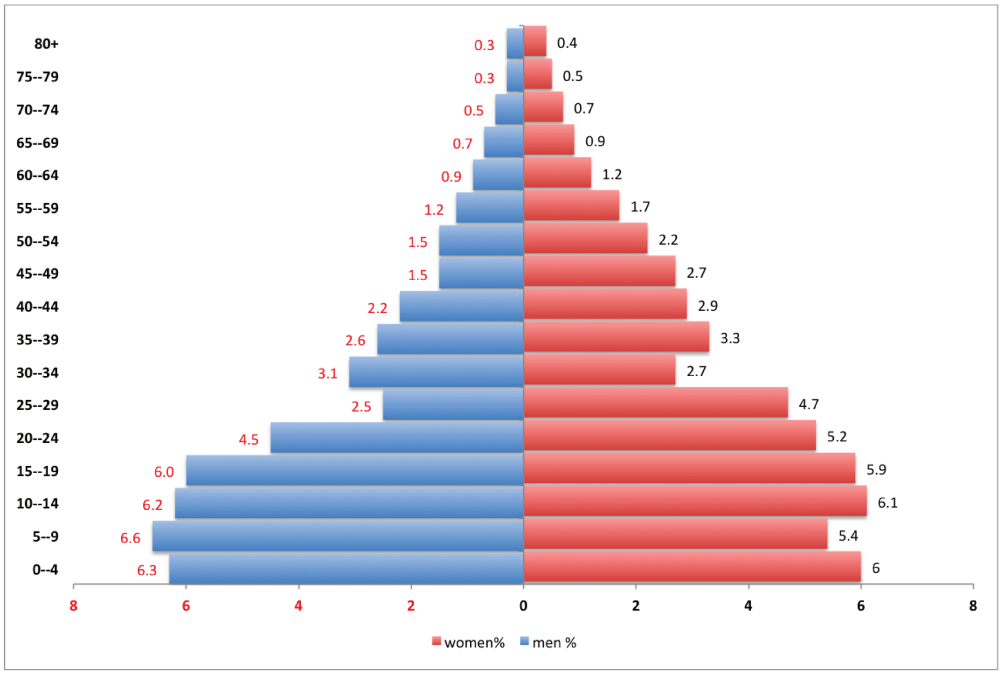
Throughout its long history, Cambodia has experienced many changes of regimes including coups d'état, political conflicts, civil wars, and genocide, which have destroyed most of its economic and social infrastructures. The Kingdom was once a centre of the power and prosperity of the Khmer empire, which extended beyond its current borders during the period when the famous Angkor temple was built. However, last century was generally a period of trouble, and the darkest and most tragic history of this country began in the 1970s following the eruption of war in Indochina. Cambodia then fell under one of the most murderous regimes in the recent history of the world. The civil war in Cambodia ended after peace and national reconciliation were achieved through the Paris Peace Agreement in 1991 and national elections held in May 1993 under the auspices of the United Nations Transitional Authority in Cambodia (UNTAC).

1.2.1 Population

According to the latest population census of 2008, the Cambodian population was 13.4 million with an annual growth rate of 1.54%. The Cambodian population was predicted to reach 15.1 million in 2013 and 15.7 million in 2015. Phnom Penh is the capital of the country, and has a population of about 1.3 million people. As can be

seen in Figure 1.1, the labour force aged 15-64 represents almost 62% of the total population, followed by the 33.7% who are children aged 0-14, while those aged over 64 account for only 4.3% [1].

Figure 1.1: Pyramid of population ages in 2008



Source: Data from National Institute of Statistics

The Khmer is the majority ethnic group, representing around 90% of the total population. Smaller ethnic groups include Vietnamese, Cham, Chinese, and indigenous highlanders. Most Cambodians, some 90%, are Buddhists and Buddhism is declared by the constitution to be the national religion (Article 43 of the constitution). The other religions practised in Cambodia are Islam, Christianity and others. Cambodia's official language is Khmer.

1.2.2 Economic structure and performance

The basics of a market economy in Cambodia were introduced in 1989 to replace the planned economy. The series of reforms were implemented to enhance the private sector as one of the drivers of economic growth. According to Hong (2010), the reforms started with the introduction of private property, the liberalisation of market prices and trades, the convertibility of the current account, and the privatisation of public firms in order to allow free competition in the domestic market and to put an end to monopolies in industries and services. Reforms have also been introduced in the tax, accounting and legal systems since then. However, the reforms resulted in significant macroeconomic imbalances as the government's revenues from the

[1]Source: General population census published by the National Institute of Statistics

new private sectors could not compensate the lost revenues from public firms. The revenues from the private sector contributed enough to finance only 22% of public spending in 1991, down from 36% in 1989. The introduction of several new taxes did not significantly increase tax revenues. However, customs revenues, which covered only 8.5% of total spending in 1989, increased to 37%. This increase was a result of the removal of exemptions from customs duties, but even so the government had to resort to monetary financing of the budget deficit. Issuing money to finance the budget led to hyperinflation as inflation rose to 70% in 1989 and then jumped to 157% in 1990 and to 121% in 1991. This state of monetary crisis led to a crisis of confidence in public finances, and particularly to a loss of confidence in the national currency, resulting in a high level of dollarisation in the national economy (Hong, 2010; Théret, 2007; Khou, 2012).

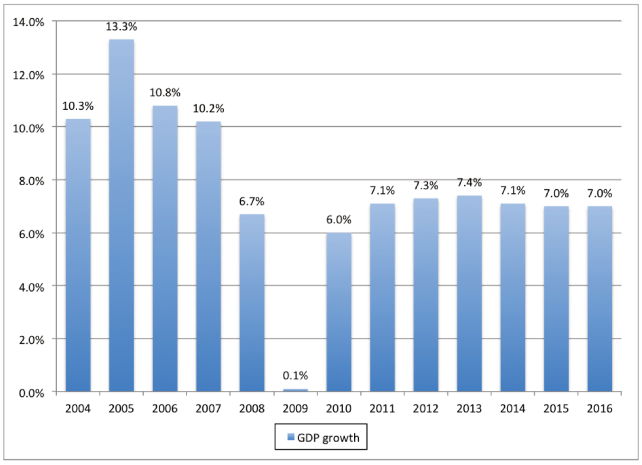
The new Royal Government of Cambodia established after the first democratic election in 1993 continued its reconstruction efforts to adopt market economy structures with assistance from several international donors. The changes in the political and economic regime ended the economic embargo imposed on Cambodia in 1979 and allowed the return of foreign direct investment (FDI) and official development assistance (ODA) for the reconstruction of Cambodia. The implementation of reforms in a new budget system that followed the French budget system, and new legal frameworks for public firms brought inflation down from 121% in 1991 to 0.7% in 1993. As a result, the average annual rate of growth between 1994 and 1998 was 6.3%. However, this growth was highly dependent on only a few sectors, as it was driven by the excessive use of natural resources, ODA and FDI. Forestry, rubber cultivation, and the banking sector were the main drivers of this growth. Most of the ODA was used for rehabilitating the energy sector and water supply.

Solid economic stability has returned since the coalition government won a second election in late 1998 and Cambodia resumed its membership of the UN in December 1998 after a temporary suspension following a military coup in July 1997. The new government was once again recognised by the international community and received support from international donors. According to Hong (2010), the reconstruction period between 1999 and 2003 was focused on economic reforms and social progress. A series of macroeconomic reforms and the growth strategy of government were focused on developing infrastructures, particularly national road networks, maintaining a competitive exchange rate, creating attractive conditions for foreign investment, promoting exports, and integrating with the regional and global economies. As a result, Cambodia became the 10th member of ASEAN in 1999 and the 148th member of the WTO in 2004.

With the return of political stability, democratic institutions, and economic

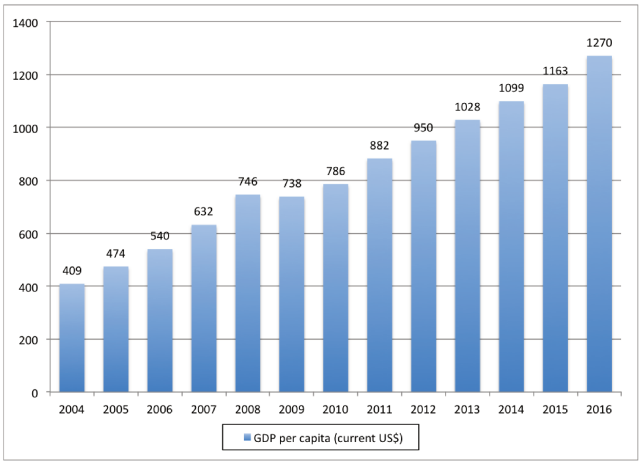
and social infrastructures, Cambodia experienced very rapid growth. Average annual GDP growth was 10.3% in 2004-2008. As Figure 1.2 shows, the double-digit growth in 2004-2007 was the result of strong growth in several dynamic areas including rice and seasonal crops, where average annual growth was 9.7%; mining, where growth was 18.2%; textiles with 16.1%; construction 15.5%; tourism 17.4%; telecommunications and transport 8.3%; finance 21.6%; and real estate 12.4%. However, GDP growth fell to only 0.1% in 2009 because of the global economic crisis. This sharp drop implies that Cambodia's economy is highly exposed to the global economic environment. The economy then made a rapid recovery to grow by around 7%, but this was lower than the level before the crisis. The GDP per capita in Figure 1.3 has increased constantly since 1998. GDP per capita at current USD prices was USD 1270 in 2016, an increase of 62% from 2010. Cambodia has been a lower-middle income economy since 2013, when the national gross per capita income reached USD 1028.

Figure 1.2: Real GDP growth rate 2004-2016



Source: Figure created by author using data from the Ministry of Economic and Finance

Figure 1.3: GDP per capita 2004-2016 at current USD



Source: Figure created by the author using data from the World Development Indicator.

Note: Data were extracted on 01/03/2018

1.2.2.1 The agricultural sector

The agricultural sector in Cambodia is characterised by the co-existence between traditional farming and non-mechanised farming. Farming is considered one of the core industries of the economy, and Figure 1.4 reveals that agriculture contributed to 45.3% of GDP in 1993. The share of agriculture declined to only 24.7% of GDP in 2016 for several reasons, including a drop in fishery production, slower growth of subsidiary and industrial crop production, and particularly the slide in agricultural commodity prices from 2015 (Ministry of Economic and Finance 2016). The sector employs about 60% of the total labour force of the country and the main products of the agricultural sector are rice, fish, livestock and commercial logging.

The government had set as a priority construction work on the irrigation system to expand the perimeter of irrigation coverage and to ensure the supply of water during the dry season. As a result, the production of paddy rice increased to 8.8 million tonnes in 2012 with a surplus of 2 million tonnes of rice for export[2]. The production of fisheries is a major contributor to food security and relies mainly on fresh water fish production, which is a major source of animal protein for most Cambodians. The Cambodian people consume on average 50kg of fish per year, making the country one of the largest consumers of fish per capita in the world. The annual production of the fishery sector is estimated at between USD 1.2 and USD 1.6 billion[3] , and it contributed 5.7% of GDP in 2016 (Table 1.1). Livestock contributed a further 2.8% of GDP in 2016 while the average contribution of commercial logging to GDP was 2.4% in 2008-2016.

[2]Cambodia trade integration strategy 2014-2018
[3]Data from the National Institute of Statistics 2016

1.2.2.2 Industry

Industrialisation in Cambodia is still in the phase of reconstruction and improvement, which is similar to the situation in other developing countries. The core of industry started with the introduction of light industries such as production of garments and textiles and agricultural processing products. Cambodia is seeking to diversify some industries towards information technology, assembly, production of electronics, and extraction of oil and gas by attracting foreign companies to set up production plants in the country. The export of garments and textiles and the expansion of the construction sector are currently the engines of economic growth. Garments and construction together accounted for 74% of industry in 2016. However, the industrial sector is sensitive to trends in the global economy because of its dependence on only two main sectors. During the financial crisis in 2008 for instance, the growth rate of the industrial sector fell to 4% in 2008 and then to -9.5% in 2009, but it recovered to 13.6% in 2010. Table 1.1 shows that the contribution of industry to national GDP increased from 22.4% in 2008 to 29.5% in 2016.

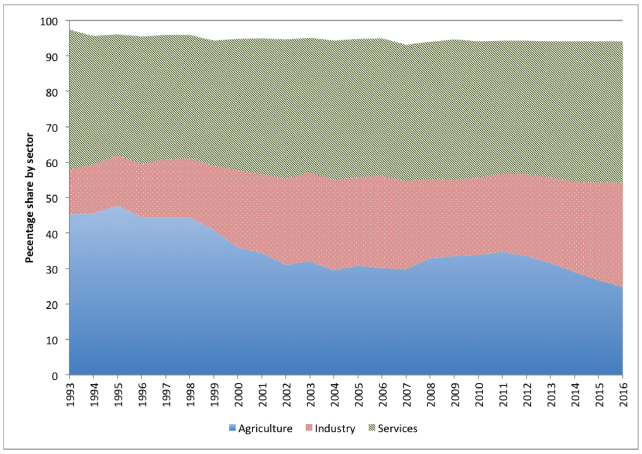
1.2.2.3 Services

The average annual growth in services was 8.5% in 2008-2016. This growth was the result of expansion in tourism, transport, telecommunications, banking, and real estate. The growth rate in services dropped from 20.8% in 2007 to only 4.9% in 2009 and 2.5% in 2010 because of the financial crisis in 2008. In 2016, the service sector provided 39.9% of total GDP. Within the service sector, hotels and restaurants have strong links to the country's tourism sector. Cambodia has a high ratio of tourist arrivals to the total population. Data from the Ministry of Tourism indicate that the number of tourist arrivals increased by 40% in the past five years, from 3.5 million in 2012 to 5.0 million in 2016. The average stay of tourists in Cambodia was 6.3 days, and they generated USD 3.2 billion of revenue in 2016. Other significant sub-sectors of services are trade, transportation and communication, real estate, finance, and public administration. The growth rate of these sub-sectors together was 7.4% in 2016, a little slower than in the previous period, as it was 7.8% in 2015. In transport and communication, the reconstruction and repair of the road network is continuing. By 2040, Cambodia will need 2,230 kilometres of roads, costing up to USD 26 billion[4]. The telecommunications sub-sector has expanded rapidly, especially in mobile phones, where there was an increase from 10.5 million subscribers in 2010 to 20.3 million in 2013, though growth in the number has stagnated since then[5].

[4]Phnom Penh Post news, available at: http://www.phnompenhpost.com/business/2020-9-billion-needed-road-funding-report.

[5]Data from the Ministry of Posts and Telecommunications of Cambodia

Figure 1.4: Structure of GDP by economic activity at current prices 1993-2016



Source: Figure created by author using data from the National Institute of Statistic

Table 1.1: Percentage distribution of the GDP growth rate by economic activity 2008-2016 (at current prices)

Sector	2008	2009	2010	2011	2012	2013	2014	2015	2016
AGRICULTURE	**32.8**	**33.5**	**33.9**	**34.6**	**33.9**	**31.6**	**28.7**	**26.6**	**24.7**
Crops	17.9	18.5	19.0	20.6	19.0	18.7	17.1	15.8	14.6
Livestock & Poultry	4.4	4.5	4.5	4.2	4.5	3.6	3.3	3.0	2.8
Fisheries	7.4	7.6	7.5	7.2	7.5	7.0	6.4	5.9	5.7
Forestry & Logging	3.0	2.9	2.8	2.6	2.8	2.3	2.0	1.8	1.7
INDUSTRY	**22.4**	**21.4**	**21.9**	**22.1**	**21.9**	**24.1**	**25.5**	**27.7**	**29.5**
Manufacturing	15.3	14.3	14.7	15.2	14.7	15.5	15.3	16.0	16.0
Mining	0.4	0.5	0.6	0.6	0.6	0.9	1.1	1.3	1.5
Construction	4.7	5.0	3.7	4.0	4.7	5.4	6.5	9.8	11.4
Electricity, Gas & Water	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.5	0.6
SERVICES	**38.8**	**39.7**	**38.3**	**37.5**	**37.8**	**38.5**	**39.6**	**39.8**	**39.9**
Trade	8.9	8.9	9.3	9.1	9.0	9.1	8.9	9.5	9.5
Hotel & restaurant	4.5	4.4	4.5	4.3	4.6	5.0	5.4	4.9	4.7
Transport and communication	7.4	7.9	7.6	7.6	7.5	7.7	6.4	8.0	8.2
Finance	1.3	1.3	1.4	1.5	1.6	1.5	2.2	1.9	1.9
Public administration	1.8	2.7	1.7	1.6	1.5	1.5	1.1	1.4	1.4
Real Estate and Business	6.4	6.0	5.5	5.2	5.6	5.7	6.4	6.4	6.7
Other Services	8.5	8.5	8.3	8.0	7.9	7.9	9.2	7.8	7.5
TAXES ON PRODUCTS	**7.0**	**6.5**	**7.2**	**7.1**	**7.1**	**7.2**	**8.8**	**7.8**	**7.4**
Less: FISIM	1.0	1.0	1.1	1.0	1.1	1.2	1.6	1.3	1.3
GDP	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

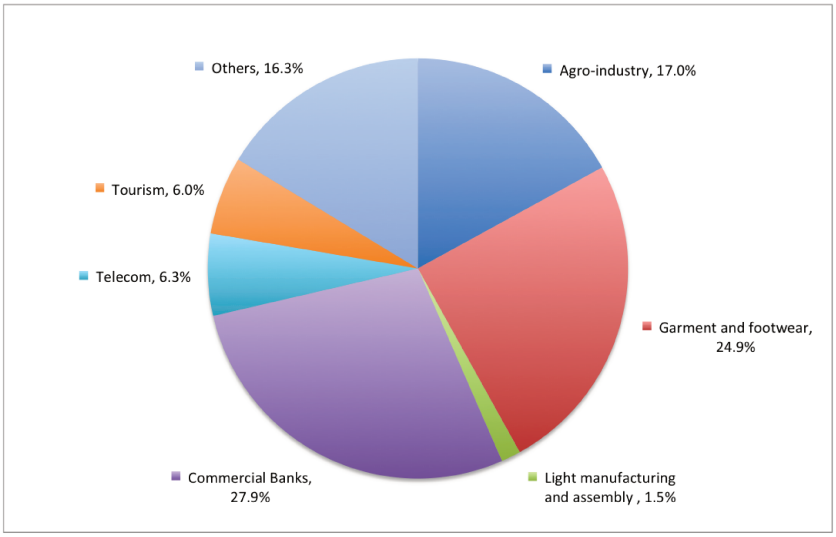
Source: National Institute of Statistic

1.2.3 Overview of FDI

After the end of the civil war, the Cambodian government made significant reforms to attract foreign investment to the country. FDI in Cambodia began in the mid-1990s with a sharp expansion after a comprehensive trade agreement with the United States granted Most Favoured Nation (MFN) status to Cambodian exports, the Qualified Investment Project (QIP) incentive scheme was introduced, and a Special Economic Zone (SEZ) was set up. China, South Korea, Vietnam, Malaysia

and Taiwan have been the top five countries for FDI inflows into Cambodia since 2005, accounting for 65% of the total of USD 6.3 billion in foreign investment in 2005-2012. Chinese investment, focused mostly on hydro-electricity projects, accounted for almost 50% of the total of approved fixed asset proposals in 2005-2012, following by mining with 17%, garments with 14%, and the agro-industry with 12%. Korean and Malaysian investments have focused on four main sectors of tourism, garments, agro-industry, and bio-energy. For Vietnam, 86% of the total approved fixed asset proposals are in agro-industry such as rubber plantations and rubber processing, cashew nuts, cassava, acacia, and rice milling. Taiwan's investment portfolio is focused largely on garments, footwear and other garment-related activities.

Figure 1.5: FDI inflows by sector, 2005-2012



Source: NBC data

Figure 1.5 shows the top five sectors receiving FDI inflows in 2005-2012 were commercial banking with 27.9%, garments and footwear with 24.9%, agro-industry with 17%, telecoms with 6.3%, tourism with 6%, and light manufacturing and assembly with 1.5%. The increase in investment in banking services was the result of robust growth in the economy and exports along with an increase in the credibility of the sector and an improvement in the banking system. Other factors that have attracted more FDI in different sectors include the relaxation of the rules of origin of the Everything-But-Arms (EBA) policy of the European Union, the relatively cost-effective labour force, and the potential for integrating Cambodia into agro-industry supply chains originating in Thailand, Vietnam and China.

1.2.3.1 Investment trend

After the law on investment was passed in 1995, the amount of investment in fixed assets approved by the Council for the Development of Cambodia (CDC) was USD 2.3 billion. The average annual amount of investment between 1994 and 2005 was USD 640 million and five years later, in 2006-2010, it reached USD 5.3 billion, which was approximately 8.3 times more than in the previous period. In 2016, the investment in fixed assets approved by the CDC was USD 3.6 billion. At the same time, Chinese investment surpassed local investment for the first time, accounting for USD 1.08 billion. From 1994 to 2016, the cumulative investment approved by the CDC was USD 60.5 billion. China was in first place among the sources of foreign investments, followed by Malaysia and the UK (Table 1.2).

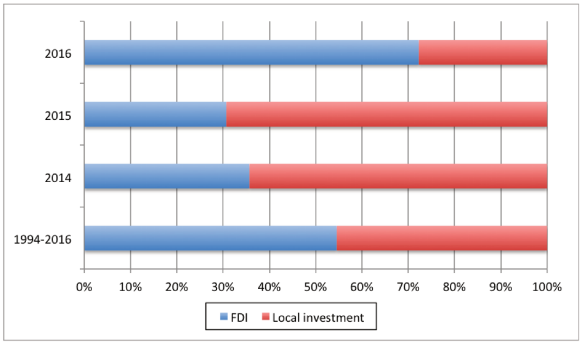
Table 1.2: Approved investment in fixed assets by the CDC by country in million USD (1994-2016)

Country	**1994-2013**		**2014**	**2015**	**2016**	**1994-2016**	
	Total	**Rank**				**Total**	**Rank**
Cambodia	20778	-	2517	3217	1000	27513	-
China	11940	1	961	865	1086	14853	1
Korea	2045	4	65	10	167	2287	4
Malaysia	3394	2	86	75	0	3554	2
UK	2662	3	44	139	0	2846	3
United States	1296	6	0	0	123	1418	7
Vietnam	1645	5	50	89	89	1873	5
Thailand	1097	7	35	55	167	1354	8
Singapore	780	8	35	101	110	1026	9
France	312	10	0	0	0	312	10
Japan	560	9	50	59	827	1496	6
Others	1857	-	72	33	40	2003	-
Total	**48368**		**3915**	**4644**	**3609**	**60536**	

Source: Cambodia Investment Board, CDC, and NBC

Figure 1.6 presents the ratio of FDI to the local investment approved by the CDC from 1994 to 2016. Foreign investment in Cambodia was 31% of total investment in 2014 and 36% in 2015. This ratio jumped to 72% of total investment in 2016 following the sharp increase in investment from China. Overall, the cumulative amount of FDI was around 55% of total investment from 1994 to 2016.

Figure 1.6: Sources of investment in fixed assets 1994-2016



source: Graphic created by the author from the CDC data

Table 1.3 shows the majority of investments by sector of activity went to industry and infrastructure, and those two sectors together accounted for 71% of cumulative investments from 2012 to 2016. The investment in tourism increased significantly in 2016 to 39% of total investment, while the amount of investment in agriculture fluctuated less between its lowest level of 7% in 2014 and its highest of 23% in 2013.

Table 1.3: Approved Investment by sector of activity (2012-2016)

Sector	2012	2013	2014	2015	2016	2012-2016
Agriculture	19%	23%	7%	10%	13%	14%
Industries	50%	22%	72%	20%	33%	37%
Infrastructure	8%	53%	9%	67%	15%	34%
Tourism	23%	2%	12%	2%	39%	14%
Total million USD	**2965.6**	**4962.3**	**3933.4**	**4643.6**	**3609.7**	**20114.6**

Source : CDC

1.2.3.2 Benefits of FDI for development

The economics literature documents quite thoroughly the overall benefits of FDI for economies in developing countries. Studies show that FDI triggers technology spillovers, assists the formation of human capital, contributes to international trade integration, creates a more competitive business environment, and enhances the development of enterprise. As a result, the host country experiences higher economic growth, which is the most potent tool for poverty alleviation. Moreover, beyond the strictly economic benefits, FDI may improve environmental and social conditions in the host country by transferring cleaner technologies and leading to more socially responsible corporate policies (OCDE, 2002).

For Cambodia, FDI stimulates growth through capital formation. In 2009, the Cambodia National Institute of Statistics (NIS) estimated that total capital investment of over USD 15 billion was required between 2009 and 2013, of which USD 6.6 billion or 44% needed to come from abroad. This included remittances from overseas, foreign aid, and FDI. According to an FDI survey in 2014, the stock of FDI

was USD 19.3 billion by the end of 2014. FDI can also facilitate access to new and larger foreign markets through exports. Multinational firms are in a better position to enter foreign markets than domestic firms are, given their experience in operating across many countries. Cambodia's exports are largely driven by the garment and footwear industries, which accounted for 78% of total exports in 2014, and 87% of garment and footwear factories are wholly foreign owned (FDI survey 2016). Another contribution FDI makes to Cambodia's economy is job creation and poverty alleviation. Foreign investment in the garment industry for instance plays a major role in poverty reduction by creating employment and producing export products that can keep pace with competitive criteria in the international market. According to data from the Garment Manufacturers Association of Cambodia in 2013, foreign investments in garment and footwear factories alone have created approximately 450,000 jobs and indirectly feed about 1 million people. The growing number of FDI projects in agricultural crops and agro-processing also significantly increase local employment opportunities and improve livelihoods. In addition, the increase in FDI inflows augments the diversification of job markets while also creating employment in other businesses through backward-linkage and demand for raw materials, spare parts, components, and local services.

Regarding technology spillovers, there has been no study of technology diffusion by foreign firms in Cambodia. However, FDI is perceived to contribute positively to the country by inducing a more efficient economy through technology transfers and spillovers. The inflow of FDI in Cambodia has brought superior technology with it, with advanced managerial skills, improved production processes, and better equipment and machinery being introduced. The transfers occur in the form of machinery and expatriate managers and technicians, as well as through the training of local employees. Moreover, FDI also contributes to community development in Cambodia. Foreign multinationals are increasingly engaged in corporate social responsibility activities associated with codes of conduct, the improvement of health and safety standards, and corporate social investment through community development projects.

1.2.4 Constrains to FDI

According to a qualitative survey[6] by the author in March and April 2013 of the heads of companies located in four special economic zones in the three provinces of Sihanouk, Koh Kong and Svay Reang, most investors have raised some major concerns about doing business in Cambodia. The first concern was the weak

[6]The survey was done for the Cambodia Trade Integration Strategy 2004-2018 project of the Ministry of Commerce in collaboration with the United Nations Development Program (UNDP). The names of the companies surveyed are listed in Appendix A.1.

legal framework, which often leads to corrupt practices and uncertainty in the enforcement of laws or regulations. This has resulted from a weak judicial system, inadequate laws or regulations, and the lack of enforcement. The second concern is the expensive and unreliable supply of electricity. According to CHEN (2015), the price of electricity in Cambodia is very expensive compared to prices in other countries in the region and 90% of energy production is reliant on oil. The high price resulted from the excess demand for electricity and a limited capacity for electricity production. The third constraint is the high cost of transport and the limited supply of it, which affects the country's competitiveness negatively. The fourth constraint is inefficiencies in procedures related to customs and trade regulations. Last but not least, the skill shortage is also a major challenge for investors.

1.3 ASEAN and the progress of economic integration

1.3.1 A brief history of ASEAN

Figure 1.7: Map of ASEAN

Source: ASEAN-JAPAN CENTRE web site http://www.asean.or.jp/en/

In the early stages of World War II, Southeast Asia was not recognised as a region. The countries in Southeast Asia were identified merely by their own names and were not seen as part of a particular region. Most of the countries in Southeast Asia were once colonised by superpowers such as Great Britain, the United States, France or Spain. During World War II the region was called Southeast Asia (SEA) at the Quebec conference in August 1943. The allied countries placed Malaya, Sumatra, Thailand and Burma under Southeast Asia Command (SEAC I) to protect their colonies in the Southeast Asia Region. SEAC I was then expanded by adding the Dutch East Indies, now Indonesia, and the other two countries in Indochina, which were Southern Vietnam and Cambodia.

After the end of World War II, the international structure was dominated by two

superpowers, the United States and the Soviet Union. The competition between the two countries created two ideologically defined groups as the United States and its allies created the North Atlantic Treaty Organisation (NATO) while the Soviet Union formed the Warsaw Pact. The superpower competition and the development of this international system affected other countries, including those in SEA. The superpower strategy persuaded the SEA countries to conform constantly to current demands in order to ensure their national security. Most of the SEA countries had gained independence from colonisation during the 1950s and 1960s, but their situation after achieving independence was very fragile. They faced tremendous internal political instability, conflicts between different ethnic groups, problems of unity, and weak levels of security and national defence systems. These problems worried the SEA countries and motivated them to engage in setting up a regional organisation that could provide an alternative foundation for peace in the region (Keling et al., 2011).

The idea of establishing ASEAN[7] started with few bilateral and multilateral agreements, which first began with the signing of the Southeast Asia Friendship and Economic Treaty (SEAFET) in January 1959. However, the idea for establishing SEAFET was narrow since it was limited to cooperation in the economy, trade, and education. It failed because of disagreements between member countries. However, the idea inspired the creation of a new regional organisation. The Association of Southeast Asia (ASA) was then set up on July 31, 1961, bringing together three states as members: Malaya, Thailand, and the Philippines. The ASA aimed to establish peace and regional stability through cooperation in economies, social science, culture, and training facilities for the benefit of member states. However, the ASA also met with failure due to conflict and arguments between Malaya and the Philippines as the Philippines withdrew from the ASA in response to Malaya, which proposed to claim Sabah and incorporate it into Malaysia.

After the end of the tension between them, the SEA countries tried to revise the relationship between member states, learning from their previous experience to set up a stable and solid regional organisation. To this end the Bangkok conference held on August 8, 1967 was concluded with the Bangkok Declaration establishing the Association of Southeast Asian Nations (ASEAN). The five founding countries that signed this declaration were Indonesia, Malaysia, the Philippines, Singapore and Thailand. The formation of this association was driven by the political and security situation in the region rather than by the economic benefits (Mukim, 2005). ASEAN

[7]Recommended reading for more details about ASEAN history:

1. Keling, M. F. et al. 2011, The Development of ASEAN from Historical Approach, Asian Social Science, Canadian Center of Science and Education, vol. 7, No. 7, pp. 169-189.
2. Mukim, M. 2005, ASEAN Foreign Direct Investment Trends : Implication for EU-ASEAN Relations, European Policy Center, Issue 31, pp. 1-31.

has successively increased its membership to 10 countries, adding Brunei in 1984, Vietnam in 1995, Laos in 1997, and lastly Cambodia and Myanmar in 1999.

1.3.2 Regional economic integration: From the ASEAN free trade area to the ASEAN Economic Community

The literature on economics finds that the benefits from economic integration include expansion of the market through economies of scale and scope; improvement in resource allocation from the free movement of production factors; increases in multilateral bargaining power; improvement of resource pools from the inflow of capital, investment and labour; and increases in competition resulting in increased efficiency and innovation (Whalley, 1996; Chia, 2013). In this light the ASEAN member states have been trying not only to reinforce political security in the region but also to manage a deeper integration into one economic community. The integration processes have been carried out in a series of steps.

At first, after tension and conflicts between some member countries ended, ASEAN was striving for peace and security in the region. This primary goal was achieved, which pushed the ASEAN countries to move forward into economic cooperation between member states. This led to a Preferential Trading Agreement (PTA) being adopted in 1977 to create a trade promotion framework between the ASEAN countries through preferential tariffs, export credit support, and long-term quantity contracts. However, the impact of the PTA was limited because the tariff concessions granted by the ASEAN countries were too small. The product groups that received preferential treatment represented only a marginal proportion of intra-ASEAN trade, and the tariff reductions of 20-25% were not significant (Cuyvers et al., 2005). This is because the ASEAN members did not feel any need for trade liberalisation because of the different levels of development between ASEAN countries and the high rates of economic growth in the region. Changes in the international environment, specifically the development of new trading blocs in North America and Europe, pushed ASEAN members to speed up the process of trade liberalisation in order to stay competitive and to reinforce export capacity for this huge market. The liberalisation process became more serious in January 1992, following the decision of six member countries, namely Indonesia, Malaysia, the Philippines, Singapore, Thailand and Brunei Darussalam, to create the ASEAN Free Trade Area (AFTA). The framework of the AFTA was then extended with the introduction of the ASEAN Framework Agreement on Services (AFAS) in 1995 and the ASEAN Investment Area (AIA) in 1998. The elimination of tariff barriers between ASEAN countries would transform the ASEAN region into a single production base with a regional market of 500 consumers (Cuyvers et al., 2005).

The liberalisation of trade has happened in a series of cautious steps. The reduction of import duties on intra-ASEAN imports to 0-5% is scheduled to be achieved over a period of 15 years, meaning the AFTA would be fully established in 2018 counting from the starting of the trade liberalisation on January 1, 2003. The meeting of ASEAN economic ministers in September 1994 decided to accelerate this to a period of 10 years rather than 15 years, and in 2002 the ASEAN countries decided to eliminate tariffs on intra-ASEAN imports completely by 2010 for ASEAN-6[8] and by 2015 for ASEAN-CLMV[9] .

The second step was the implementation of the AFTA through the introduction of a main instrument called the Common Effective Preferential Tariff (CEPT) Scheme. The CEPT agreement applies to all manufactured and semi-manufactured products including capital goods and processed agricultural products, but it excludes agricultural products (CEPT, art.3). Moreover, goods were classified under the liberalisation process into two groups, with a distinction between the fast track scheme and the normal track scheme. The goods in the fast track scheme are the 15 six-digit groups of goods in the Harmonize System[10]. The import tariffs on these groups of goods have to be reduced to 5% by 2002 (CEPT, art.4.1). This target date was extended for the ASEAN-CLMV to 2006 for Vietnam, 2008 for Laos and Myanmar, and 2010 for Cambodia. The AFTA agreement also allowed the member countries to refuse tariff reductions on certain sensitive goods from both the normal track scheme and the fast track scheme. Under this agreement, the lists of goods included, the lists of goods temporarily excluded, the lists of sensitive goods, and the lists of goods with exemptions were created by all the member states. The ASEAN Trade in Goods Agreement (ATIGA) later succeeded the AFTA in May 2010, and it consolidated and synergised diverse positions on merchandise trade into a single document. The goods on the temporary exclusion list can be excluded from trade liberalisation for a limited period only and they are later transferred to the included goods list in order to reduce the tariff to a maximum of 5%. The list of sensitive goods, which mainly contained unprocessed agricultural products, had to be subjected to tariff liberalisation by 2010 for ASEAN-6 and by between 2013 and 2017 for CLMV. Import tariffs on goods on the included list were eliminated in 2010 for ASEAN-6 but they still applied in ASEAN-CLMV until 2015 with the possibility of extension until 2018 (ATIGA, art.19). The goods on the list of general exemptions are excluded permanently from

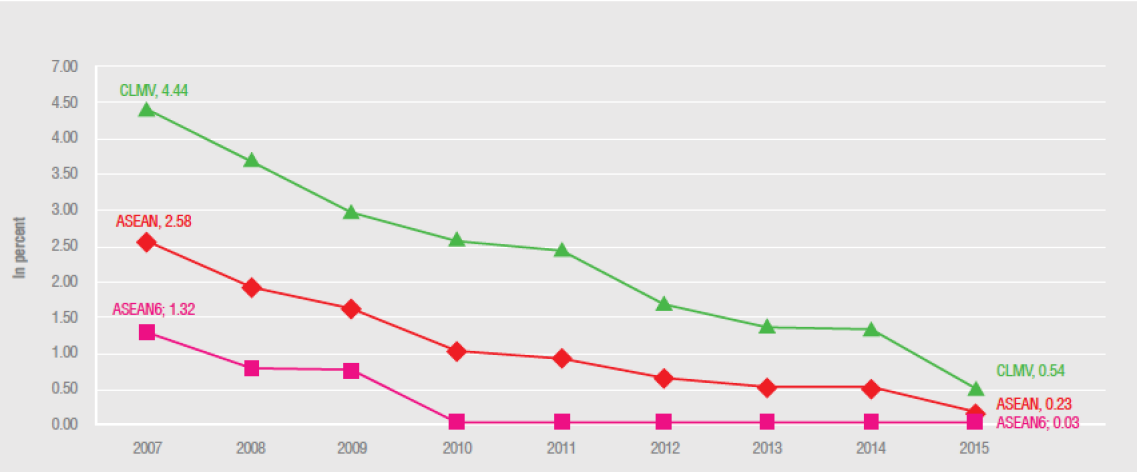
[8]ASEAN-6 refers to the six more developed members: Indonesia, Malaysia, the Philippines, Singapore, Thailand and Brunei Darussalam.

[9]ASEAN-CLMV refers to the newer members Cambodia, Laos, Myanmar and Vietnam, which are usually considered less developed.

[10]The harmonised system of designation and codification of merchandises is the basis of customs tariffs. It is defined and updated by the World Organisation of Customs.

trade liberalisation for reasons of national security, public morality, environmental protection, and protection of articles of artistic, historic and archaeological value. Under ATIGA, several changes were made to the initial schedule of tariff reductions and eliminations in the CEPT. First, the timeframe for cutting the tariff to 0-5% was shortened. Second, the tariff reduction from 0-5% to 0% was agreed by country members. Lastly, the target dates for eliminating tariffs for priority sectors were advanced (Chia, 2013).

Figure 1.8: average tariff rate on intra-ASEAN imports



Source: Figure copied from the report in the ASEAN Economic Community Chart Book 2015 published in 2016

For the CLMV, the average CEPT tariff has gradually decreased from 7.3% in 2000 to below 2.5% since 2010, and it reached 0.54% in 2015. In 2010-2012 Cambodia applied the highest CEPT tariffs. Contrary to expectations, the average CEPT tariff increased from 4.6% in 2010 to 4.8% in 2012. Despite the general trend of reduction in the CEPT tariff, the divergence between ASEAN countries has increased in recent years due to the CLMV eliminating tariffs at a slower pace than the ASEAN-6. The ASEAN-6 applied 99.1% of preferential tariff lines at a rate of 0% under CEPT-AFTA in 2012, while the CLMV increased their share of preferential tariffs to 67.6%. This represents movement in the right direction as their objective is to raise tariff elimination to 93%. Under the intra-ASEAN tariff reduction plan, the import tariffs applied by CLMV on all products had to be eliminated by 2015 with flexibility for 7% of products, which could be extended until 2018 (ASEAN Secretariat and the World Bank 2013). Figure 1.8 shows that the average ASEAN tariff rate on intra-ASEAN imports dropped to 0.23% in 2015 from 0.54% in 2014.

Finally, the objective of economic integration of ASEAN members is to establish an ASEAN Economic Community (AEC). In October 2003, ASEAN decided to

create the AEC by 2020. The AEC was to be introduced by 2015 for the ASEAN-6 and managed over a longer timeframe of 2018-2020 for ASEAN-CLMV. The AEC is an ambitious integration effort that includes production factors and conflict resolution mechanisms. The aim of this community is to transform ASEAN into a single market and a production base, and to create a region that is fully competitive with equitable development in the global economy (ASEAN, 2009). A single market and production base consists of (1) free flows of goods with the reduction or elimination of tariffs and non-tariff barriers; (2) the free flow of services; (3) the free flow of investment; (4) freer flows of capital; and (5) the free flow of skilled workers.

The AEC is considered an important benefit for all member states. The monitoring report on the integration process published jointly in 2013 by the World Bank and ASEAN stated that AEC integration could increase the welfare of the countries by 5.3%, or USD 69 billion of revenue, in 2009. This gain was more than six times bigger than the estimated effect of simply an ASEAN Free Trade Area (AFTA). Other advantages that could result from the AEC include an increase in GDP per capita of 26%-38% for the ASEAN-6 countries; a bigger inflow of FDI with an increase in the FDI stock of 28%-63%; an increase in GDP growth of between 0.5% and 1%; an expansion of trade in merchandise, with a huge and competitive market for consumption providing cheaper products and a bigger range of them; a lower cost of capital and a reduction in labour shortages thanks to the flexibility in the labour market; and smaller gaps between the ASEAN members states. However, Chia (2013) argues that the AEC is neither a customs union[11] nor an entirely common market[12] meaning it is therefore different from the common market of the European Union.

1.4 The position of Cambodia in ASEAN

1.4.1 Land and population

Land and population, in economic terms, have fundamental factor endowments for the economic activities of a country. The abundance of these factors determines the trade patterns of the country. In 2014, the ASEAN population was 625 million people, and it is expected to reach 694 million by 2025. The ASEAN population accounts for 8.6% of the world total, and it is equal to the combined populations of Latin America and the Caribbean, and larger than the population of the European Union. Cambodia is one of the least populated countries in the area, with relatively

[11] A customs union with a common external trade policy.

[12] Common market with free movement of capital, labour and harmonization policy

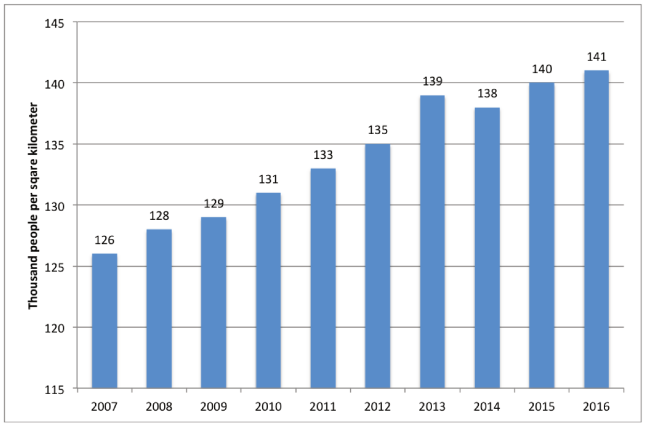
abundant land available. In 2016, the Cambodian population density was 84 people per square kilometre, while Singapore had the highest population density of 7261 people per square kilometre (Table 1.4). The growth rate of the Cambodian population between 2010 and 2016 is estimated to have been around 1.2% per year, which is approximately equal to the average growth rate of ASEAN.

Table 1.4: Population statistic in 2016

Country	Total Population	Total Land	Population density	Growth rate
	(in thousand)	(km2)	(Pop/km2)	(%/year)
Cambodia	15,158	181,035	84	1.2
Laos	6,621	236,800	27	2.0
Myanmar	52,917	676,576	78	0.9
Vietnam	92,695	331,231	280	1.1
Brunei	423	5,765	73	1.4
Singapore	5,607	719	7261	1.3
Philippines	103,242	300,000	344	1.7
Thailand	67,454	513,120	131	0.3
Indonesia	258,705	1,913,579	135	1.3
Malaysia	31,660	331,388	96	1.5
ASEAN	604 803	4,490,212	141	1.2
CLMV	167,991	1,425,642	119	1.3
ASEAN6	436,812	3,064,570	145	1.0

Source: ASEAN statistical data 2017

Figure 1.9: Population density of ASEAN 2007-2016



Source: ASEAN statistical year book 2016/2017

1.4.2 Economic development

Cambodia is in the lowest income group of the 10 ASEAN countries, known as the Transition Economies in Southeast Asia (TESA). The four countries in the TESA group are Cambodia, Laos, Myanmar and Vietnam, and the GDP per capita of TESA was between USD 1266 and USD 2402 in 2016. In the same period,

the GDP per capita of ASEAN-6 reached USD 16,929 (Table 1.5). The GDP per capita of Cambodia was USD 1266 in 2016, which is a long way behind the level of the ASEAN-6 economies. The different level of GDP per capita indicates the difference in the revenues and the stage of development between Cambodia and the other ASEAN economies. The performance and growth of the Cambodian economy between 2008 and 2011 was very satisfactory despite the global economic crisis, which affected the country and slowed GDP growth in 2009 to a rate of 0.1%. Even though Cambodia was affected by the 2008 crisis, the rate of GDP growth recovered rapidly in 2010, and the average annual growth rate between 2010 and 2016 was maintained at 7.1%. Most of the ASEAN countries maintained a high level of growth at around 5.1% between 2010 and 2016, when the average GDP growth rate for CLMV was 6.9% and that for ASEAN-6 was 3.8%.

Table 1.5: GDP and inflation

Country	GDP* Per capita USD	GDP ** Million USD	GDP growth rate Average 2010-2016	Inflation rate Avg of period 2016
Cambodia	1,266	19,194	7.1	3.0
Laos	2,402	15,903	7.6	1.6
Myanmar	1,297	68,636	7.0	7.0
Vietnam	2,138	198,196	6.0	2.7
Brunei	26,493	11,206	-0.5	-0.7
Singapore	52,963	296,977	3.8	-0.5
Philippines	3,017	311,453	6.1	1.8
Thailand	6,034	407,048	3.0	0.2
Indonesia	3,600	931,216	5.5	3.5
Malaysia	9,464	299,632	5.1	2.1
ASEAN	4,034	2,559,463	5.1	
CLMV	1,776	301,929	6.9	
ASEAN6	16,929	2,248,534	3.8	

Source : ASEAN statistical year book 2016/2017(ASEAN, 2017)

*The combined GDP per capita for ASEAN, CLMV, and ASEAN6 is computed as average for each group.

**The combined GDP of ASEAN, CLMV and ASEAN6 is computed as the sum of GDP at current prices for each group.

1.4.3 Trade

The increase in intra-regional trade is a common measure of integration for a future trading bloc. ASEAN focuses on reducing trade barriers and on intra-regional investments in order to compete more effectively with the rest of the world (Chia, 2013). Intra-ASEAN trade, as shown in Table 1.6, experienced a significant

improvement, with an increase from 17% in 1990 before the creation of the Free Trade Area to 28.9% in 2015. However, the share of intra-bloc trade is still well below the level of 50% of total trade in 2015 for NAFTA (the North American Free Trade Agreement) or of 63% for the European Union (WTO, 2017b).

Table 1.6: Intra-ASEAN trade in goods as a percentage of the total trade of each country, 1990-2015

Country	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**
Cambodia	56.6	73.6	24.8	15.8	45.9	26.4
Laos	63.2	55.7	65.1	65.2	62.2	64.4
Myanmar	26.9	39.1	35.6	51.2	43.2	40.3
Vietnam	16.6	25.0	23.5	21.2	18.0	12.8
Brunei	27.5	35.3	33.9	34.1	24.7	27.6
Singapore	19.5	26.2	26.1	31.3	27.3	25.9
Philippines	9.3	11.7	15.6	18.1	23.9	19.9
Thailand	12.6	15.6	18.1	20.0	19.8	23.1
Indonesia	9.3	14.6	18.2	22.9	24.6	21.7
Malaysia	24.3	22.4	25.4	25.5	30.4	27.4
ASEAN	17.0	21.1	22.8	25.5	25.6	28.9

Source: ASEAN Secretariat trade statistics 2013, ASEAN statistical year book 2016/2017

For Cambodia, the share of intra-ASEAN trade declined between 1990 and 2015 from 56.6% in 1990 to only 26.4% in 2015. The dependence of Cambodia on the ASEAN market was reduced due to an increase in exports of garments and textiles to the US and European markets. The dependence on intra-ASEAN trade is highest for Laos at 65.4% of the country's trade and lowest for Vietnam at 12.8%. Laos is landlocked and heavily dependent on trade with its neighbours like Thailand, while the dependence of Vietnam on intra-ASEAN trade decreased as a result of the normalisation of trade with the United States and after its accession to the WTO.

Table 1.7: Intra-ASEAN trade by country, 2015

Country	Intra-ASEAN Imports			Intra-ASEAN Exports			Intra-ASEAN Trade Total		
	Million USD	%	% of count.	Million USD	%	% of count.	Million USD	%	% of count.
Cambodia	690	0.2	39.6	690	0.24	8.1	1,379	0.2	26.4
Lao	1,578	0.5	73.5	1,578	0.55	52.9	3,156	0.5	64.4
Myanmar	4,462	1.6	41.6	4,462	1.55	38.5	8,925	1.6	40.3
Vietnam	18,064	6.3	14.4	18,064	6.29	11.1	36,127	6.3	12.8
Brunei	1,240	0.4	43.4	1,240	0.43	19.5	2,479	0.4	27.6
Singapore	107,803	37.5	21.1	107,803	37.53	30.1	215,606	37.5	25.9
Philippines	8,537	3.0	24.3	8,537	2.97	14.6	17,074	3.0	19.9
Thailand	55,165	19.2	20.3	55,165	19.20	25.7	110,330	19.2	23.1
Indonesia	33,572	11.7	21.0	33,572	11.69	22.3	67,145	11.7	21.7
Malaysia	56,169	19.6	26.5	56,169	19.55	28.2	112,338	19.6	27.4
ASEAN	287,279	100	32.6	287,279	100	25.1	574,558	100.0	28.9

Source: ASEAN statistical year book 2016/2017

Table 1.8: Trade patterns between Cambodia and ASEAN-5 in 2013

STIC Code	**Products**	**Export**	**%**	**Import**	**%**
		Million USD		**Million USD**	
0	Food and live animals	29	3.2	148	10.5
1	Beverages and tobacco	15	1.7	170	12.0
2	Crude materials, inedible, except fuels	47	5.3	28	1.9
3	Mineral fuels, lubricants and related materials	1	0.1	479	33.8
4	Animal and vegetable oils, fats and waxes	11	1.2	2	0.1
5	Chemicals and related products, n.e.s.		-	117	8.2
6	Manufactured goods classified chiefly by material	11	1.3	300	21.2
7	Machinery and transport equipment	55	6.2	281	19.9
8	Miscellaneous manufactured articles	691	77.9	37	2.6
9	Commo. and trans. not classified elsewhere in SITC	27	3.0	3	0.2
	Total	**887**	**100.0**	**1417**	**100.0**

Source: Author's calculations based on UN COMTRADE data
ASEAN-5: Singapore, the Philippines, Thailand, Indonesia and Malaysia

Table 1.7 shows that countries have an asymmetric dependence on intra-ASEAN trade. Countries such as Brunei Darussalam, Cambodia, Laos and Myanmar are much more dependent on ASEAN as a source of supply than as a market,

whereas Singapore, Thailand, Malaysia and Indonesia are more dependent on it as a regional market. In 2015, Malaysia, Thailand and Singapore accounted for 76.3% of intra-ASEAN trade, with Singapore alone accounting for 37.5%. Intra-ASEAN trade has increased since the establishment of AFTA in 1993, growing from USD 82 billion in 1993 to USD 575 billion in 2015.

The trade patterns in Table 1.8 illustrate and confirm that the competitive advantages of Cambodia's exports are built on labour-intensive sectors with low value-added products. The development in exports has become increasingly important for economic growth, especially after the accession of Cambodia to the WTO. Exports accounted for 50% of GDP in 2011, but like in many other developing countries, the level of export diversification is very low. Cambodia's exports are concentrated in limited groups of products. As can be seen in Table 1.8, nearly 79% of exports to ASEAN are in the group of miscellaneous manufactured articles, which consists mainly of clothing, clothing accessories, and shoes.

1.4.4 Foreign direct investment

According to the ASEAN Foreign Investment Statistics database, FDI inflows to ASEAN increased by 7% in 2013 from about USD 114 billion to USD 122 billion. The top foreign investors in ASEAN in 2013 were the European Union, followed by Japan and China. This increase in investment was partly the result of opportunities created by the prospect of the ASEAN Economic Community and the emergence of Vietnam, Myanmar, Laos and Cambodia, and partly due to increased pressure on foreign investors to mitigate the risks of over-dependence on factories in China by looking for other alternative destinations for investment.

As foreign investors looked for alternatives to China, Vietnam proved itself one of the most attractive destinations for multinational companies, attracting over USD 12 billion of FDI during the first seven months of 2013. Vietnam is likely to face increasing competition from other ASEAN members as the establishment of the AEC approaches. However, as it has a large potential domestic market, an abundant working-age population, low labour costs and relatively high productivity, better infrastructure, political stability, and pro-investment policies, it is likely that Vietnam will attract more inflows of FDI. Another potential destination for FDI in ASEAN is Myanmar. Since 2010 and the end of military rule, Myanmar has made significant political and economic reforms that have led to the economic sanctions imposed by the West being loosened. The new reforms along with the introduction of a foreign investment law in January 2013 helped attract foreign investors and multinational companies from both developed and emerging countries. Cambodia has also witnessed steady growth in FDI inflows. According to data from the

National Bank of Cambodia, FDI inflows to the country increased by 139% between 2012 and 2013. This sharp increase is partly the result of pull factors, including preferential market access, low wages, a beneficial geographic location, an open investment and trade policy, political stability and economic growth. The inflows of investment are also driven by push factors such as rising wages, labour shortages, natural disasters, and political unrest in China and Thailand.

1.5 Measuring the revealed comparative advantage of Cambodia

Balassa (1965) uses the Revealed Comparative Advantage (RCA) index to investigate the pattern of comparative advantages and disadvantages for export goods and services empirically. The index is calculated as follows:

$$RCA_{ij} = (X_{ij}/X_{in})/(X_{tj}/X_{tn}) \tag{1.1}$$

where X_{ij} is the export value of product group i of country j, X_{in} is the export value of product group i of a set of countries n. X_{tj} is the total export value of country j, and X_{tn} is the total export value of the set of countries. RCA measures a country's exports of a commodity relative to its total exports and to the corresponding exports of a set of countries or of the world. A country is considered to be specialised in exports of a certain commodity if its market share is higher than the average of the reference area. Balassa's index ratio estimates that a country j has comparative advantage in product i if the index is greater than 1 and a comparative disadvantage if it takes a value between 0 and 1. However, the utility of this in comparative studies is limited and problematic since the index is computed by taking account only of export flows and it does not distinguish between exporters, importers, and sector-specific factors affecting export flows such as trade barriers, differences in preferences, trade relationships, and so on (Yu et al., 2009; Leromain and Orefice, 2014). Even though there are some drawbacks in this calculation, Balassa's RCA index is widely used in most of the literature to assess whether or not a country has a comparative advantage in a commodity while ignoring the sophisticated factors that affect trade flows, since quantifying those factors is complicated.

To verify the comparative advantage or disadvantage of export products from Cambodia to the intra-ASEAN market and to the world market, Equation 1.2 and Equation 1.3 are reformulated to represent both markets, giving:

$$RCA^a_{ij} = (X^a_{ij}/X^a_{in})/(X^a_{tj}/X^a_{tn}) \tag{1.2}$$

$$RCA_{ij}^{w} = (X_{ij}^{w}/X_{in}^{w})/(X_{tj}^{w}/X_{tn}^{w}) \tag{1.3}$$

The data used in these estimations are generated from the Trade Map of the International Trade Center (ITC). The data are calculated from UN COMTRADE and ITC statistics, using both direct and mirror data at 2-digit level of the harmonised system code (HS code).

Figure 1.10 presents the average RCA of products exported from ASEAN countries to the intra-ASEAN market. We can see immediately that the average RCA of Cambodia is higher than one, indicating that products exported from Cambodia to the ASEAN market have a comparative advantage in the Ricardian sense of over those of other member states. Cambodia has maintained a higher average value of RCA than other countries in the region except in 2013 and 2014, when Laos had the highest values for average RCA. A significant increase in the Cambodian average RCA index from 2.5 in 2004 to 3.7 in 2007 came mainly from the sharp rise in the comparative advantage of product group HS49 (printed books, newspapers, pictures and other products of the printing industry), in which the RCA index was between 183 and 222. The other ASEAN countries that kept an average RCA above one are Indonesia, Laos, Thailand and Vietnam. The other member states, which are Malaysia, Myanmar, the Philippines, Singapore and Brunei, had average RCA persistently below one over this observation period.

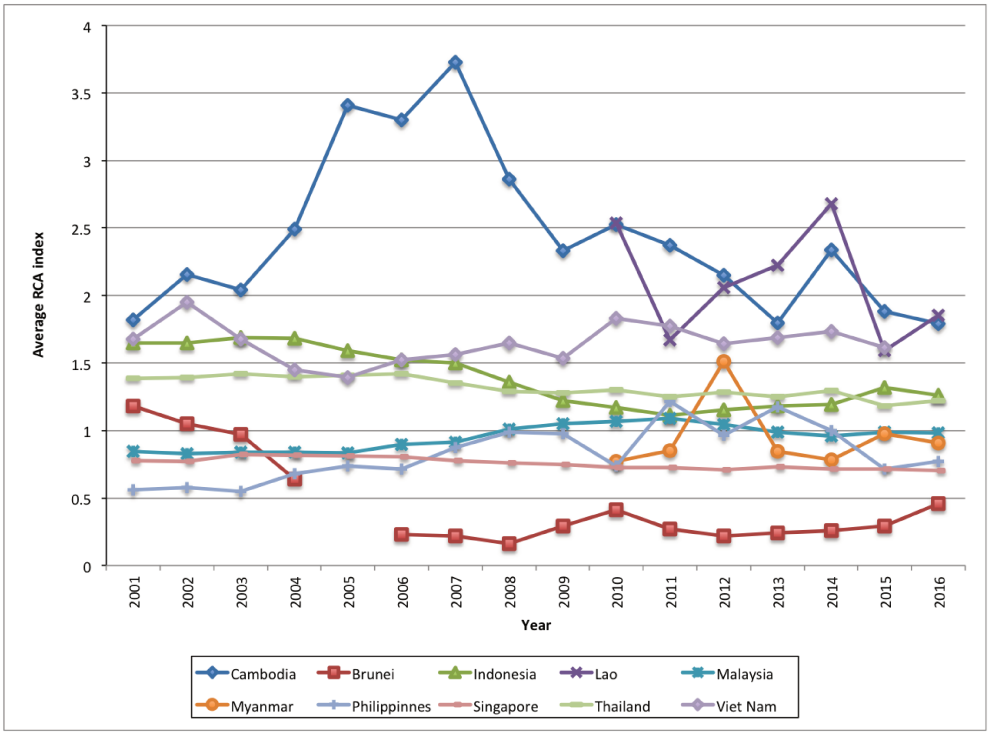
Despite Cambodia having the highest average RCA index among the ASEAN member states, it cannot be generalised that all the export commodities from Cambodia have a comparative advantage over the other member countries. The high average RCA index may be inflated by the high index value of certain commodities, as mentioned earlier. Figure 1.10 reveals the distribution of RCA above unity (RCA>=1) and RCA below unity (RCA<1) for each country at the HS 2-digit level. The results show that the proportion of comparative advantages (RCA>=1) is quite low, ranging from a low of 3% to a high of 27% for Brunei, Cambodia, Laos, Myanmar and the Philippines. The rest of the members have more comparative export advantages than export disadvantages for intra-ASEAN exports, particularly Thailand, in which over 50% of the total products had a comparative advantage during the observation period 2001-2016.

Table 1.9 depicts the top 10 RCA products exported from Cambodia to the ASEAN market with comparison to the RCA of the rest of the member countries. The 10 groups account for 87% of the total value of exports from Cambodia to the ASEAN market in 2016. Among the 10 groups, the product group HS-71 (natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad) is the top group for export value with an RCA index of 11.1. In this product category, only

Indonesia and Thailand have comparative export advantages with index values of 3.1 and 1.7 respectively. The highest RCA index among the top 10 export products is HS-61 (articles of apparel and clothing accessories, knitted or crocheted), which has an index of 34.1. In the HS-61 group, garments are the main commodity. Among the other members, only Indonesia has a comparative advantage of 1.0, while the other member states have export disadvantages.

The results in Table 1.9 also indicate that Cambodia does not always export the products that have comparative advantages. For instance, although the product groups HS-85 (electrical machinery and equipment and parts thereof; sound recorders and reproducers, television) and HS-84 (machinery, mechanical appliances, nuclear reactors, boilers; parts thereof) have an RCA smaller than one, their export values rank second and eighth in the top 10 export products to the ASEAN market. This result can be justified under the comparative advantage theory of Ricardo (1817)), which argues that although one country is less efficient than another in the production of two goods, there exists a basis for mutual beneficial trade as long as the absolute disadvantage of that country against its trading partner is not in the same proportion for both goods.

Figure 1.10: Average RCA of intra-ASEAN trade 2001-2016



Note: Data are missing for Brunei in 2005 and Vietnam in 2016.
Data are available for Laos and Myanmar from 2010

Figure 1.11: RCA distribution of ASEAN countries for the intra-ASEAN market 2001-2016

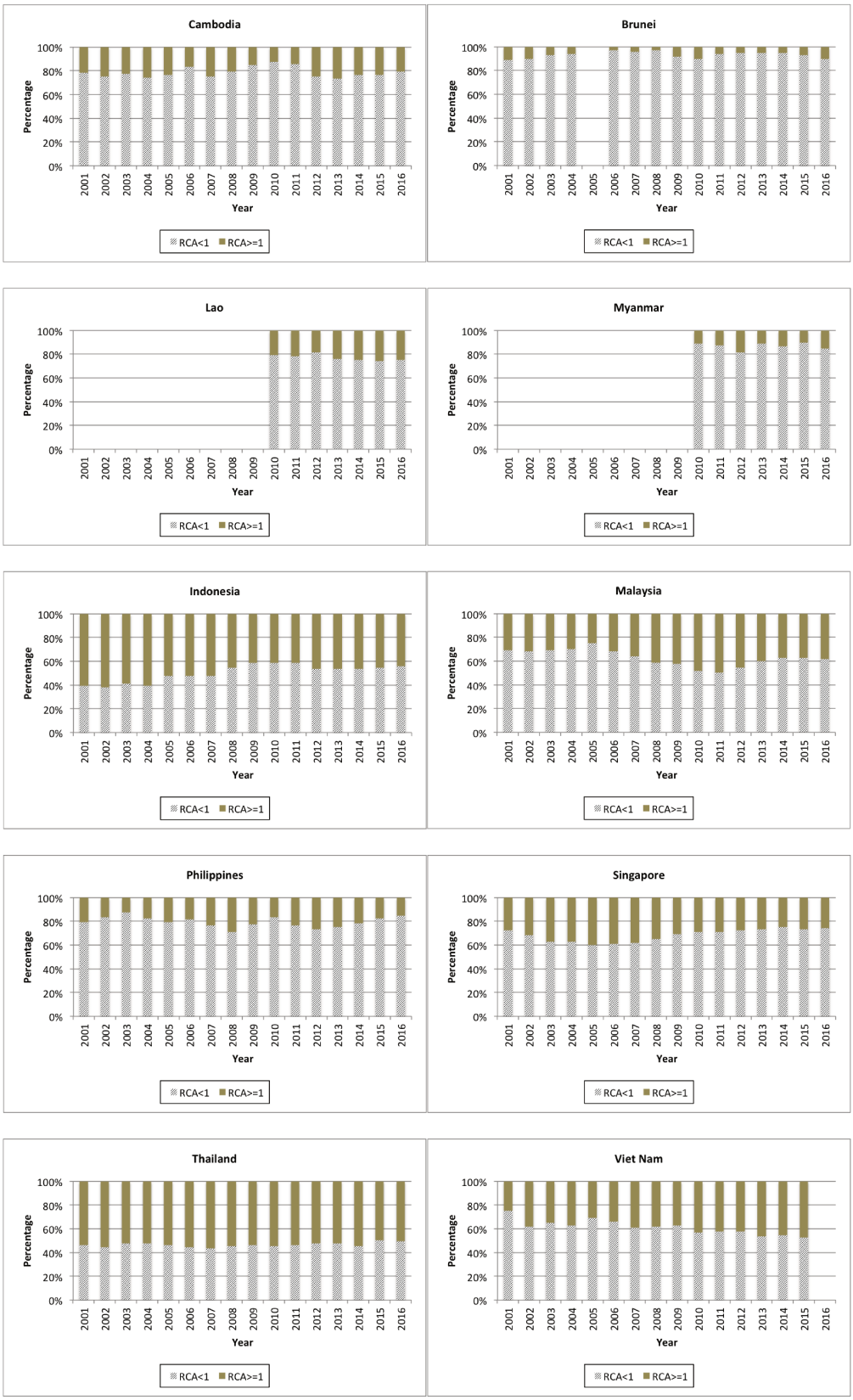


Table 1.9: Comparison of the RCA index of the top ten Cambodian export commodities to the intra-ASEAN market in 2016

Rank	HS Code	Commodity	Cambodia	Brunei	Indonesia	Lao	Malaysia	Myanmar	Philippines	Singapore	Thailand
1	71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ...	11.1	0.1	3.1	0.2	0.5	0.1	0.0	0.4	1.7
2	85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television..	0.8	0.2	0.3	0.9	1.2	0.2	2.6	1.2	0.5
3	40	Rubber and articles thereof	11.9	0.2	0.8	2.7	0.6	0.9	0.4	0.4	2.4
4	61	Articles of apparel and clothing accessories, knitted or crocheted	34.1	0.1	1.0	0.2	0.7	0.3	0.3	0.8	0.5
5	35	Albuminoidal substances; modified starches; glues; enzymes	32.2	0.1	0.4	0.0	0.8	0.0	0.5	0.9	1.4
6	10	Cereals	8.2	0.7	0.0	6.0	0.1	1.3	0.0	0.0	2.9
7	17	Sugars and sugar confectionery	5.2	0.0	0.4	4.1	0.2	0.1	0.2	0.0	4.1
8	84	Machinery, mechanical appliances, nuclear reactors, boilers; parts thereof	0.3	0.5	0.5	0.1	1.0	0.9	1.0	1.2	1.2
9	64	Footwear, gaiters and the like; parts of such articles	5.8	0.1	1.0	1.2	0.4	0.5	0.1	0.7	0.4
10	24	Tobacco and manufactured tobacco substitutes	2.8	0.0	2.8	6.3	0.6	0.4	2.4	1.0	0.2

Note: Data for the intra-ASEAN exports of Vietnam are not available for 2016

For exports to the world market, Figure 1.12 shows that Cambodia, Indonesia, Laos, Thailand and Vietnam maintain the average comparative advantage of their export commodities at above one. As can be observed, the variation of the average RCA index is quite high for Cambodia, running from a low of 1.1 to a high of 1.8, while it is almost stable for Thailand at around 1.1. Among the other five ASEAN members, Brunei, Malaysia, the Philippines and Singapore have an average comparative disadvantage in the world export market, while the average RCA of Myanmar ranges from 0.9 to 1.6.

In terms of the distribution between comparative advantage and comparative disadvantage by country, Figure 1.13 reveals that Indonesia, Thailand and Vietnam have similar levels of comparative advantage and comparative disadvantage in their export products in the world market. The level of comparative advantage of export products is greatly less than the comparative disadvantage for the other ASEAN member states, particularly Brunei because its export products are concentrated in mineral fuels, mineral oils and products (HS27). This result implies that the ASEAN countries other than Indonesia, Thailand and Vietnam have marginal comparative advantages in their export products in the world market.

The results presented in Table 1.10 show that the index of revealed comparative advantage of the top Cambodian export products ranges from 44.5 (HS-61 articles of apparel and clothing accessories, knitted or crocheted) to 0.3 (HS-85 electrical machinery and equipment and parts thereof). In the HS-61 product group, the RCA export index of 44.5 exceeded those of other ASEAN members. For footwear (HS-64), the main rival of Cambodia is Vietnam with an RCA index of 9.9, which is slightly higher than the RCA index of Cambodia of 9.2. Textiles and footwear are the main export industry of Cambodia and accounted for 68% of total exports in 2016. One element that explains the comparative advantage in these sectors is the low wages and the reputation for compliance with labour standards. Another interesting product is HS-43 (Furskins and artificial fur), which has an RCA index of 34, much higher than the indexes for other ASEAN countries. The other product groups HS-10 (cereals), HS-62 (articles of apparel, accessories, knit or crochet), HS-40 (rubber) and HS-42 (articles of leather), have RCA indexes ranging from 1.6 to 5.0. The calculation of the Balassa index also reveals the comparative disadvantage of three product groups, HS-87 (vehicles other than railway and tramway), HS-85 (electrical and electronic equipment), and HS-71 (natural or cultured pearls) among the top 10 export commodities from Cambodia. The results imply that the patterns of comparative advantages are like those for many other countries in the developing stage, as they are based on labour-intensive industries like garments and textiles.

Figure 1.12: Average RCA of the exports of ASEAN countries in the world market 2001-2016

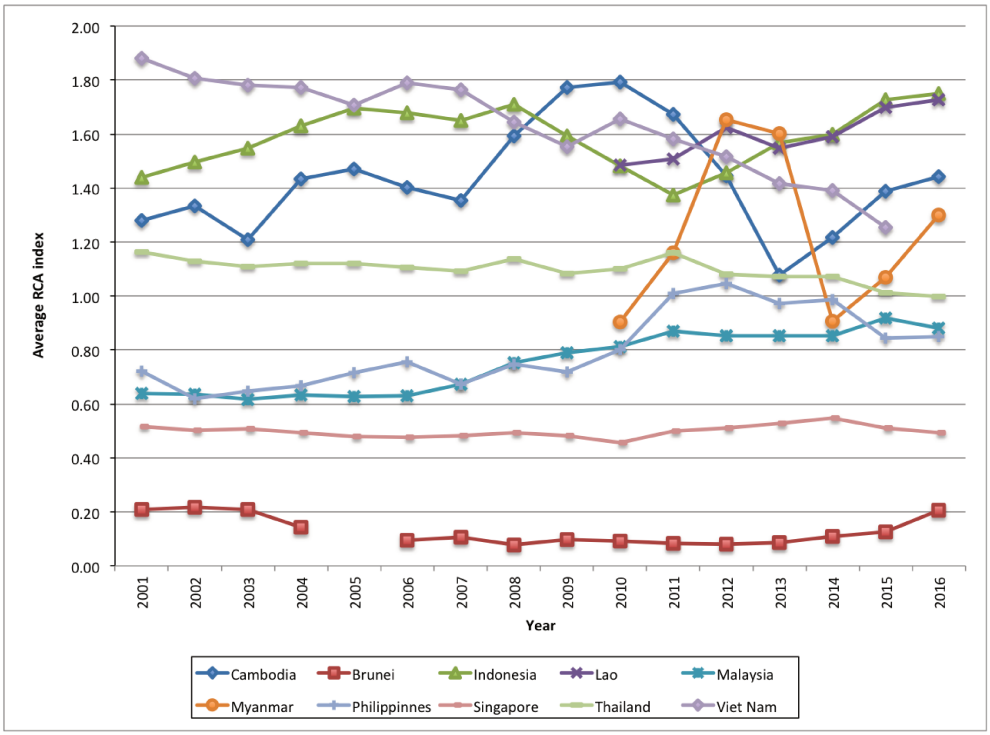


Figure 1.13: RCA distribution of ASEAN countries in the world market 2001-2016

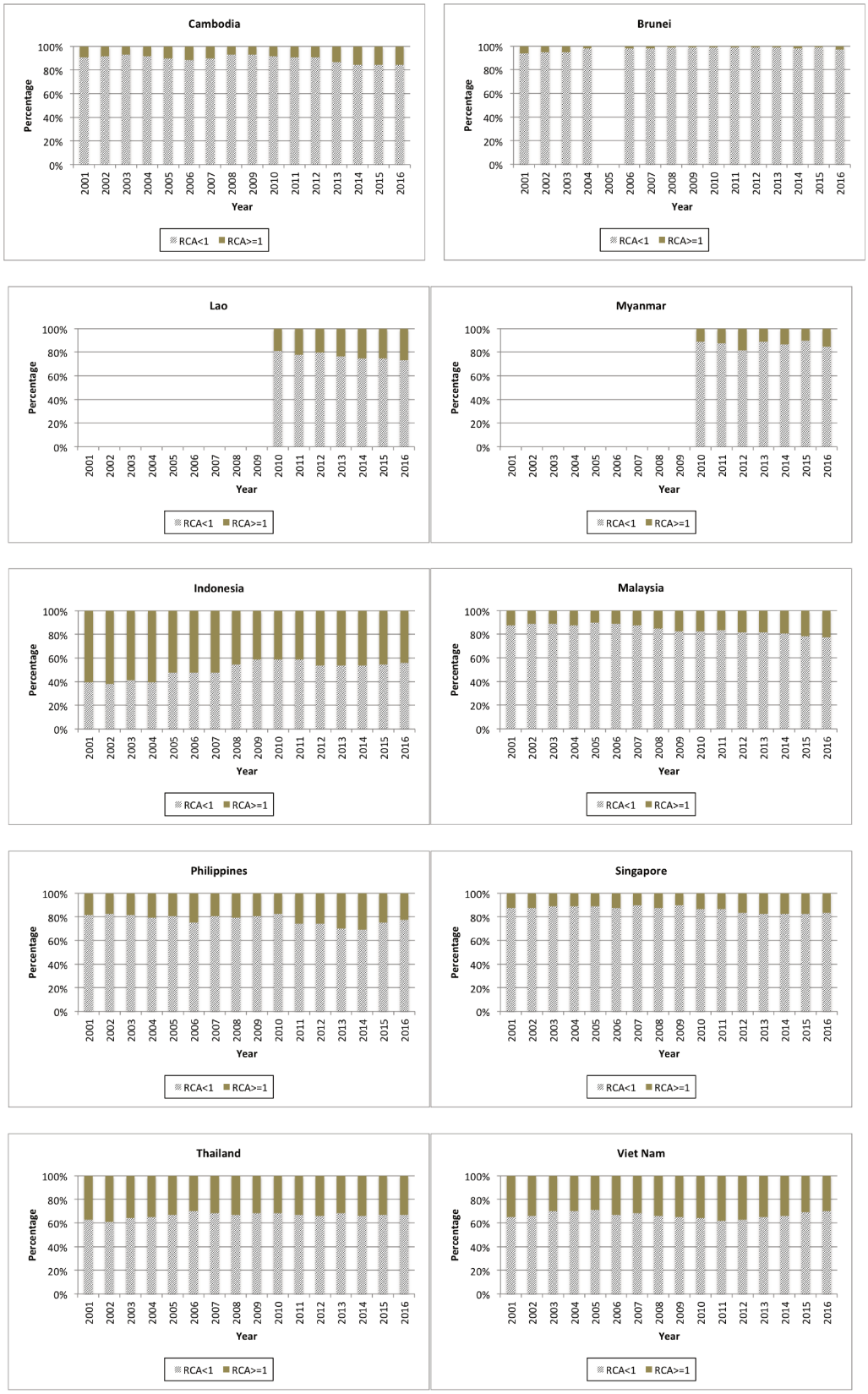


Table 1.10: Comparison of RCA indexes for Cambodia's top ten export products in 2016 to the world market

Rank	HS Code	Commodity	Cambodia	Brunei	Indonesia	Lao	Malaysia	Myanmar	Philippines	Singapore	Thailand	Viet Nam
1	61	Articles of apparel and clothing accessories, knitted or crocheted	44.5	0.1	1.7	1.0	0.4	0.6	0.8	0.2	0.6	4.0
2	64	Footwear, gaiters and the like; parts of such articles	9.2	0.0	3.8	1.2	0.1	1.4	0.1	0.2	0.3	9.9
3	62	Articles of apparel and clothing accessories, not knitted or crocheted	3.8	0.1	2.0	2.5	0.1	9.4	0.5	0.1	0.3	4.3
4	85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television..	0.3	0.1	0.4	0.8	2.1	0.1	3.1	2.4	1.0	2.5
5	87	Vehicles other than railway or tramway rolling stock, and parts and accessories thereof	0.4	0.1	0.5	0.1	0.1	0.0	0.3	0.1	1.5	0.1
6	10	Cereals	5.0	0.2	0.0	3.5	0.0	9.4	0.0	0.0	3.5	1.3
7	71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ...	0.5	0.0	1.1	1.1	0.3	0.9	0.3	0.6	1.6	0.1
8	43	Fur skins and artificial fur; manufactures thereof	34.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.3	1.7
9	40	Rubber and articles thereof	1.6	0.1	3.8	2.5	3.0	1.2	0.2	0.5	5.6	1.3
10	42	Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles ...	3.3	0.1	0.5	0.1	0.1	0.3	2.3	0.9	0.4	3.8

1.6 Measuring intra-industry trade

Given the results of the revealed comparative advantage of the top ten products in the previous section, we are next interested in measuring the level of intra-industry trade for the products exported by Cambodia. The index for measuring Intra-Industry Trade, or IIT[13] , was proposed by Grubel and Lloyd (1975). It calculates the difference between the trade balance and the total trade of industry

[13]IIT means the two-way exchange of goods within Standard Industrial Trade Classification (SITC)

j in the following equation:

$$GL_j = \frac{(X_j + M_j) - |X_j - M_j|}{X_j + M_j} \tag{1.4}$$

$$= 1 - \frac{|X_j - M_j|}{X_j + M_j} \tag{1.5}$$

where X and M are the exports and imports of industry j. The index takes values between 1 and 0 where a value of 1 represents pure intra-industry trade and a value of 0 is pure inter-industry trade. However, the classic index of Grubel and Lloyd was a controversial topic of discussion in several parts of the literature. Greenaway and Milner (1983) note the bias of IIT when categorical or sub-group aggregations of trade that should not be classified together are grouped in the same industry, and the bias from trade imbalances[14]. Aquino (1978) suggests another adjustment to the Grubel-Lloyd index in response to an imbalance in overall trade, but it has fallen out of favour since the adjustment is more likely to induce distortions in the Grubel-Lloyd index rather than to remove them (Greenaway and Milner, 1981; Fontagné and Freudenberg, 1997). That is why most of the empirical studies, for instance Marius-Răzvan and Camelia (2015); Sawyer et al. (2010); and Clark (2010), prefer the unadjusted Grubel and Lloyd indicator to the adjusted measures proposed by Grubel and Lloyd or Aquino, because there is no optimal method for totally removing trade imbalance bias from the intra-industry trade calculation.

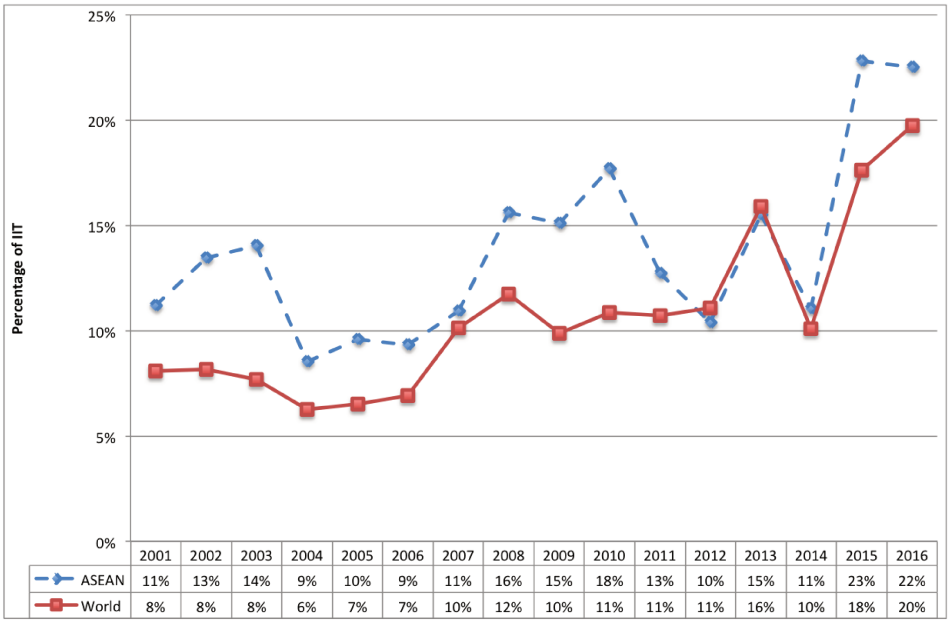
To obtain the aggregate IIT index of the whole country, the original Grubel and Lloyd index in equation 1.4 is then adjusted with the sum of weighted IIT indexes across all commodities as illustrated in equation 1.6.

$$GL' = \sum_i \left(\left(1 - \frac{|X_j - M_j|}{(X_j + M_j)} \right) \frac{(X_j + M_j)}{(X_d + M_d)} \right) \tag{1.6}$$

where i is the sector of interest, or the whole country for our case, and X_d denotes the total export flow of the country and M_d its total import flow. The data used in this calculation are from UN COMTRADE and ITC statistics using both direct and mirror data at the 2-digit level of harmonised system classification. The estimate samples are from 2001 to 2016.

[14]The bias due to the trade imbalance occurs when the net trade-gross trade ratio has opposite trade imbalances for the sub-groups, meaning that if the country in question is a net exporter or importer in both sub-groups, the weighting effect of the ratio is maintained. However if a country is a net exporter in one good and a net importer in the other good, the weighting effect is lost and the GL_j index shows a different value (see details explanation in Andresen (2003))

Figure 1.14: Aggregate weighted average of IIT indexes of Cambodia with ASEAN and with the world, 2001-2016



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
ASEAN	11%	13%	14%	9%	10%	9%	11%	16%	15%	18%	13%	10%	15%	11%	23%	22%
World	8%	8%	8%	6%	7%	7%	10%	12%	10%	11%	11%	11%	16%	10%	18%	20%

Source: Author's calculations

Figure 1.14 illustrates the aggregate weighted average of the IIT indexes for Cambodia's trade with ASEAN and with the world in 2001-2016. The results show the degree of intra-industry trade for Cambodia with ASEAN and the world is very low with intra-industry trade with ASEAN reaching a maximum of 23% of total trade in 2015 and IIT for the world market peaking at 20%. This indicates that the level of two-way exchange of goods within a single industry is just marginal, and most of the trade flows between Cambodia and ASEAN and Cambodia and the world are in the form of inter-industry trade. These results also imply that there are differences in technology and resources between Cambodia and its trading partners. This assumption can be made because international trade between countries that have similar levels of technology, capital and skilled labour takes the form of two-way exchanges within industries, resulting in high levels of IIT.

Table 1.11 presents the intra-industry index for the top 10 export products of Cambodia to ASEAN and the rest of the world (column 4 and 8) and the average IIT of those products for the whole period (column 5 and 10). For ASEAN trade, the products that had high IIT levels in 2016 were HS-17 (sugars and sugar confectionery) with an IIT level of 98%, followed by HS-71 (natural or cultured pearls) with an IIT level of 91%, and HS-85 (electrical machinery) with an IIT level of 75%. The rest of the top 10 export products to the ASEAN market have low levels of IIT, ranging from 16% for tobacco and manufactured tobacco to 51% for footwear and gaiters. Moreover, the average IIT level of those products over the observation period is also low, ranging from a highest level of 53% for cereals to

a lowest level of 7% for albuminoidal substances. Among the top export products to the world market, Table 1.11 reveals that the top three export commodities, which are in the textile and footwear industry (HS-61, HS-64 and HS-62), have very low levels of IIT, implying that Cambodia trades with the world in the form of inter-industry exchanges. However, evidence of intra-industry trade can be found in rubber products (HS-40) with an IIT of 92% in 2016 and 72% on average in 2001-2016. The rest of the top export products have rather low average IIT levels, as can be observed in column 10 of Table 1.11.

Table 1.11: IIT index of top-ten export products from Cambodia to ASEAN and to the world market in 2016

Rank	HS Code	Commodity	ASEAN		HS Code	Commodity	World	
			2016	2001-2016			2016	2001-2016
1	71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad	91%	46%	61	Articles of apparel and clothing accessories, knitted or crocheted	1%	0%
2	85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television..	75%	24%	64	Footwear, gaiters and the like; parts of such articles	25%	24%
3	40	Rubber and articles thereof	43%	23%	62	Articles of apparel and clothing accessories, not knitted or crocheted	20%	53%
4	61	Articles of apparel and clothing accessories, knitted or crocheted	15%	27%	85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television..	83%	21%
5	35	Albuminoidal substances; modified starches; glues; enzymes	39%	7%	87	Vehicles other than railway or tramway rolling stock, and parts and accessories thereof	47%	32%
6	10	Cereals	38%	53%	10	Cereals	13%	38%
7	17	Sugars and sugar confectionery	98%	21%	71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ...	89%	45%
8	84	Machinery, mechanical appliances, nuclear reactors, boilers; parts thereof	26%	27%	43	Furskins and artificial fur; manufactures thereof	97%	17%
9	64	Footwear, gaiters and the like; parts of such articles	51%	27%	40	Rubber and articles thereof	92%	72%
10	24	Tobacco and manufactured tobacco substitutes	16%	15%	42	Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles ...	14%	40%

Focusing on the level of intra-industry trade of Cambodia with ASEAN and the world, Table 1.12 presents the average values of the IIT index in 2001-2016. The results show that the highest IIT of Cambodia with the world is in commodities not elsewhere specified (HS-99), which has an IIT index value of 75%, followed by rubber with 72%, furniture with 65%, and oil seeds with 61%. The other industries have IIT levels of around 50%.

Within ASEAN trade, commodities not elsewhere specified (HS-99) and cereals (HS-10), which is mostly rice, have the highest IIT index values at 69% and 47% respectively, followed by articles of apparel and clothing accessories (HS-62) with an IIT level of 48% and products of the milling industry (HS-11), also with 48%. The intra-industry trade patterns of Cambodia with ASEAN and with the world are almost the same. Most of the top ten commodities for IIT for Cambodia are in agriculture and certain resource-based labour intensive manufactured products and low technology manufactured products.

Table 1.12: Top ten intra-industry trade products of Cambodia with ASEAN and the world, 2001-2016

HS	**Commodity**	**ASEAN**	HS	**Commodity**	**World**
99	Commodities not elsewhere specified	69%	99	Commodities not elsewhere specified	75%
10	Cereals	53%	40	Rubber and articles thereof	72%
62	Articles of apparel and clothing accessories	48%	94	Furniture; bedding, mattresses	65%
11	Products of the milling industry	48%	12	Oil seeds and oleaginous fruits	61%
63	Other made-up textile articles	47%	09	Coffee, tea, maté and spices	57%
71	Natural or cultured pearls	46%	07	Edible vegetables and certain roots	56%
12	Oil seeds and oleaginous fruits	46%	15	Animal or vegetable fats and oils	53%
07	Edible vegetables and certain roots and tubers	46%	’62	Articles of apparel and clothing accessories	53%
92	Musical instruments	41%	03	Fish and crustaceans	52%
89	Ships, boats and floating structures	41%	46	Manufactures of straw	52%

Source: Author’s calculations.

Table 1.13: Correlation between RCA and IIT for Cambodia's main exports products

HS	Commodity	Correlation RCA-IIT	
		ASEAN	World
10	Cereals	-0.2388	-0.7690*
40	Rubber and articles thereof	-0.4024	-0.4310
61	Articles of apparel and clothing accessories, knitted or crocheted	-0.5394*	-0.6720*
62	Articles of apparel and clothing accessories, not knitted or crocheted	0.5761*	-0.6554*
64	Footwear, gaiters and the like; parts of such articles	0.8633*	0.2381

* Correlation coefficient significant at the 5% level

Finally, the study also examines the relationship between the RCA index and the IIT level of the five main export products of Cambodia. As can be observed in Table 1.13, there is evidence of a relationship between RCA and IIT for each product category and the directions of the links are mostly negative. For the product groups HS-10 (cereals), HS-40 (rubber), and HS-61 (articles of apparel and clothing accessories, knitted or crocheted), the relationship between RCA and IIT is negative for both trade with ASEAN and trade with the world. This negative correlation implies that an increase in the comparative advantage of export products from Cambodia may be linked to a decrease in the level of intra-industry trade, while a decrease in comparative advantage is linked to increased IIT. For the case of HS-64 (footwear, gaiters), the relationship between RCA and IIT is positive in both ASEAN and the world market, indicating a higher RCA link to an increase in the intra-industry trade of that product. This relationship is mixed for HS-62 (articles of apparel and clothing accessories, not knitted or crocheted), in which a positive link can be found with ASEAN trade and a negative link with world trade. Although the relationships between RCA and IIT are mixed for different products and trading partners, we can observe that there are more negative relationships than positive ones. The negative links being in the majority leads us to conclude from the type of the five products that in agriculture, resource-based labour-intensive industry, and low technology industry, an increase in comparative advantage does not increase two-way trade flows within the same industry because the production of those commodities does not require sophisticated technology or raw materials to be exchanged within the same category.

1.7 Concluding remarks

This study has found that Cambodia has done well economically in the past decade, with an average GDP growth rate of 7%. The average RCA indexes of export products to ASEAN and to the world market are above one, implying that export products are competitive in both markets. However, the ratio of products with comparative advantage to products with comparative disadvantage is very low. Moreover, the degree of intra-industry trade for Cambodia with ASEAN and with the rest of world indicates a low level of two-way exchange of goods within individual industries. The results confirm that Cambodia trades mostly with countries that have different technologies and resources. The study also found that a majority of the top five export products have a negative correlation between RCA and IIT. Some policy recommendations could be drawn from the descriptive data discussions and from the estimation results of this study. First, most of the top 10 export products from Cambodia are in agriculture, resource-based labour-intensive manufacturing, and low technology manufacturing. To increase the country's competitiveness in a competitive world, Cambodia should therefore encourage more public and private investment in new technology and innovation, and should develop a better education system and improve its institutional capacity in order to orient development away from a labour-intensive base economy towards a modern, high technology economy. Second, in order to benefit from the opportunities created by the AEC, Cambodia should diversify its export industries, which currently depend on garment production, milled rice and tourism. New sources of economic growth are needed for the country to secure long-term growth and to integrate successfully into the AEC. In this context, Cambodia needs to improve its hard infrastructure like its transportation system and energy supplies. Infrastructural improvements and integration into regional networks might help Cambodia to tackle successfully its greatest challenge of attracting FDI. Furthermore, it is obvious that membership of the AEC may provide access to intra-Asian FDI that could boost growth at small and medium-sized businesses. However, better institutional conditions have to be established to let the Cambodian people and local businesses benefit from such investments. The main concern here is whether the AEC will provide an avenue for Cambodian graduates to find employment either at home or in the other member countries of the ASEAN common market. This concern is raised because a large part of the Cambodian labour force lacks adequate education and training. Other important barriers are corruption and weak institutions. Despite the adoption of the Anti-Corruption law in 2010, corruption still exists inside most public institutions. Finally, the ASEAN Economic Community offers Cambodia new opportunities for trade, investment, improving its infrastructures, and enhancing institutional

capacity building. Behind this hide some further challenges to Cambodia's economy in competing with other ASEAN economies.

Chapter 2

Determinants of exports and trade potential

2.1 Introduction

We have presented and discussed about trade patterns and integration process from ASEAN Free Trade Area to ASEAN Economic Community. The results from previous chapter have shed some light on the preliminary hypotheses for the more in-depth analyses, using empirical modelling. For instance, the study demonstrates the importance of infrastructural improvement, foreign capital inflows, law and regulations to increase trade and investment in the country. Analysing trade patterns by using appropriate empirical data and an econometrics model allows us to identify the determinants of trade and to develop appropriate policies for a continual increase in trade and sustainable economic growth.

This study uses the gravity model to analyse Cambodia's bilateral trade flows by investigating its trade structure from 2000-2013 after the country's entry into the ASEAN Free Trade Area (AFTA) in 1999. The topic of study has been chosen because international trade is important for both developed and developing economies since it improves the welfare of a country, resulting from trade expansion through access to global markets. It focuses on the marginal effects of traditional gravity model variables, and also additional variables, including multilateral trade costs, governance and political factors, and regional trade agreements regarding Cambodia's exports. Using the gravity model is the best approach to investigate whether these factors impact exports simultaneously. Trade analysis using the gravity model also provides intuitive results as it presents certain stylised facts about the determinants of bilateral trade (Head and Mayer, 2013). The objective is to explain the export patterns existing between Cambodia and forty major importing countries, and to calculate the values of export potentials, drawing

from the results of the gravity equation. The sign and magnitude of each key variable are the measurement elements used to identify which factors are crucial determinants of Cambodia's exports: for example, Is regional economic integration a trade creation or trade diversion? What are the impacts of tariffs and non-tariff barriers (NTBs) imposed by importing countries on products from Cambodia? Can logistics performance explain the status of trade between Cambodia and its partners? To what extent does the impact of the quality of regulation influence exports? Is there any trade potential between Cambodia and trading partners? These are the important questions that we will attempt to answer in our study.

Moreover, the lack of empirical modelling research on Cambodia's economy and trade is another primary motivation for choosing the gravity model as an estimation tool in this study. In existing literature, there are very few research papers on Cambodia's trade that use empirical estimation methods. We have found only a few research papers on Cambodia's trade structures that use the gravity model, notably from Huot and Kakinaka (2007) and Kim (2006). The estimation model of these research papers uses a simple Ordinary Least Squares (OLS) estimator to estimate the equation in these two papers, which could lead to poor prediction due to the inefficiency of OLS in estimating panel data with many variables. Our study intends to apply more sophisticated estimation techniques to test and compare the results of each estimator in order to minimise bias in the results. For instance, the OLS estimator will be applied as the first step in this study. In the second step, the Poisson Pseudo Maximum Likelihood (PPML) estimator will be used to address the problem of zero trade flow. Next, the Random Effect (RE), Fixed Effect (FE), and Hausman-Taylor estimator will be used. The comparison of each estimator will be carried out with several validity tests to select the most appropriate estimation results.

This study will contribute to the development of a new gravity model and to the estimation methodologies, particularly in regards to the country-specific gravity model. It focuses on a single country's trade with either all its trading partners or with a select group of trading partners in the form of N-1 observations, where N is the number of countries in the study, whereas most of the studies use the full version of the gravity model with N(N-1) observations. Furthermore, some variables that are used in our gravity equation are based on the augmented gravity model of Anderson and van Wincoop (2003) and Hoekman and Nicita (2011). These variables focus on trade costs, capital movements, governance, and economic integration factors, which are specifically essential factors to understand trade characteristics and challenges of the least developed countries and developing countries participating in global trade. The study also contributes to the econometric estimations by employing different technique in a way to minimise estimation bias.

The rest of the study is organised as follows. Section 2.2 reviews the comprehensive development of gravity model and related theories. Section 2.3 estimates the export patterns of Cambodia with 40 importing countries by setting up gravity model specifications. Section 2.4 presents the estimation results from the empirical analysis, followed by section 2.5 showing calculations of Cambodia's export potential with importing countries. Finally, the policy implications and conclusion will be discussed in section 2.6.

2.2 Foundations of the gravity model

The gravity model has been a successful empirical model used in economics. The model has been applied to estimate econometrically the ex-post effects of various factors, including integration agreements, national borders, currency unions, language, and other measurements related to bilateral trade flows. The model was developed during the 1950s and 1960s inspired by Newton's law of gravitation (Bergstrand et al., 2013; Anderson, 2010; Lung, 2008). It has traditionally been used to predict trade flows between countries, and follows the idea that trade between two countries depends on the size of their economies, and the distance between them. Several controversies, however, arose regarding the model due to the absence of an accepted connection to economic theory. The gravity equation was later justified for its theoretical foundation, which can be derived from different trade theories including: David Ricardo's comparative advantage theory, Heckscher-Ohlin's factor endowment and factor intensity theory, and the monopolistic competitive theory with increasing return to scale (Anderson, 1979; Helpman and Krugman, 1985b; Bergstrand, 1989; Evenett and Keller, 2002). The gravity model has become a powerful workhorse used to analyse the determinants of international trade flows, identify and estimate export market potential, and identify natural trade blocs. Additionally, it can determine the normal or standard bilateral trade patterns that would prevail in the absence of trade impediment, and it is also consistent with the intra-industry trade theory of Helpman-Krugman-Markusen (Bergstrand, 1989; Lung, 2008).

The pioneering work of Tinbergen (1962) initiated a vast theoretical and empirical literature on the gravity equation for trade. The model assumes that the force of flow is formed by the attraction between two centres. This attraction is based on the sizes of the centres and is weakened as the distance between the two centres increases. In the gravity equation, trade flow from country i to j is proportional to the product of the two countries' GDPs, and inversely proportional to their distance. The traditional gravity model used by Tinbergen is:

$$E_{ij} = \alpha_0 Y_i^{\alpha_1} Y_j^{\alpha_2} D_{ij}^{\alpha_3} \tag{2.1}$$

where E_{ij} is the export from country$i$ to county j, Y_i and Y_j denote the GDP of country i and country j, respectively, D_{ij} represents distance between i and j, and $\alpha_0, \alpha_1, \alpha_2$, and α_3 are the parameters to be estimated.

Tinbergen modified the equation 2.1 by adding three dummy variables in order to observe the enhancements artificial trade and the effects of trade discrimination. The three variables include the common border dummy variable N, the commonwealth preference dummy variable P_c, and the Benelux preference dummy variable P_b. The dummy variables take the value of 1 if the arguments of the dummies are satisfied and 0 otherwise. The gravity model in equation 2.1 was estimated to the following log-linearized form:

$$\ln(E_{ij}) = \ln(\alpha_0) + \alpha_1 \ln(Y_i) + \alpha_2 \ln(Y_j) + \alpha_3 \ln(D_{ij}) + \alpha_4 \ln N + \alpha_5 \ln P_c + \alpha_6 \ln P_b \tag{2.2}$$

This empirical specification was used to estimate trade flows without theoretical base in economic for seventeen years. The first article that provides a micro-foundation of this equation appears in Anderson (1979), which is based on the Armington Assumption that each nation specialises in the production of only one goods. Preferences and goods are differentiated by region of origin according to the Constant Elasticity of Substitution (CES). Bergstrand (1985) completes this theoretical foundation with a more detailed explanation of the supply side of economies and the inclusion of prices in the gravity equation. Subsequent works were developed by replacing the assumption of product differentiation by country of origin with the assumption of product differentiation among producing firms. Bergstrand (1990) proposes a foundation, which based on the monopolistic competition assumption of Dixit and Stiglitz, which adds prices and incorporates the Linder hypothesis. Helpman (1987) contributes to the theoretical foundation of gravity model by following the assumption of increasing returns to scale. Products are differentiated not only by country of origin, but also by monopolistically competitive firm (Gomez-Herrera, 2012).

Arkolakis et al. (2012) shows that a gravity equation is consistent with four theoretical frameworks: (1) Dixit-Stiglitz preferences, (2) one factor of production (typically labor), (3) linear cost functions, and (4) perfect or monopolistic competition. This can be described in Equation 2.3 :

$$X_{ij,t} = \frac{\chi_{ij,t} N_{i,t} \left(\omega_{i,t} \tau_{ij,t}\right)^e Y_{j,t}}{\sum_{k=1}^{K} \chi_{kj,t} N_{k,t} \left(\omega_{k,t} \tau_{kj,t}\right)^e} \tag{2.3}$$

where $X_{ij,t}$ is the trade flow from exporter i to importer j in year t, $N_{i,t}$ is the measure of goods in country i that can be produced in year t, $\omega_{i,t}$ is the wage rate in country i, $\tau_{ij,t}$ is (gross) variable trade costs of country i's products into j, ϵ is the elasticity of imports with respect to variable trade cost ($\epsilon < 0$), $Y_{j,t}$ is aggregate expenditure in j, and $\chi_{ij,t}$ captures all structural parameters' other than $\tau_{ij,t}$ (for example, fixed export costs from i to j, or $f_{ij,t}$).

However, we cannot cover all the aspect of theories to include in this study. We interest in only the country-related factors which influence trade flows between country. For the purpose of our study, the variables of interest are $\tau_{ij,t}$, $f_{ij,t}$ and $\chi_{ij,t}$, which can be integrated into an augmented version of specification of the Anderson (1979) model by including Multilateral Resistance Terms (MRT) for importer and exporter that proxy for the existence of unobserved trade barriers.

Regarding MRT, Anderson and van Wincoop (2003) draw from McCallum's (1995) equation by stating that the equation omits variables and may result in an overestimation of border effects since a measure of multilateral trade resistance is not included. The authors suggest a solution with a new framework that includes a theoretical specification for multilateral resistance term in the new gravity model. In order to estimate MRT, Anderson and van Wincoop (2003) use a non-linear estimation technique and include the observed variables in their model (distance, borders, and income shares) to obtain the multilateral trade resistance terms. This method, however, has not been frequently used by other scholars due to the complexity in data collection.

An alternative method used a remoteness variable to proxy for these multilateral trade resistance indexes:

$$Rm_i = \sum_i \frac{d_{ij}}{(y_j/y_{ROW})} \tag{2.4}$$

In this equation, the numerator is the bilateral distance between two countries, and the denominator is the share of each country's GDP in the rest of the world's GDP. Comparing the previous results with the regression that includes this remoteness variable, Anderson and van Wincoop (2003) claim that this procedure is not satisfactory because distance is the only variable being considered as a trade barrier. The remoteness variable, which is proposed by Head and Mayer (2000), Helliwell (1996), Wei (1996), and Wolf (1997) describes the full range of a given importer and potential suppliers by taking into account their sizes, distances and relevant costs of crossing borders. Alternatively, Feenstra (2002) introduces importer and exporter fixed effects in order to control for the specific country multilateral resistance term, which is the most commonly used method. The coefficient of the dummies for the importers and the exporters should reflect

the multilateral resistance for each country. Baier and Bergstrand (2009a) suggest a method that is theoretically consistent and can capture country-specific and country-pair-specific effects. Their method implies approximation of the P_i and P_j terms by means of a first-order Tylor series expansion. This procedure is slightly more complicated than simply including fixed effects, but it avoids the non-linear procedure employed by Anderson and van Wincoop (2003).

In the context of economic integration, Bergstrand et al. (2015) argue that the formation of an Economic Integration Area (EIA) such as a Free Trade Agreement between i and j lower fixed export costs. EIAs are broad agreements reaching beyond the elimination of tariff rates and variable trade costs. EIAs are also likely to lower fixed costs. Head and Mayer (2013) explain that all types of structural parameters may alter trade between two countries over time, such as informational considerations, historical factors, non-tariff barriers unrelated to EIAs, and bilateral preferences.

Recent developments of the gravity equation on trade by Anderson and Yotov (2016) also take into account the effects of an EIA on bilateral trade flows. The trade cost t_{ij} in the structural gravity model of Anderson and Yotov (2016) can be presented in equation 2.5:

$$t_{ij}^{k^{1-\sigma}} = exp\left[\beta_1^k FTA_{ij} + \beta_2^k lnDIST_{ij} + \beta_3^k BRDR_{ij} + \beta_4^k LANG_{ij} + \beta_5^k CLNY_{ij} + \beta_6^k SMCTRY_{ij}\right] \tag{2.5}$$

In this equation, FTA_{ij} is an indicator variable for a free trade agreement between trading partners i and j, $lnDIST_{ij}$ is a logarithm of distance between the two countries, $BRDR_{ij}$ represents common borders, $LANG_{ij}$ represents common language; and $CLNY_{ij}$ designates the presence of colonial ties, and $SMCTRY_{ij}$ is a dummy variable that denotes the effect of crossing the international border by shifting up internal trade.

Following the above theoretical discussions, this empirical study examines the determinants of Cambodian exports by taking into account various aspects. The first aspect concerns trade costs. In the intuitive gravity model, only geographical distance is used to represent all the economic barriers for international trade. The scholars like, Gomez-Herrera (2012), Péridy (2011), Mauro (2000), and Theie (2015) posit that using geographical distance alone to represent trade costs may be a poor proxy. Therefore, a wide range of variables are used to proxy the trade barriers according to the objective of research such as the variables representing trade costs in Anderson and Yotov (2016). For instance, variables commonly added to the gravity model to better control the transaction costs are: adjacency, common language, colonial links, religion, access to water, regional trade agreement, tariff and non-tariff

barriers, and trade logistics. The second aspect takes into account the proxies to represent the supply and demand magnitudes in the gravity equation. The most common practice is to use importer and exporter GDPs correspondingly. Another parameter to be considered in this gravity equation is the movement of capital, which is measured by foreign direct investment (Mauro, 2000). Finally, political factors play an important role in international trade, and their effects on trade can be measured using the gravity equation. These effects can be found in the several empirical studies, such as Péridy (2011) and Kaumann et al. (2010).

2.3 Gravity model and data

2.3.1 Hypothesis and potential variables for estimation

We adapt an augmented version of the gravity model specification in Anderson and van Wincoop (2003), with the inclusion of border effects on traditional gravity model, and with greater development of this empirical model in Anderson and Yotov (2016), which take into account free-trade agreement, cross border barriers. Moreover, Hoekman and Nicita (2011) employ gravity model to prove effects of trade-related logistics and domestic policies, which are associated with bilateral trade. Following the hypotheses in these papers, we want to test the factors that determine the exports of Cambodia with forty importing countries[1] using the following core independent variables:

2.3.1.1 GDP

GDP is measured as the sum of aggregate consumption, aggregate investment, government expenditure, and net export[2]. The total exports contribute to a portion of GDP. The GDP increases if the measure of net exports is positive, and decrease if the measure is negative. However, it is possible that the net exports are zero because a country has a balanced trade[3]; GDP is therefore independent from net exports. Usually, net exports are not zero and the dependent variable of total exports in the gravity model is not independent from the explanatory variable of GDP. In addition, GDP is contemporaneously correlated with the error term in the regression through the dependent variable (Lung, 2008). Most studies find that GDP variables have a positive and significant effect on total trade.

[1] See the name of partner countries in appendix B.1
[2] Net exports=Total exports - Total imports
[3] This is a very rare situation

2.3.1.2 FDI

In the context of globalisation, economists and policy makers have increasingly put more attention on FDI. According to Mauro (2000), this attention comes from the growing importance of FDI for both developed and developing countries. In this regards, a large amount of research involves the relationship between trade and FDI as well as its effects on the host economy. For instance, Kahouli and Maktouf (2015) reveal that FDI affect the host country by increasing its national income, labor productivity, employment, technology transfer, new management, and modern production techniques. Therefore, it is interesting to include FDI in our gravity model to test its impact on Cambodia's exports.

2.3.1.3 Regional trade agreement

Gravity models have been popularly used to estimate the impact of Preferential Trade Agreements or Economic Integration Agreements on trade among the members of an integration scheme. Many studies including Bergstrand (1985), Baier and Bergstrand (2009b), Bergstrand et al. (2015) use an additional dummy variable in the standard gravity model to detect variation, in both the direction and levels of trade, caused by the formation of a preferential trade agreement among a group of countries. In the context of integration into the ASEAN Economic Community, it is an opportunity to study the impact of this economic integration on the economy of Cambodia, in particular its exports.

2.3.1.4 Political factors

The gravity equation may also take into account political factors to investigate the impact conflicts, political alliances, détente, governance, rule of law, etc., have on on trade flows. Khan (2011) references authors like Mansfield et al (2000), DeGroot et al (2000) who study the role of institutional quality and the effect of governance quality on trade flows. They prove that institutional quality has a significant, positive, and substantial impact on trade flows. Gani (2007) suggests that the institutional environment of a country can be measured by the Regulatory Quality index (RQ) of Kaumann et al. (2010). The RQ captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. In this regard, we will test how government policy related to the private sector can increase a country's exports in the context of economic integration and governance reforms in both Cambodia and importing countries.

2.3.1.5 Distance

The initial gravity model considers bilateral distance between two countries as a transportation cost since the long distance represents a greater transit cost. However, there is no consensus on the costs of geographic distances because the costs of distances may include others freight charges, including cultural dissimilarity and other trade barriers (Baier and Bergstrand, 2001). Khan (2011) explains that costs rise substantially with distance, but that this effect diminishes with time. This means that the cost of an extra kilometre travelled may decrease, but the time cost may increase, as traded goods become more time sensitive. Therefore, the dampening influence of distance on trade flows remains. There are two kinds of distance measure, represented in the literature. Simple distance is the geodesic distance, which is calculated following the great circle formula. The second measurement is weighted distance, which uses bilateral distances between two major cities of two countries.

2.3.1.6 Tariffs

Anderson and van Wincoop (2004) explain that tariffs are the most direct evidence of trade costs because tariffs are a tax that adds to the cost of imported goods and it is one of several trade policies that a country can enact. Tariffs are one of the key obstacles to market access, which influences trade patterns. The authors also explain that the bilateral variation of tariffs can be great due to the existence of numerous preferential trading arrangements. Generally, preferential trade allows members to benefit from lower tariffs; the members enjoy a zero tariff preference, while non-member must pay a tariff imposed by importing country. Thus, using a tariff measure as a trade cost can be an effective indicator to measure the impacts different preferential treatments granted by importing countries on Cambodia's exports.

2.3.1.7 Non-Tariff Barriers (NTBs)

Non-tariff barriers[4] represent another trade cost for an exporting country. Bergstrand and Egger (2010) explain that NTBs are difficult to quantify. They are usually measured by calculating the share of industries in a country that are affected by them. Anderson and van Wincoop (2004) use price, quality control

[4]"NTBs refer to restrictions that result from prohibition, conditions, or specific market requirements that make importation or exportation of products difficult and/or costly. NTBs also include unjustified and/or improper application of Non-Tariff Measures (NTMs) such as sanitary and phytosanitary (SPS) measures and other technical barriers to Trade (TBT). NTBs arise from different measures taken by governments and authorities in the form of government laws, regulations, policies, conditions, restrictions or specific requirements, and private sector business practices, or prohibitions that protect the domestic industries from foreign competition."
Source: http://www.tradebarriers.org/ntb/non_tariff_barriers

measures, and quantity control measures to calculate the narrow coverage of NTBs, while the broad coverage takes into account the measures related to anti-dumping. Most of the existing literature found that NTBs have a negative impact on exports. However, Devadason and Chenayah (2014) study the impact of NTBs imposed by China on ASEAN countries including Cambodia, and found that NTBs, in particular Technical Barriers to Trade (TBT), have positive and significant impact on export flows.

2.3.1.8 Trade logistics

Logistics, including trade related logistics, are important factors when determining global trade relationships, because international trade involves movements of goods that rely on complicated logistics. Trade logistics involve a variety of public and private agent operations and take into account various interconnected activities including transportation, warehousing, cargo consolidation, border clearance, in-country distribution, and payment systems. Logistics capacity is one of the key aspects for traders to compete in a global marketplace. Successful traders have to be able to transport goods or services across borders within a the required time frame and with low transaction costs. Economic outcomes such as trade expansion, diversification of exports, and growth have direct links with trade logistics performance. Hoekman and Nicita (2011) employ gravity model to prove effects of trade-related logistics which are associated with increased bilateral trade. The World Bank's Logistics Performance Index (LPI) is the first international benchmark tool for measuring the performance of logistics of each country. The delay in shipment is usually related with lower logistics performance. This leads to higher trade costs. The LPI captures a broad range of trade costs by taking into account important factors of trade logistics performance such as quality of infrastructure and logistic services, security of property from theft and looting, transparency of government procedures, macroeconomic conditions, and underlying strength of institutions.

2.3.2 Empirical model specifications

As described in theoretical and hypothesis of each potential variable, our empirical model of international trade is constructed based upon several factors. First, we implement three variables-Tariff, Non-Tariff Barriers, and Logistics Performance Index-to represent trade costs, instead of the traditional method of solely using Distance variable. The advantage of adding more variables to represent trade costs is a reduction in bias potentially caused by omitted variables. Our proposed model then goes further by taking into account foreign direct investments, an important

source of capital, which benefit the source economy through an expanding market, lower costs factors, and other tariff measures (Kahouli and Maktouf, 2015). Another vital variable considered in this model is political factors, determined by regulatory quality in both Cambodia and other importing countries. RQ plays a significant role in the development of the current private sector in Cambodia. Finally, two dummy variables, proxied by ASEAN and Border are also added in order to measure the impact of ASEAN Economic integration as well as border effect on exports.

Regarding the gravity model for international trade equation, Bergstrand (1985) developed from theoretical foundations of the gravity model by taking into account all the trading partner countries. However, this study derives from Bergstrand's technique by developing the country-specific gravity model focusing only on the exports and imports of a particular country with its trading partners. The difference between the two versions of the gravity model is that the full version of the gravity model uses N(N-1) observations, whereas the reduced country-specific model version of the gravity model takes into account only N-1 observations, where N is the number of countries in the study. Essentially, the country-specific gravity model focuses on a single country's trade with either all its trading partners or with a select group of trading partners. Taking into account all of the above aspects, our empirical model is presented as follows:

$$\begin{aligned} LogX_{cjt} &= \beta_0 + \beta_1 logGDP_{ct} + \beta_2 logGDP_{jt} + \beta_3 logDIS_{cj} + \beta_4 logFDI_{jt} + \\ &\quad \beta_5 LogTAR_{cjt} + \beta_6 LogNTB_{cj} + \beta_7 LogLPI_{ct} + \beta_8 logRQ_{ct} + \\ &\quad \beta_9 ASEAN_{cj} + \beta_{10} BORD_{cj} + \varepsilon_{cjt} \end{aligned} \tag{2.6}$$

where the subscript c represents Cambodia and j is the importing country, Log denotes the natural logarithm, X_{cjt} is the bilateral exports between Cambodia and partners, GDP_{ct}, GDP_{jt} are the gross domestic product of Cambodia and partner countries, respectively, DIS_{cj} represents distance between capital city of Cambodia to that of partner countries, FDI_{jt} is the foreign direct investment outward stock of country j, TAR_{cjt} is the bilateral tariffs charged on the export merchandises at the destination country, NTB_{cj} is the number of non-tariff measures imposed in country j on the products from Cambodia, LPI_{ct} is logistics performance index of Cambodia, RQ_{ct} represents regulatory quality in country Cambodia, $ASEAN_{cj}$ is the proxy that takes the value of 1 if the country is member of ASEAN and 0 otherwise, $BORD_{cj}$ is another proxy which take the value of 1 if the two countries share a common border and 0 otherwise.

2.3.3 Data and data sources

The data sample consists of bilateral exports from Cambodia to its 40 trading partners as the dependent variable, and 11 independent variables presented in the section 2.3.2. We intend to test the general model of Cambodian exports to the 40 importing countries over a 14-years period from 2000 to 2013. The details of importing countries are available in Appendix B.1. Our database is balanced with the total of 560 observations. The data sources and the expected signs of variables are described in Table 2.1.

Table 2.1: Data sources and hypothesized signs

Variable	Data sources	Expected Sign
X_{cjt}	The data on bilateral exports of Cambodia are collected from the UN COMTRADE. The bilateral export values are in current US Dollars.	
GDP_{ct}	The GDP values of Cambodia are drawn from the World Bank's World Development Indicators database in current US Dollars.	+
GDP_{jt}	The GDP values partner countries are drawn from the World Bank's World Development Indicators database in current US Dollars.	+
DIS_{cj}	The data are taken from CEPPII's Distance Database. The distances are measured between the capital cities of each trade partner.	-
FDI_{jt}	The FDI_{jt} is captured from the FDI outward stock of partner countries. The data are extracted from the United Nations Conference on Trade and Development (UNCTAD) in US Dollar at the current price and current exchange rate. Due to the lack of bilateral FDI data between Cambodia and the importing countries, we use the outward stock of FDI of the partner countries to measure its impact of Cambodia's exports. The goal is to capture the effect of investments from partner countries on Cambodia's exports.	+/-
TAR_{cjt}	The data are taken from the bilateral tariff database of World Integrated Trade Solution (WITS). We use the Effectively Applied Tariff (AHS) calculated as a weighted average of tariff lines.	-

NTB_{cj}	The data for the quantity of non-tariff measure (NTB_{ij}) applied on products from Cambodia by importers are extracted from the International Trade Center report, specifically, *Cambodia Perspectives-An ITC Series on Non-Tariff Measures* (see the Appendix B.2). The data are based on the NTM survey in Cambodia that was done between February 2012 and February 2013 and involves telephone interviews with 502 firms in first screening step, and then face-to-face in depth interviews with a selected 242 firms. The NTM survey covers all export sectors, which accounts for at least 2% of country's total export value. The cumulative export value of all the sectors accounts for at least 90% of the total export value.	+/-
LPI_{ct}	LPI represents the benchmarking of performance on trade logistics. It is created from a worldwide survey of operators involved in logistics services. The LPI is the weighted average of six different indexes: the efficiency of customs and border management clearance (Customs), the quality of trade and transport infrastructure (infrastructure), the ease of arranging competitively priced shipments (shipments), the competence and quality of logistics services such as trucking, forwarding, and customs brokerage (quality of logistics services), the ability to track and trace consignments (tracking and tracing), the frequency with which shipments reach consignees within scheduled or expected delivery times (timeliness). The LPI ranges between 1 (worst) to 5 (best). It is extracted from the World Bank database.	+
RQ_{ct}	The data on regulation quality of Cambodia are captured from the World Government Indicator of the World Bank. The index used in this study ranks from 1 (worst) to 100 (best). The methodology of this indicator is detailed in Kaumann et al. (2010).	+
$ASEAN_{cj}$	The data are captured from the ASEAN's website.	+/-

Note: (+), (-) correspond to the expected positive and negative effects sign. (+/-) means that the impact depends on the magnitude.

2.3.4 Estimation methods

Initially, gravity equations have been estimated using Ordinary Least Squares (OLS). For instance, McCallum (1995) analyses the Canadian-U.S. "border puzzle" using OLS, Baier and Bergstrand (2007) also used OLS. According to Bergstrand et al. (2015), Anderson and van Wincoop use non-linear least squares because of the introduction of a two-equation structural gravity model where one of the equations is non-linear. However, the most recently panel estimates having used OLS implementing exporter-year, importer-year, and country-pair fixed effect (Bergstrand et al., 2015).

Numerous authors such as Haveman and Hummels (2004); Felbermayr and Kohler (2006); Helpman et al. (2008); Head and Mayer (2014); and Bergstrand et al. (2015), highlight the problem of zero trade flows, which affect the estimated results in the gravity equation. To deal with potential bias concerning zero observation, we convert the bilateral export variable to:

$$logX^{'}_{cjt} = log(X_{cjt} + 1)$$

When the data contain zero flows ($X_{cjt} = 0$), the $X^{'}_{cjt} = 1$ and $logX^{'}_{cjt}$ approaches the value of $logX_{cjt}$ when X_{cjt} increases. The transformation technique has been widely used in recent literature, for example Busse and Hefeker (2007) and Péridy (2011), since the problem of zero flows is commonly exist in gravity model.

Silva and Tenreyro (2006) describe that even in the absence of zero, log-linear of gravity equations suffered from heteroskedasticity bias. The authors use the Poisson Pseudo-Maximum Likelihood (PPML) estimator to eliminate this heteroskedasticity bias and to allow for the inclusion of zeros. As a result, we will first begin our estimation in this study by comparing both estimation methods, OLS and PPML, for the equation 2.6. In these estimation methods, we also use the Variance Inflation Factor (VIF) to control the multicollinearity. The VIF must be lower than 10, which is generally considered as the upper limit indicating no significant multicollinearity bias due to the introduction of a large number of variables.

The results drawn from the above methods cannot be validated without comparing them with the alternative estimators. The selection of the appropriate estimators aims to identify potential econometric biases, which may reduce the relevance of our estimations. The choices of estimators used for this comparison are the random effects (RE), the fixed effects (FE), and the Hausman-Taylor (HT). Mundalk (1978) explains that the RE model assumes exogeneity of all the regressors and the random individual effects while the FE model allows for endogeneity of all the regressors and the individual effects. The FE model considers the bilateral specific effect as fixed, which provides unbiased parameters estimates

for time variant variables. However, our gravity model takes into account both time variant and time invariant variables. Hence, the of FE model cannot apply on the time invariant variables such as distance, border, or regional dummy variables, which are not vary if the membership is not change during the period of study. In addition, the FE approach ignore the cross-sectional nature of the data, which cannot efficiently provide an accurate interpretation of regional trade agreement dummies coefficients to the key problem statement of the study, specifically the effect of regional trade integration on bilateral exports.

Therefore, estimating gravity model with random effects is more efficient then fixed-effects if there is no correlation between independent variables and the specific bilateral effects. However, previous studies usually prove that GDPs or FDI might correlate with bilateral specific effects as confirmed in Carrère (2006). Moreover, the free-trade agreements are also likely the endogenous variable, which can correlate with unobserved variables that are correlated with decision to trade. Baltagi et al. (2003) propose that the solution to the choice between correlation between the individual effects and the regressors, is using HT model where some of the regressors are correlated with the individual effects. Hausman and Taylor (1981) propose the HT estimator based upon an instrumental variable estimator, which uses both the between and within variation of the strictly exogenous variables as instruments. This means that the individual means of the strictly exogenous regressors are used as instruments for the time-invariant regressors that are correlated with the individual effects. The choice between each estimator is based upon the standard Hausman test.

First, we had to decide if random effect is more appropriate than simple OLS. This can be done with the use of the Breusch and Pagan Lagrangian multiplier test for random effects.

As a second step, we use the standard Hausman test to select between Random Effects versus Fixed Effects. This choice of estimator reverts to RE if the null hypothesis cannot be rejected.

Lastly, we perform the tests to select legitimate instruments variables for the HT estimator. According to Carrère (2006), the definition of the explanatory variables as exogenous or endogenous can be identified using the following tests: To confirm if the instruments variables are legitimate or if an additional source of correlation between specific effects and explanatory variable exists, the over-identification test is used. This test compares the difference between HT and fixed-effects estimator. Baltagi (2008) suggests that when there is no bias due to a correlation between specific bilateral effects and independent variables, the null hypothesis cannot be rejected and the instrument variables used in the model are valid. Thus, HT estimator is more efficient then FE or RE. Guillotin and Sevestre (1994) and Carrère (2006)

propose to use Hausman test to compare between RE and HT estimators. If the null hypothesis is rejected, the HT estimator provides better estimations then the RE estimator, and thus the instrumented variables are endogenous.

In addition to the Hausman tests, the canonical correlation is another useful test to compare the different set of instruments. Baltagi (2008), Carrère (2006) , and Mairesse et al. (1999) posit that one should select instruments that have the highest geometric average of the canonical correlations with the regressors.

2.4 Estimation results

Table 2.2 displays the results of Equation 2.6 with the fours estimators and the full set of data. Column 2 to 5 present the results from each estimator, namely Ordinary Least Squares, Poisson Pseudo Maximum Likelihood, Random Effects, and Hausman-Taylor estimator. All models have rather high goodness of fit measured as R^2, which ranges from 0.6042 for RE to 0.657 for OLS. All estimations are based on 541 observations. Most of the results of the explanatory variables of the OLS and PPML estimators match their expected signs and are statistically significant. However, OLS obviously outperform their peers in terms of magnitude of the coefficients. This does not necessarily indicate that OLS provide the best estimation results because the high magnitude of the coefficients makes the estimations more suspicious and less reliable. Gomez-Herrera (2012) posits that OLS estimation is inconsistent in panel data, in which there exists the unobserved heterogeneity. The Breusch and Pagan Lagrangian multiplier test for random effects shows a highly significant at 1% and a chi-2 (01) = 1091.36. This test rejects of null hypothesis of no significant difference across units. This means that there is evidence of significant differences among countries. Therefore, the random effects are present in our data. As a result, the random effects estimator is preferable to the OLS estimator.

The results from PPML estimator in the column 3 of Table 2.2 change in the magnitude but keep the same sign and level of statistical significant of the parameters. The lower coefficients in the PPML estimator are congruent with Silva and Tenreyro (2006) and Gomez-Herrera (2012) that the PPML reduces the magnitude of coefficients and the standard errors.

According to the results of Hausman test in column 5, the null of zero covariance is strongly rejected with chi-2 (8)=4788.89 at 1%-level significant. Thus, the FE is a preferable estimator compared to RE, and the use of HT method to estimate gravity model can be performed.

To obtain the final results of HT models presented in column 5, some sensitivity tests have been carried out to choose the legitimate instruments. The first

estimation, which denotes HT1 in the Appendix B.3, uses only the GDP_{ct}, GDP_{jt} variables as endogenous. The over-identification test cannot reject the null hypothesis legitimacy of the instruments used, which means that there is no bias due to the correlation between specific bilateral effects and the explanatory variables. However, the Hausman test, which compares HT to RE, cannot reject the null H_0. Hence, the instruments model does not provide better results compares to RE model. The second test considers GDP_{ct}, GDP_{jt}, FDI_{jt} variables could be the source of endogeneity. The model HT2 has not been improved due to the rejection of null H_0 of the comparison between HT and RE but the over-identification test still cannot rejects the hypothesis, and thus the additional instrument variable is valid. The third HT3 model considers GDP_{ct}, GDP_{jt}, FDI_{jt}, and $ASEAN_{cj}$ as the sources of correlation. The over-identification test indicates that there is no more correlation between explanatory variables and bilateral effects and the hypothesis of legitimacy of the instruments used is confirmed. The hausman test between HT and RE reveals a chi-2(10)=22.88 and significant at 5%. This confirms that the instrumented model is more efficient then the RE model. The HT4 instruments GDP_{ct}, GDP_{jt}, FDI_{jt}, $ASEAN_{cj}$, and LPI_{ct} . The over-identification test and the Hausman test between HT and RE lead provide the satisfactory results as the instruments are legitimated and the instrumented model has improved the estimations. The geometric average of the canonical correlations, which provide the information of association between variables, increase from 0.87 in HT3 to 0.90 in HT4, indicating a higher relevance of our instruments. These estimation results emphasise the absence of misspecification for our HT estimator, and therefore, the HT estimator is convergent and more efficient than the FE estimator.

The column 5 and 6 present the results from FE and HT estimation, which indicate basically the same level of significance and magnitude of coefficients. This confirms once again that the endogeneity issues have been controlled and the HT is more efficient than the RE and FE estimators. Therefore, our discussions will focus mainly on the results from both PPML and HT estimators.

Regarding the traditional gravity variables, both importers and exporters' GDP is positive and significant for all estimators. The results are plausibly in line with most of literature that GDP increase the bilateral exports in both exporters and importers countries. In addition, Cambodia's GDP appears to have a significant influence on exports with elasticity of 1.8 in HT estimator while the coefficient of importers' GDP is O.69. This finding indicates that the influence of domestic GDP on Cambodian exports is greater than the influence of the GDP of importing countries. Contrary to the theory that distance between partners decreases bilateral trade, the coefficients of distance are negative but not statistically significant in all the models. The result revels that distance has not contribute to the exports

of Cambodia. Referring to the results of PPML estimation, we also found that a common border between countries increase bilateral exports as expected. The bordering countries of Cambodia including Thailand, Vietnam and Laos contribute significantly to the rise of Cambodian exports. However, the border effect is positive but not statistically significant in HT approach.

Regarding the movement of capital, we found in all models a significant interrelationship between bilateral exports and the outward stock of foreign direct investment of the importing country. An increase of outward stock of FDI in the importing country results in the rise of Cambodia's exports. This means that the FDI are in fact complementary with trade.

Besides distance, the tariff, which represents another trade cost, has a negative and statistically significant effect on exports with PPML method as expected, while it is negative but statistically insignificant in HT. The result confirms Anderson and van Wincoop (2004) that the reduction in tariffs contributes to an increase in exports. In contrast, the NTBs, typically having negative effect on exports in most of literature, have a positive effect and are statistically significant at 1% in PPML but insignificant in HT. The positive sign indicates the degree of trade openness of Cambodia to other countries. It may also imply that Cambodia's products are competitive in the foreign markets because exporters strive to meet the requirements imposed by importing countries. Interestingly, this result is congruent with the work of Devadason and Chenayah (2014), who study the impact of NTBs imposed by China on ASEAN countries' products including those of Cambodia. The authors explain that the NTBs for individual ASEAN member economies are not great enough to warrant close inspection. The rising demand for parts and components from ASEAN, which is commonly integrated into China's supply chain, overpowers the true effect of the NTBs. If we look closely at Cambodia's export structure, it is not surprising that the coefficient of NTBs is positive and significant; more than 80% of country's exports in 2012 were textile and footwear products and the country receives the Most-Favoured Nation status from major markets like the United States and Europe (ADB, 2014).

The Logistics Performance Index also shows a plausible positive and statistically significant coefficient regardless of the models. According to the estimated results in Table 2.2, an increase in LPI of Cambodia has a great influence on exports. This is once again to confirm the important role of logistic in this modern competitive trading system as mentioned in Khan (2011).

Table 2.2: Estimation results of the gravity equation

VARIABLES	Dependent: $lnEXPORT_{cjt}$				
	OLS	PPML	RE	FE	HT[a]
$lnGDP_{ct}$	1.398***	0.0830***	1.904***	1.614***	1.818***
	(0.208)	(0.0124)	(0.170)	(0.277)	(0.232)
$lnGDP_{jt}$	0.274***	0.0159***	0.386**	1.104**	0.689*
	(0.0835)	(0.00537)	(0.190)	(0.449)	(0.353)
$lnDIS_{cj}$	-0.183	-0.0153	-0.0412	-	-0.999
	(0.153)	(0.0106)	(0.431)	-	(1.385)
$lnFDI_{jt}$	0.416***	0.0292***	0.148***	0.105***	0.114***
	(0.0395)	(0.00570)	(0.0348)	(0.0353)	(0.0345)
$lnLPI_{ct}$	4.342	0.240*	4.103**	4.167***	4.122***
	(2.650)	(0.141)	(1.641)	(1.610)	(1.583)
$lnTAR_{cjt}$	-0.399***	-0.0233***	-0.134*	-0.0128	-0.0566
	(0.0675)	(0.00510)	(0.0783)	(0.0842)	(0.0801)
$lnNTB_{cj}$	0.872***	0.0513***	0.985***	-0.000401	0.427
	(0.114)	(0.00822)	(0.266)	(0.576)	(0.421)
$lnRQ_{ct}$	1.288*	0.0683*	1.131***	1.083**	1.096***
	(0.698)	(0.0404)	(0.432)	(0.424)	(0.417)
$BORD_{cj}$	4.163***	0.265***	3.182***	-	2.938
	(0.368)	(0.0283)	(1.093)	-	(2.162)
$ASEAN_{cj}$	0.237	0.00671	-0.0498	-	-3.061
	(0.332)	(0.0212)	(0.972)	-	(3.996)
Constant	-38.34***	-0.417	-51.35***	-61.49***	-47.15***
	(6.875)	(0.355)	(6.135)	(7.628)	(15.16)
Observations	541	541	541	541	541
R-squared	0.635	0.643	0.600	0.505	—
VIF	2.37	—	—		—
Hausman test FE vs RE[b]				4788.89***	
chi-2				chi-2(8)	
Hausman test HT vs RE[c]					21.52**
Chi-2					chi-2(10)
Test of over-id[d]					5.01
chi-2					chi-2(7)
Canonical correlation[e]					0.90

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

[a]HT: endogenous variables= $lnGDP_{ct}$, $lnGDP_{jt}$, $lnFDI_{jt}$, $lnLPI_{ct}$, $ASEAN_{cj}$.
[b]This test is applied to the differences between Fixed effect and Random effect estimators.
[c]This test is applied to the differences between Random effect and Hausman-Taylor estimators.
[d]This test is applied to the differences between Fixed effect and Hausman-Taylor estimators.
[e]Geometric average of the canonical correlation coefficients

The Regulation Quality in Cambodia is positive and statistically significant on exports with all estimation methods. This means that regulation quality plays an important role in increasing the exports, especially in a developing country such Cambodia. On the other hand, the Regulation Quality of host countries has an ambiguous impact on Cambodian exports according to the results. The coefficients were positive and statistically significant on Cambodian exports in PPML model, while it is negative and significant in the HT model.

Finally, the estimation results in Table 2.2 indicate that the dummy parameter ASEAN is not statistically significant in this equation. The result is in line with Kim (2006), who studied the trade flows of Cambodia from 1994-2004 and found ASEAN variable is negative but not statistically significant on export. This means that ASEAN community does not have any influence on the exports of Cambodia, even though the country is a member of this association. The suggestion that the ASEAN community is not the market for Cambodia's exports is confirmed by our data that shows that more than 80% of the country's exports are to the United States and the European Union. Moreover, at the time of this estimation (2000-2013), Cambodia's integration into ASEAN Economic Community was not yet fully completed. Therefore, the results that indicate no impact on Cambodia's exports from economic integration are not surprising.

Table 2.3: Sensitivity analysis with Hausman-Taylor model

VARIABLES	Dependent: ln $EXPORT_{cjt}$		
	HT1	HT2	HT3
	RTA	Political factors	
		Cambodia	Partners
GDP_{ct}	1.813***	1.091*	1.598***
	(0.236)	(0.584)	(0.221)
GDP_{jt}	0.690*	0.692**	0.971***
	(0.361)	(0.345)	(0.347)
DIS_{cj}	-1.788	-1.635	-1.738
	(1.236)	(1.162)	(1.148)
FDI_{jt}	0.101***	0.123***	0.110***
	(0.0344)	(0.0346)	(0.0343)
LPI_{ct}	4.132***	9.060**	3.841**
	(1.570)	(4.468)	(1.586)
TAR_{cjt}	-0.0562	-0.0537	-0.00989
	(0.0810)	(0.0806)	(0.0818)
NTB_{ij}	0.492	0.553	0.319
	(0.383)	(0.371)	(0.391)
RQ	1.098***	2.686***	-1.680***
	(0.419)	(0.831)	(0.526)
VOI		3.588***	-0.0132
		(1.172)	(0.346)
COR		-1.341***	0.921**
		(0.503)	(0.364)
GE		-1.920*	-1.341*
		(1.102)	(0.760)
RL		-0.371	2.335***
		(0.539)	(0.724)
POL		0.229	-0.131
		(0.942)	(0.194)
$BORD_{cj}$	1.413	1.505	0.918
	(1.744)	(1.644)	(1.818)
$ASEAN_{cj}$	-1.978	-1.548	-1.430
	(2.976)	(2.787)	(2.809)
ASEAN3[a]	-0.514	-0.476	-0.953
	(1.677)	(1.577)	(1.711)
EU-15[b]	2.188**	2.156**	2.049*
	(1.018)	(0.963)	(1.055)
NAFTA[c]	3.410**	3.258**	3.205*
	(1.716)	(1.615)	(1.647)
Constant	-41.69***	-38.31**	-40.15***
	(13.48)	(17.49)	(11.55)
Observations	541	541	541
N° of group	39	39	39
Canonical corr	0.92	0.98	0.92

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

[a]ASEAN3 refers to China, Japan, and South Korea.
[b]EU-15refers to the 15 Member States of the European Union as of December 31, 2003, before the new Member States joined the EU.
[c]NAFTA:The North American Free Trade Agreement (Canada, Mexico, and the United States.)
Endogenous variables= $lnGDP_{ct}$, $lnGDP_{jt}$, $lnFDI_{jt}$, $lnLPI_{ct}$, $ASEAN_{cj}$.

Additional sensitivity analysis presented in Table 2.3 aims firstly to justify if Cambodian exports depends on other markets such as the North America and the European markets rather than ASEAN market. The HT1 includes three dummy variables: ASEAN3 refers to China, Japan, and South Korea, which are the three main trading partners of ASEAN free trade agreement scheme; EU-15 denotes the 15 old members of the European Union before the new member states joined the EU; and NAFTA is the North American Free Trade Agreement comprising Canada, Mexico, and the United States. The dummies take value of one if the country is the member of the free-trade zone, and zero, otherwise. The results confirm with our arguments above that the EU and NAFTA have a positive and statistically significant on the exports. This means that Cambodia trades more with both european and north american countries than with the ASEAN member states. We also found the negative and insignificant effect of ASEAN3 countries on the bilateral exports. It implies that the China, Japan, and South Korea did not have influence on the merchandise trade of Cambodia since the majority of products are exported to the North America and to the European markets. Other baseline variables remain broadly unchanged with the same magnitude and significant level when including these additional variables. This confirms that the results from our gravity model are actually robust.

Secondly, HT2 and HT3 test the influence of various governance indicators in both Cambodia and importing countries in addition to the effect of regulation quality in the baseline model. We include the complete set of governance indicators described in Kaumann et al. (2010) in our model. The variable VOI refers to " voice and accountability", which measures the perception regarding the freedom of media, freedom of expression, freedom of association, and the level of participation of citizen in selecting their government. The COR is the "control of corruption", which captures the perception of the extent to which public power is exercised for private gain. The GE represents "government effectiveness", which measures the quality of public and civil services. The RL is the "rule of law". It captures the level of confidence perceived by agents on the rules of society. The POL denotes the political stability and absence of violence or terrorism. The index ranks from 1 (worst) to 100 (best).

HT2 estimates the impacts of governance indicators in Cambodia. The results show that beside regulation quality, voice and accountability also has a positive and statistically significant on bilateral trade. Thus, the improvement of citizens' rights and democracy helps increase trade. This is actually obvious, specifically for case of Cambodia where the respect of human right and democracy is the key element to benefit from the GPS scheme, particularly the Everything but Arms of the European Union, which grants duty-free and quota-free to Cambodia export

products. However, the control of corruption and the government effective have a negative sign and significant at 1% and 10%, respectively. Even though the majority of literature on governance and institution found that the improvement of governance in a country can increase the volume of exports, for example: Büthe and Milner (2008), Khan (2011), and Péridy (2011), the negative impact of the two variables can be explained by the particular situation of Cambodia. Based on our empirical data, the two indicators of governance were actually not improved. The score for control of corruption was 21.4, and the score for government effectiveness was 18.5 in 2000, whereas in 2013 the score for control of corruption was down to only 7.1 and 19.9 for the government effectiveness. In regards to the little evolutions on the scores of the two variables, the negative signs do not necessary mean that weak governance and high level of corruption increase more trade, but the necessary measures need to be implemented to improve the quality and effectiveness of public and civil services, to fight again corruption which rampant in most of public services. The study also found no evidence of the impact of rule of law and political stability and absence of violence on Cambodian trade.

We interest not only the governance factors in Cambodia, but also the impact of these indicators in the partner countries. HT3 takes into account the six indicators in our model. The results reveal the improvement of the control of corruption and rule of law in partner countries increase the bilateral exports with Cambodia. However, the increases of regulation quality and government effectiveness are the obstacle of bilateral exports. The results can be justified in one sense that improvement of regulation such as the law enforcement and the divers restrictions can represent additional trade costs, and then decrease the exports. Anderson and van Wincoop (2004) estimate international trade costs between developed countries represent up to a 74% tax equivalent, in which 17% are spent on cost related to information, contract enforcement, legal and regulation costs, and 8% on trade policy barriers such as tariff and non-tariff barriers. Finally, we also found no influence of voice and political stability in partner countries on bilateral exports.

2.5 Potential exports estimation

After applying the gravity equation to various estimation models, it is interesting to project bilateral export potentials between Cambodia and the 40 major importing countries. The potential exports are calculated from the residuals of the estimation model. Regarding the choice between in-sample and out-of-sample estimation prediction approaches, Egger (2002) explains that for the in-sample approach, the residual of the estimated equation, which includes all the countries under consideration in the regression analysis, is interpreted as the difference between

potential and actual bilateral trade relations. On the other hand, the out-of-sample approach refers to the estimating gravity equation for the sub-group of the whole observation; the residuals from this sub-group estimation are interpreted as difference between the observed and the predicted trade of the sub-group. Egger (2002) also argues that the choice of employing an out-of-sample or in-sample approach depends on the stage of the countries' transformation process. For instance, Péridy (2011) explains that if the implicated countries have not achieved full integration into the world economy, the out-of-sample prediction would be more appropriate; it provides a clearer distinction on what their exports would be if they behaved like the countries which are fully integrated into the world economy. However, our estimation model focuses only on the estimation of exports from Cambodia to its partner countries. Therefore, using the in-sample approach is appropriate as there is only one group of countries in our observations.

Another important aspect to consider is the estimator chosen for the interpretation of the gravity coefficients. As recommended by Egger (2002), the HT model is preferable to the OLS, RE or FE models due to the fact that the HT model control for autocorrelation and can include time-invariant effects. However, as a sensitivity analysis, we prefer to apply the projection estimation on all three models, OLS, RE, and HT.

Table 2.4: Actual-to-Potential exports ratio between Cambodia and partners

Importing country	**OLS**	**RE**	**HT**
Brunei Darussalam	0.80	0.82	0.92
Myanmar	__*	__*	__*
Indonesia	1.08	1.00	0.84
Lao People's Dem. Rep.	1.09	0.97	0.94
Malaysia	1.04	1.05	1.10
Philippines	1.07	1.02	0.98
Singapore	1.07	1.15	1.30
Viet Nam	1.08	1.06	1.06
Thailand	0.89	0.97	0.99
ASEAN AVERAGE	**1.02**	**1.01**	**1.02**
China	0.99	0.94	0.85
Japan	0.95	0.97	0.96
Rep. of Korea	0.94	0.94	0.93
ASEAN+3 AVERAGE	**0.96**	**0.95**	**0.91**
Austria	1.01	1.03	1.06
Belgium	1.15	1.13	1.15
Denmark	0.98	1.02	1.09
Finland	0.89	0.92	0.98
France	0.96	0.98	1.02
Germany	1.02	1.05	1.07
Greece	0.99	0.98	0.99
Ireland	1.08	1.11	1.19
Italy	0.93	0.94	0.95
Luxembourg	1.08	1.11	1.32
Netherlands	1.00	1.04	1.13
Portugal	0.83	0.83	0.87
Spain	1.01	1.02	1.05
Sweden	1.07	1.11	1.12
United Kingdom	1.02	1.05	1.10
EU15 AVERAGE	**1.00**	**1.02**	**1.07**
Canada	1.03	1.05	1.11
Mexico	1.10	1.05	0.94
USA	1.09	1.10	1.07
NAFTA AVERAGE	**1.07**	**1.06**	**1.04**
Australia	0.94	0.96	0.99
Brazil	0.97	0.92	0.80
China, Hong Kong SAR	1.13	1.20	1.35
Pakistan	0.83	0.71	0.66
Russian Federation	0.97	0.91	0.83
India	0.97	0.90	0.75
South Africa	0.97	0.94	0.88
Switzerland	0.97	1.01	1.08
United Arab Emirates	1.05	1.03	0.98
Turkey	1.01	0.97	0.89

Source: Author's calculation

*The estimation models exclude data for Myanmar.

Table 2.4 presents the ratio of actual/potential (observed/fitted export ratio) exports of Cambodia with 40 importing countries. Where the ratio is less than 1, the actual exports have not reached the level expected by the econometric model. Contrarily, if the ratio is equal to or greater than 1, we can conclude that no more export potential exists between the pair.

Overall, the actual to potential export ratio of Cambodia is largely equal to 1 for all the models. Thus, the actual exports from Cambodia to its partners are on average equal to the exports projected by the models. In other words, there is no export potential between Cambodia and most of its importing countries. By taking into account the average export potentials from Cambodia to different Free Trade Area zones, we can conclude that there is no export potential from Cambodia to ASEAN, EU15 or NAFTA. However, there is a moderate export potential to the ASEAN+3 countries, which could be increased to approximately 9% on average. In terms of trade potential across countries, export potentials exist for 3 countries in ASEAN, namely Brunei, Indonesia and Laos, which are 8%, 16%, and 6% respectively. Within the EU15 group, export potentials exist only for Italy and Portugal. Interestingly, the ASEAN+3 countries, which are important trading partners for ASEAN, exhibit a potential for Cambodia's products, especially the Chinese market with an export potential of 15%. Other importing countries with potentials for Cambodian exports, according to our econometric model, are Brazil, Pakistan, Russia, India, South Africa, and Turkey.

2.6 Conclusion and policy implications

This chapter provides an in-depth analysis of Cambodia's exports patterns in the context of ASEAN Economic integration. Application of a new gravity model for trade justifies to what extent the different factors influence Cambodia's exports. It contributes to the development of gravity model literature by introducing new variables such as FDI, Tariff and Non-tariff Barriers, Logistic Performance, and governance indicators in order to examine their influence on exports based on country-specific model, which is the the reduced form of the full version of gravity model. The study also contributes to the econometric estimations by employing different parameter method. First, we estimate using a simple OLS estimator followed by a PPML estimator. In the second stage, we perform the Breusch and Pagan Lagrangian multiplier test to confirm the presence of a random effect in our model. Next, we use the Hausman test to differentiate between the RE, FE, and HT models. The validation tests confirm the HT estimator is more reliable over OLS and RE. Using multiple estimation techniques allowed us to obtain more accurate results. Finally, the discussions are based on the comparison between the results from PPML and HT estimations.

The results drawn from the empirical model analysis indicate some common and different findings according to the estimate parameters. Regardless of estimation models, we found some key variables such as: GDP, FDI, logistics performance, and regulation have strong influence on bilateral exports. However, the statistically significant effects of border, distance, tariffs, and non-tarrifs barrier on exports exist only when using PPML approach.

Some key findings can be concluded here. First, the ASEAN Free Trade Area does not have any impact on Cambodia's exports while the NAFTA and EU free trad area have increased the merchandise exports. Thus, there is no specificity of trade relationships between Cambodia and the ASEAN's trade even though there exist the preferential trade agreement treatment for the ASEAN member states.

Concerning the influences of domestic factors, an increase of GDP of the country, the improvements of logistics performance and regulation quality play a significant role in increasing the country's exports. On the importer side variables, an increase in importer's GDP and outward stock of FDI increase the bilateral trade with Cambodia.

The study also looked at the impact of trade costs on exports. We found that tariff and distance serve as barriers to exports. Surprisingly, NTBs do not have a negative impact on exports due to the efforts of exporters who are in search of new markets for their product as will as the characteristic of Cambodia as a developing country, which benefits from MFN and GSP treatments from many partners.

The policy recommendations drawing from the econometrics results of the gravity equation are as follows: Firstly, ASEAN, which is one of the core variables in our study, has no impact on Cambodia's exports in the early stage of integration into the ASEAN Economic Community. However, measuring the impact of this Free Trade Agreement after the integration is fully implemented remains an interesting topic for future research. Regarding the trade costs, the results from the econometric model show that tariffs have a moderate impact on Cambodia's exports. Moreover, the results also reveal that NTBs, which are considered barriers for trade, have no negative impact on the country's exportation. This can be explained by the trade openness that characterises a developing country in searching for new markets for its products. Moreover, Cambodia benefits from the status of most-favoured-nation treatment thanks to its membership in WTO, and to benefits granted by the Generalized System of Preferences (GSP) from many countries, particularly from the European Union and the United States. This is a good indicator that Cambodia can attract more FDI and boost exports to others countries.

In addition, Cambodia should focus on improving its logistics performance ability. As shown in our estimation results, 1% increase in LPI leads to approximately 4% increase in exports. Hence, logistics performance plays a significant role in export expansion. Regulatory quality, specifically, the implementation of policies and regulations to promote development of the private sectors is another key element in augmenting the exports of the country. Our results clearly confirm that an increase in regulatory quality leads to an increase in exports. This empirical result is also in line with the current situation in Cambodia, in that many laws and regulations require improvement to promote private sectors and attract more investments from foreign countries.

Finally, FDI can be considered the export growth engine according to our model. A 1% increase in FDI results in a 0.1% increase in exports. In short, logistics performance, regulatory quality and FDI are the key elements to be improved for Cambodia in order to increase exports of the country in the context of globalisation and regional economic integration. In spite of the absence of a relation between ASEAN and Cambodia's exports at the time of the study, this future single market of more than 600 million people is the crucial potential destination for Cambodia's products. In this regard, government and policy makers should place more emphasis on improving the export capacity including development of soft and hard logistic infrastructures and the creation of laws and regulations, which would help to develop private sectors and foreign direct investments.

In terms of policy regarding export potential, the government should pay greater attention to expanding exports to ASEAN+3 countries, especially to China as

indicated by our estimation results. Moreover, our estimation reveals that potential exports of Cambodia could find place in emerging countries like Brazil, Russia, India, Pakistan, and South Africa. This appears beneficial for Cambodian exportation, as the demands from these markets are potentially high, especially for some specific agricultural products and raw materials such as rice and rubber.

This chapter paves the way for future working by taking into account the various factors that could influence trade patterns like migration and tourism. It can also be used as a benchmarking study regarding the impact of the ASEAN Economic Community on Cambodia's exports before and after integration.

Chapter 3

FDI attractiveness and the role of governance and bilateral investment treaties

3.1 Introduction

Since the 1980s, the growth of the international market through the Foreign Direct Investment (FDI) of Multinational Corporations (MNC) is an essential aspect of globalization. Cambodia started to receive FDI after the country adopted a market-based economy and democratic political regime from the first general election in 1993. Since then, investment laws and regulations have been established and revised in order to provide attractive conditions to foreign investors because FDI is an important source of capital, technology, and skill transfer in the early stages of the reconstruction of Cambodia's economy. Although FDI is an essential source of development in Cambodia, its empirical determinants are not yet well understood due to the lack of previous empirical studies and the availability of reliable longitudinal data sets.

The overall objective of this chapter is to investigate the determinants of FDI attractiveness in Cambodia with a special interest in the role of governance and bilateral investment treaties (BIT). The motivation that leads us to include these two particular aspects in this study is that in recent years policy makers in developing countries have increasingly pinned their hopes on the quality of political and institutional factors, as well as on bilateral investment treaties in order to improve their chances in the worldwide competition for foreign direct investment. There are several research papers on the determinants of FDI that do include BIT, and political and institutional factors in the developing countries. However, the results are not robust. Hallward-Driemeier (2003) found no relationship between

BIT and the inflows of FDI whereas Tobin and Rose-Ackerman (2005) obtained a negative relationship. Neumayer and Spess (2005a) and Salacuse and Sullivan (2005) found that BIT has increased FDI inflows. This is also the case regarding the effects of governance on FDI. Gani (2007), Alshammari et al. (2015), and Busse and Hefeker (2007) found positive effects of governance indicators on FDI inflows while Morrissey and Udomkerdmongkol (2012) and Loree et al. (1999) showed mixed results of a negative relationship as well as no relationship between governance indicators and FDI inflows. These inconclusive results have motivated us to examine the impacts of the two indicators in our empirical models of FDI determinants in Cambodia.

From the theoretical point of view, economists have developed numerous theories and paradigms to explain the determinants of foreign direct investment. This chapter does not pretend to cover all of those theories because we focus specifically on the relative role of country-level factors, including the macroeconomic, governance, and trade agreement factors that attract the inflows of specific types of FDI such as natural resource seeking, market seeking, efficiency seeking, and strategic asset seeking FDI.

The goal of this chapter is to seek answers to the following questions: Which macroeconomic, governance, trade, finance, and geographic factors, determine foreign direct investment in Cambodia? What are the features of FDI and the motivations of foreign investors who decide to set up their subsidiary in Cambodia? To what extent have the governance indicator scores and BIT affected the decision of the MNC?

The answers to the above questions will be investigated through the empirical model of FDI determinants inspired by the paper by Cuyvers et al. (2011), who study the FDI determinants in Cambodia. We also add more variables regarding governance and institutional factors described in Busse and Hefeker (2007) with more attention on the role of BIT discussed in Tobin and Rose-Ackerman (2011); Egger and Merlo (2007); Busse et al. (2010); Hallward-Driemeier (2003); Neumayer and Spess (2005b). Our estimations will employ both static and dynamic panel regression methods.

This chapter contributes to the literature in several ways. First, it uses Dunning's OLI (Ownership, Location, Internalization advantages) paradigm to explain the phenomenon of investment flows from developing countries to the least developed countries, while most of the existing research applies this theory in the context of the movement of investment from developed economies to other economies. Second, the chapter sheds light on both the theoretical and empirical study of inflows of FDI in a country characterized by its abundance of unskilled labour, its open business policy to the outside world along with favorable incentives to foreign investors, and

in the context of the early stages of economic and social development after the end of the civil war. Third, the study of FDI determinants takes into account not only the economic and financial indicators but also the new governance, and bilateral investment agreement factors which become increasingly important for firms in making investment decisions in a foreign country. Finally, this chapter uses both static and dynamic estimators with several validation tests and sensitivity analysis to provide a clear interpretation of various assumptions.

The rest of this chapter is organized as follows: Section 3.2 provides a brief overview of patterns and relations between FDI, Governance, and BIT. Section 3.3 describes the literature related to determinants of FDI. Section 3.4 presents the hypotheses and research design. Section 3.5 describes empirical models and discusses estimation methodologies. Section 3.6 presents the empirical results. Finally, section 3.7 summarizes the results and provides some policy recommendations together with concluding remarks.

3.2 Patterns and relations between foreign direct investment, governance and BITs

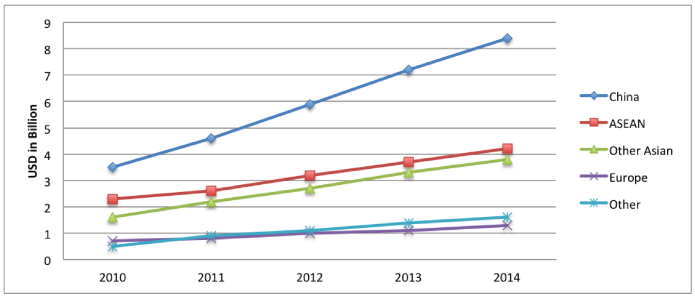
3.2.1 Patterns of foreign direct investment in Cambodia

Inward FDI in Cambodia is relatively recent starting from the mid-1990s after the end of the civil war. The FDI regime went through remarkable improvement in 2003 thanks to the revision of the investment law. As part of the new investment regime, the investment law was revised once again and rectified in 2005 aiming at equalizing incentives for foreign and local investors by providing greater transparency in incentives and by minimizing distortions and delays resulting from policy maker discretion (ADB, 2006). Moreover, a sub-degree was issued in September 2005 to establish the legal framework for creating Special Economic Zones (SEZs). This open and liberal foreign investment regime grants foreign investors total foreign ownership of companies. Investors also enjoy many benefits including corporate tax holidays of up to eight years and a 20% corporate tax rate after the end of the incentive period, duty-free imports of capital goods, and no restrictions on capital repatriation.

According to the report on the FDI survey in 2014 by the Institute of Statistics and the National Bank of Cambodia (2016), the stock of FDI increased from USD 8.9 billion in 2010 to USD 19.2 billion in 2014. FDI in Cambodia is dominated by investment from Asian countries, which accounted for almost 90% of total FDI. China, including Mainland China, Hong Kong, Taiwan, and Macau, are the main investors in the kingdom with USD 8.4 billion or 44% of total FDI as of December

2014. Investments from ASEAN countries took second place after China with USD 4.2 billion or 22% of total investment and came mainly from Vietnam, Malaysia, Thailand, and Singapore. The other Asian countries that invest in Cambodia, accounted for USD 3.8 billion or 20%. Korea and Japan are the major investors in this group. FDI from European countries represents USD 1.3 billion (See figure 3.1).

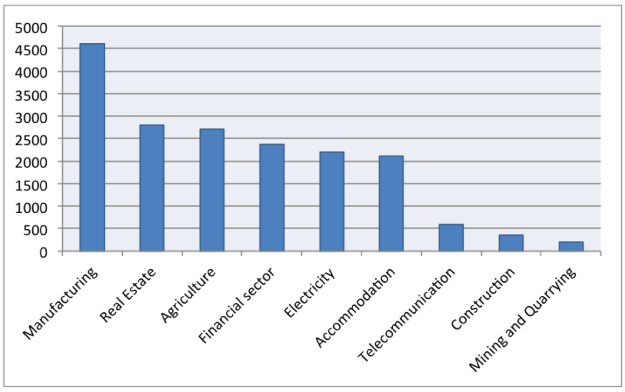
Figure 3.1: FDI stock in Cambodia by country/region of origin, 2010-2014



Source: Published revised data from Survey of FDI in 2014, author's calculation

Regarding the industrial sector of FDI, Figure 3.2 shows that manufacturing is the leading sector in receiving foreign investment in Cambodia, accounting for USD 4,601 million with garments and footwear being the dominant industries in this sector. FDI in real estate accounted for USD 2,800 million and comprised of investment in raw land, residential, commercial, industrial, and recreation industries. Agriculture was the third major sector of FDI with USD 2,715 million in investment by 2014 primarily in rubber and cassava plantations. FDI in other major sectors include the financial sector (USD 2,375 million), electricity (USD 2,199 million), accommodation (USD 2,114 million), telecommunications (USD 600 million), construction (USD 350 million), and mining and quarrying (USD 193 million).

Figure 3.2: Industrial sector of FDI as of 31 December 2014 (in million USD)



Source: National Bank of Cambodia

Joint ventures and wholly-owned foreign subsidiaries are the two main modes of

FDI in Cambodia. Cuyvers et al. (2011) find joint ventures a dominant entry mode of FDI at the beginning of 1990s. Yet, the foreign wholly-owned was gradually increasing and surpassing joint ventures over the period 1994-2004.[1]

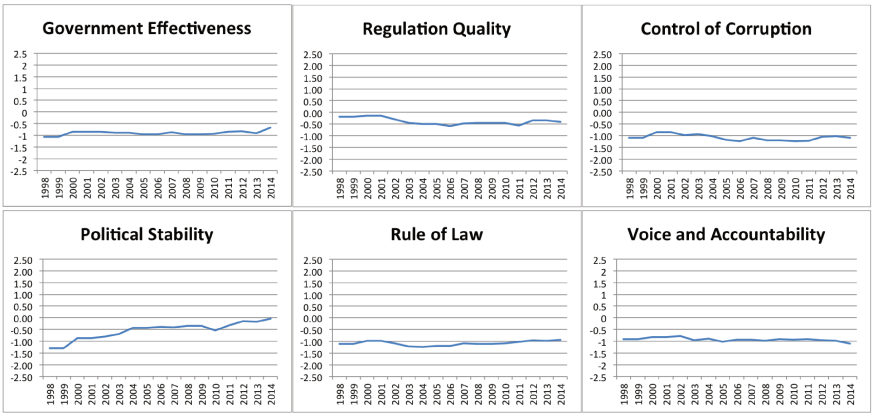
3.2.2 Foreign direct Investment and governance

It is widely recognized that the attractiveness of the country's foreign direct investment is determined in large extent by its governance infrastructure including political, institutional and legal environment. Numerous previous studies have provided empirical support for this notion. Globerman and Shapiro (2002) find that governance infrastructure is an important determinant of both FDI inflows and outflows. Investments in governance infrastructure not only attract capital, but also create the conditions under which domestic multinational companies emerge and invest abroad. Morrissey and Udomkerdmongkol (2012) also urge that good governance is associated with higher investment, which is a source of economic growth. Yet, it is difficult to generalize about the statistical impact of governance on specific types of investment and on the relationship between sources of investment because the governance attributes are measured in different ways according to different studies. Globerman and Shapiro (2002) define governance infrastructure as public institutions and policies created by governments as a framework for economic and social relations. Therefore, the governance indicators developed by Kaumann et al. (2010) are likely the most useful and complete measures for capturing different aspects of governance including voice and accountability, political stability and absence of violence, government effectiveness, regulative quality, rule of law, and control of corruption.

Gani (2007) explains the influence of governance on FDI that *Political Stability* with the strict observance of the *Rule of Law* can reduce the risk of doing business in the host country and are likely to attract more FDI; *Government Effectiveness* can have a good influence on foreign investors, while *Corruption* in the public sector negatively affects economic activity and discourages foreign investment from entering the host country; The poor *Regulation Quality* can lead to corruption and larger unofficial economies, which work against the interests of foreign investors; *Voice and Accountability* can also influence FDI as public participation is important not only for democratic development but also for the progress of multinational companies.

[1]Recent official data on the type of FDI is not available

Figure 3.3: Evolution of Governance Index in Cambodia from 1998-2014



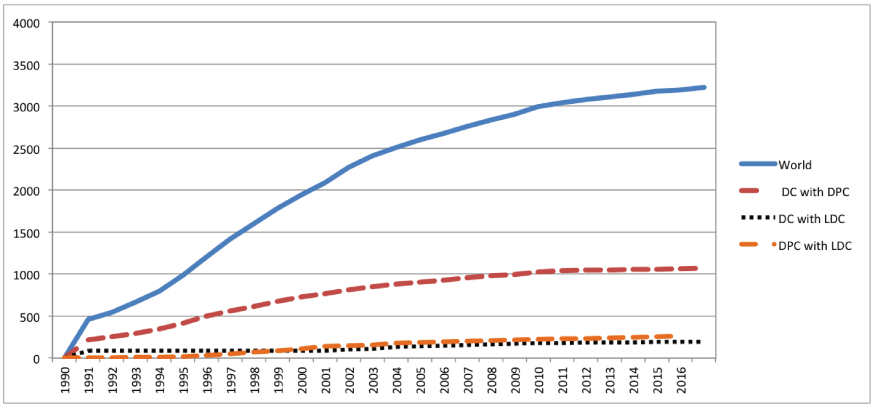
Source: The Worldwide Governance Indicator (www.govindicators.org), Author's calculation.

Figure 3.3 shows the evolution of governance indicators in Cambodia based on the calculation methodology of Kaumann et al. (2010). The indicators are measured between -2.5 (weak performance) to 2.5 (strong performance). All of the indicators are below zero signifying that governance performance in Cambodia is still weak. Only the Political Stability index, which has gradually increased from -1.30 in 1998 to -0.03 in 2016, shows improvement, whereas the other indexes are almost stagnate at around -1.

3.2.3 Foreign direct investment and bilateral investment treaties

The features of bilateral investment treaties vary according the specific conditions of each country. Yet, in general, they share some common principles for defining foreign investment including mechanisms of dispute settlement, expropriation, specific treatment, and the transfer of fun (Hallward-Driemeier, 2003). In the last two decades, conditioned by the globalization phenomenon, FDI from developed countries (DC) to developing countries (DPC) has surged dramatically. However, one of the major challenges for FDI in DPC is the risk of expropriation. In this regard, DC have increasingly turned to signing BIT with DPC to secure their investments abroad. For DPC, BIT is an important means of attracting new foreign direct investments to their shores. This is the reason why the empirical study on the effects of such treaties on the inflows of FDI to developing countries becomes interesting, as they measure the extent to which BIT can attract more FDI to developing countries.

Figure 3.4: Cumulative number of signed Bilateral Investment Treaties between Developed and Developing Countries and Least Developed Countries (1990-2016)

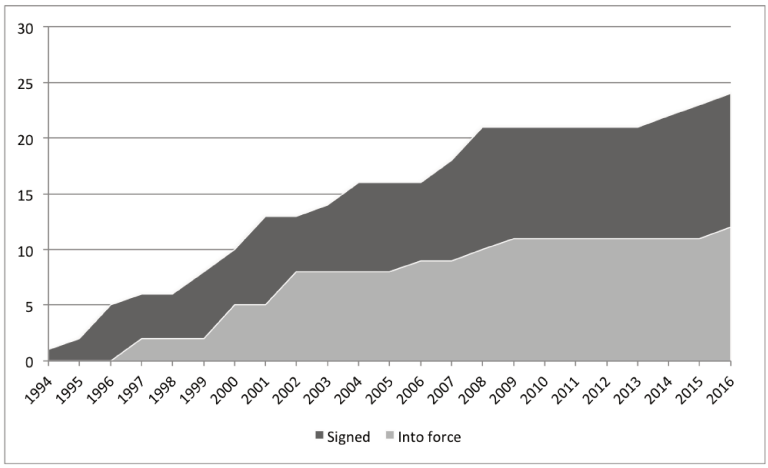


Source: UNCTAD database on IIAs (http://investmentpolicyhub.unctad.org/IIA), Author's calculation

Since the first BIT, which was concluded in 1959 between Germany and Pakistan, the number of BIT has increased gradually. This number exploded in the 1990s from 461 in 1990 to 2,084 in 2000. Almost half of the treaties were ratified between developed countries and developing countries, including least developed countries during this period. By 2016, the total number of BITs reached 3,225 (see Figure 3.4).The surge in the number of rectified BIT between DCs and DPCs comes from the fact that BITs provide assurance and transparency to foreign investors regarding their property rights. Hallward-Driemeier (2003) mentions that one common clause stated in many BITs gives the foreign investor the right to sue the host government if actions undertaken by the government are deemed to substantially expropriate his/her business. From this perspective, BIT is also a means to guarantee foreign investors diplomatic protection from their home government and the willingness of the host government to avoid expropriation.

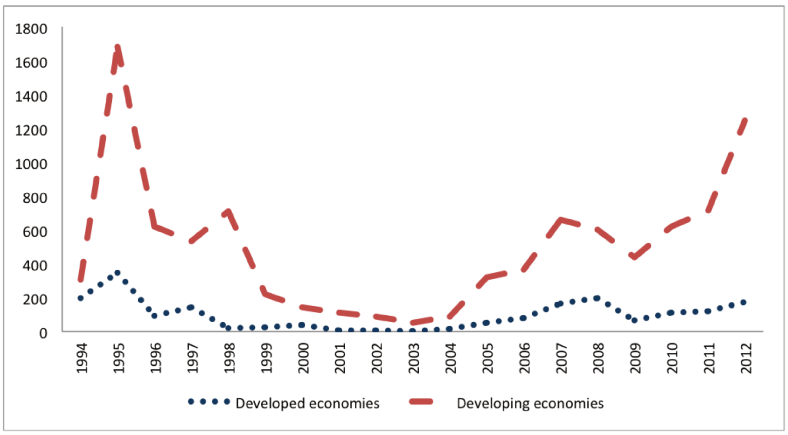
For Cambodia, the first BIT was signed in 1994 with Malaysia. Since then, the number of signed BITs has increased gradually. By 2016, the number of signed BITs reached 24, yet the number ratified was only 13 (Figure 3.5). Most of the countries that signed and ratified bilateral investment treaties with Cambodia are from Asian countries including China, South Korea, Malaysia, Singapore, Thailand, and Vietnam (See appendix C.3 for details), in which the total share of FDI inflows to the kingdom is important.

Figure 3.5: Accumulated number of signed and ratified BIT between Cambodia and partners 1994-2016



Source: UNCTAD database on IIAs (http://investmentpolicyhub.unctad.org/IIA), Author's calculations

Figure 3.6: Inflows of FDI in Cambodia from developed economies and developing economies (1994-2012), in million USD



Source: Author's calculations based on UNCTAD bilateral FDI statistics

Along with the gradual increase in the number of signed BITs, Figure 3.6 shows the fluctuations of FDI inflows in Cambodia between 1994-2012 from developed and developing economies. These fluctuations were explained by the internal conflict in Cambodia in 1997 and the Asian financial crisis between 1997-1998, following by the global financial crisis in 2008. Starting from 2004, the amount of foreign investments has surged, mainly from developing countries that have signed and rectified a BIT with Cambodia. Hence, it is interesting to examine the impact of BITs on inflows of FDI in Cambodia in order to understand whether this treaty can contribute to increasing foreign investments.

3.3 Theoretical background on the determinants of FDI

Over the years, numerous theories and paradigms have been developed to explain the determinants of foreign direct investment. Faeth (2009) argues that various factors mentioned in different theoretical models are jointly used to explain the determinants of FDI, such as the characteristics and size of markets, cost factors, transport costs, protection, ownership advantages or agglomeration economics, risk factors and policy variables. The studies on the influence of these factors on FDI could be found in empirical studies and theoretical models including: (1) neoclassical trade theory, (2) ownership advantages, (3) the Ownership, Location and Internalization (OLI) advantage framework, (4) horizontal and vertical and knowledge-capital FDI model, and (5) recent studies on complex modes of FDI.

The first theoretical model to explain the determinants of FDI is based on the Heckscher-Olin model of neoclassical trade theory. The model used the general equilibrium framework based on the assumption of two countries, two factors of production, and two goods (2x2x2) with perfectly competitive goods and factor markets, and identical returns to scale production functions. The model excludes transport costs and is based on the further assumptions that commodities differ in relative factor intensities and countries differ in relative factor endowments. Therefore, a country with relatively abundant capital tends to export capital-intensive goods or move capital to foreign countries to seek a higher return on capital and a lower return on labour with an equal factor price.

In contrast to the idea of perfect competition from neoclassical theory, Hymer (1976) and Kindleberger (1969) argued that the decisions of firms to enter foreign markets is driven by monopolistic advantage in structural market imperfections. Therefore, foreign firms need ownership advantages such as product differentiation, superior management skill, new technology, and advantages from external or internal economies of scale to compete with local rivals.

The third theoretical model is the eclectic paradigm by Dunning. Dunning (1979; 1977) combines internationalisation theory and traditional trade economics to explain the reasons for MNCs deciding to operate internationally, and their modes of entry such as exports, licensing and investment. Dunning (2012)) suggests that a firm would engage in international investment if three conditions were fulfilled: a) It possesses net ownership advantages[2] vis-à-vis other firms (O); b) It must gain an advantage by internationalising its activities using FDI rather than exporting or

[2]Ownership advantages are those which are specific to a firm. These advantages are in the form of both tangible and intangible assets including patents, technical knowledge, management skills, access to or control over raw materials, superior technology, brand name, marketing skills, and economies of scale.

licensing (I); c) It must gain an advantage in locating in a foreign country rather than at home (L).

This approach is commonly known as the OLI paradigm since it brings together Ownership, Location, and Internationalization advantages. Hence, the variables determining FDI and MNC activities in the OLI model may be likened to a three-legged stool; each leg is supportive of the others, and the stool is only functional if the three legs are evenly balanced. Choudhury and Nayak (2014, page 10) explained this mechanism in a simple way as follows:

> "A firm having ownership advantage, and where there are internationalization gains but no locational advantage incurred by setting up a unit in a foreign country, will very likely choose to increase its production at home and export its products abroad. In the same way, a firm having ownership and locational advantages will find it more profitable to produce abroad than to produce domestically and export its products. However, if there are no internalization gains then the firm will be better off licensing its ownership advantage to foreign firms."

The third theoretical model for explaining the characteristics of FDI and MNC activities is horizontal FDI, vertical FDI, and the knowledge-capital model. According to Helpman (1984) and Helpman and Krugman (1985a), vertical MNCs are established to serve the parent market via foreign affiliate exports by setting up their headquarters in a skilled labour-abundant parent country and invest in unskilled labour-intensive production in an unskilled labour-abundant host country in order to seek international factor price differentials. Horizontal MNCs, on the other hand, demand higher investment costs by serving the markets locally rather than trading in order to save on trade costs. The knowledge-capital model of Markusen et al. (1996) and Markusen (1997) is based on the assumption that services of knowledge-based and knowledge-generating activities can be geographically separated from production and supplied to production facilities at low cost. These knowledge-intensive activities are skilled-labour-intensive relative to production, and the knowledge-based services have a joint-input characteristic, in that they can be utilized simultaneously by multiple production facilities (Carr et al., 2001).

The recent study of complex modes of FDI presents new important developments. First, vertical and horizontal FDI have been merged in the knowledge-capital model of multinationals (Carr et al., 2001; Markusen James, 2002). Second, there is clearly a role for "Complex FDI" in a hybrid horizontal-vertical FDI role and this is justified in the studies by Ekholm et al. (2007) and Grossman et al. (2003). Third, Baltagi et al. (2007) extended the study on complex FDI modes and found significant

third-country effects on the determinants of FDI.

However, the majority of the theories above have mainly explained the movement of investment from developed economies to other economies but fail to capture the phenomenon of investment flows from developing countries to other countries, particularly to the least developed countries (Choudhury and Nayak, 2014). Amal et al. (2010) state that for the last twenty years, FDI has been targeting emerging markets to look for bigger markets, to reduce production costs and develop new technology. However, it was previously driven mainly by locational advantages related to abundant natural resources in the least developed countries. In this regard, Cambodia as a least developed country is dominated by inflows of MNCs from developing and emerging countries[3] such as China, Republic of Korea, Taiwan and Thailand. It is important to look into factors that attract those MNCs to invest in the country by drawing the assumption from existing theories as a basis for formulating an empirical analysis model. Consequently, the OLI Paradigm of foreign investment can partially explain the factors that determine the investment of foreign countries in Cambodia based on the macroeconomics point of view.

The contributions of Dunning's OLI paradigm to existing literature on FDI help explain cross-country differences in the pattern of international involvement by MNCs by combining several complementary theories, and identifying a set of factors that influence MNC activities (Root, 1994). The first contribution is that the location-specific characteristics that contribute to competitive advantage vary according to different countries, sectors and firms. The second contribution is that the OLI paradigm makes it possible to identify four different types of MNC investment. The first type of investment is related to *natural-resource-seeking,* which occurs when firms consider specific host country locations as attractive natural resources such as unskilled labor, and raw materials, which are not available in the home country. This type of investment, also known as vertical FDI, is particularly common in the manufacturing sector where multinational firms decide to set up their production facilities in order to establish production chains abroad. The second type of investment is *market-seeking FDI* or horizontal FDI. The objective of this investment is to satisfy a particular foreign market by replicating production facilities in the host country. The third type of FDI focuses on *efficiency seeking.* This type of investment is designed to increase the efficiency of labour or the specialization of an existing portfolio of foreign and domestic assets held by an MNC. The last type of FDI is designed as *strategic asset seeking* FDI. It is created to protect or augment the existing ownership specific advantages of the firm. In short, the OLI advantages vary according to the type of country whether developed or

[3]The details of investor countries in Cambodia are available at the published report of National Institute of Statistics and National Bank of Cambodia (2016)

developing, large or small, industrialized or not, high or low technology, innovating or mature, processing or assembly, competitive or monopolistic, or whether the MNC is large or small, old or new, leader or follower, innovator or imitator. Root (1994) explains that both firm and country-specific endowments, including natural resources, labour, energy, geographical location, markets, government policies, etc., are necessary for foreign involvement. When it is most profitable for an MNC to internalize its monopolistic advantage in a foreign country, then the MNC favours investment in that country. Otherwise, it exploits the country market through exports or licensing. This conceptual framework makes Dunning's OLI theory more widely accepted than other imperfect market-based theories.

In addition, in the absence of a generally accepted theoretical framework, researchers generally rely partly on empirical evidence to explain the emergence of FDI. Scholars have been trying to include the effects of macroeconomic and international trade variables in the analysis models to capture how institutional changes in developing countries contribute to the distribution of the outflows of FDI in the globalization context. The first approach considers macroeconomic variables related to inflation rate, economic stability, growth rate, exchange rate, exports and imports. The institutional approach focuses on the factor that could affect the business climate in the host countries, such as the degree of transparency, the level of risk, and freedom. For instance, Schneider and Frey (1985) use the combination model of economic and political determinants such as GNP per capita, real GDP growth, inflation, balance of payments, skilled labour, wage cost, political instability, government ideology, and bilateral and multilateral aids to explain the FDI in 54 least developed countries. Various recent studies such as Cuyvers et al. (2011), Zhang and Daly (2011), Liu (2010), Neumayer and Spess (2005a), and Asiedu (2002) have used broader variables including financial factors, political risk factors, geographical factors, and regional and multilateral agreements to test the influence of inward FDI in a developing country. Therefore, those variables are widely used to study the determinants of FDI inflows in developing countries.

3.4 Research design and hypotheses

The literature investigates a large number of explanatory variables which have been assigned to explain FDI. Some of these variables are used based on the theories of FDI, while other variables are included intuitively because they make sense. The design of this study concentrates on the attractiveness factors that influence the inflow of FDI into a developing country such as Cambodia. As described earlier, various theoretical and empirical studies have identified the broad range of determinants that influence the choice of location for investments by multinational

enterprises such as market structure, market size and growth, infrastructure, exchange rate risks, labour costs, political and economic stability among others. Our study, which is based partly on the Dunning OLI paradigm, intends to verify some hypotheses that have been considered as important determinants that attract FDI to a developing country, such as the empirical studies by Cuyvers et al. (2011), Tobin and Rose-Ackerman (2011), Tobin and Rose-Ackerman (2005), Zhang and Daly (2011), Hallward-Driemeier (2003), Wei (1996), Neumayer and Spess (2005b), Busse and Hefeker (2007), Busse et al. (2010), Chakrabarti (2001), and Asiedu (2002). It examines the broad range of factors, which could affect the determinants of FDI, including economic and financial indicators (proxied by market size, growth of GDP, real exchange rate, international trade, interest rate, inflation, and cost of wages), and also governance indicators as well as other bilateral and multilateral trade agreements. The variables of interest and hypotheses are detailed as follows:

- Market size

GDP and GDP *growth* have been by far the most widely accepted as significant determinants of FDI flows as they represent market size and opportunity for MNC firms. They are used to measure the importance of location advantages for MNC according to Dunning's OLI paradigm. A larger market size influences the locational decisions of MNC as this proxy represents demand, potential growth and production volume, owning to the greater expected profitability, which is the result from efficient utilization of resources and exploitation of economies of scale (Cuyvers et al., 2011; Chakrabarti, 2001; Erdogan and Unver, 2015). The market size of the host country is supposed to capture demand and scale effects. This is a very important factor for market seeking FDI rather than resource seeking FDI because the former decides to serve the host country market only when there are sufficient domestic demands for final goods in order to set up production locally (Davidson, 1980). Several empirical studies (Neumayer and Spess, 2005b; Busse and Hefeker, 2007; Tobin and Rose-Ackerman, 2011) find support from the role of market size in attracting FDI.

Hypothesis 1: An increase of market size in the host country relative to the home country's market size is expected to have a positive effect on FDI inflows in the host country.

- Inflation

Inflation rate is also an important factor for attracting inflows of FDI. It measures the level of economic stability in the host country, especially in terms of government policies such as fiscal policy. Sultana (2016) and Khan and Mitra (2014) argue that a high rate of inflation indicates the failure of the government to conduct appropriate monetary policy and an incapacity to balance its budget. Any changes in inflation

rates in the home or host country can alter the net returns and optimal investment decision of the firms because inflation can affect their competitive advantages. Low inflation can reduce the risk premium for foreign investment (Busse and Hefeker, 2007).

Hypothesis 2: A higher inflation rate is associated with reduced FDI inflows. Therefore, we expect a negative impact of inflation on the inflow of FDI.

- Exchange rate

The exchange rate is the rate of conversion of one currency to another. The high volatility of an exchange rate could indicate uncertainty about the future economic and business prospects of the host country, which is more likely to attract less foreign investment. This is due to the risk-averse behaviour of investors. From the theory of OLI advantages, an appreciation of the home country currency increases FDI inflows because the MNC benefits from cost advantages resulting from cheaper labour costs in the host country. Based on this assumption, the empirical studies by Liu (2010), Froot and Stein (1991), and Chakrabarti (2001) found a strongly negative correlation between exchange rate and FDI inflows. However, the effect of the exchange rate on FDI inflows is the source of the controversy. Cuyvers et al. (2011) and Scott-Green and Clegg (1999) observe a positive relationship between exchange rate and FDI inflows whereas Tuman and Emmert (1999), and Pain and van Welsum (2003) find no significant effect on FDI.

Hypothesis 3: Following the hypothesis of the theoretical model and from most empirical findings, we expect a negative relationship between the exchange rate and FDI, meaning that an appreciation in the home country currency against the host currency (US dollar) or, in other words, the depreciation of the host country currency will increase inflows of FDI to Cambodia.

- Trade

When an MNC decides to enter a foreign market, they will have to choose an entry mode that best fits the conditions of the host country and the type of investment as mentioned in the eclectic OLI paradigm; for instance, direct exports or foreign production facilities through FDI. Bombarda (2011) estimate that multinational firms together with their subsidiaries are responsible for 75% of the world's trade commodity. Bernard et al. (2013) find that 90% of U.S. exports and imports occur through multinational firms. Hence, there are relationships between international trade and FDI. However, the impact of international trade on FDI depends on the type of investment whether it is resource-seeking or market-seeking FDI. For resource-seeking investments, FDI and trade are complementary. Investors take into account the aspects of trade policy that facilitate both the export of these resources

and the import of capital goods and supplies needed to operate their facilities. For market-seeking investments, FDI and trade are substitutes due to the fact that the freer movement of goods leads to a decrease in the number of firms seeking to enter a particular country's market (Tobin and Rose-Ackerman, 2011; Markusen, 1995).

Hypothesis 4: For the case of Cambodia, it is more likely that most FDI is resource-seeking investment. Thus, we expect a positive relationship between FDI and trade.

- Governance

A country's FDI attractiveness depends not only on economic and financial factors but also socio-economic factors such as government effectiveness, rule of law, regulatory quality, corruption levels and political stability. The differences between governments and their political systems determine attractiveness with regard to the investment macro-climate (Alshammari et al., 2015; Kaumann et al., 2010). In this regard, Gani (2007) argues that the achievement of good governance is vital to encourage FDI inflows. For instance, government effectiveness can influence foreign investors because governments that exert discretionary power over economic affairs can deter foreign investors while the rule of law can attract FDI and political stability is more likely to reduce the risk of doing business; corruption in the public service can negatively affect economic activity and deters foreign investment, whereas regulatory quality manifests the institutional environment of a country.

Hypothesis 5: The improvement of Governance Indicator scores in the host country may attract MNCs to invest in that country. Therefore, a positive relationship between governance and FDI is expected.

- Relative labour cost and productivity

A country with abundant skilled and/or unskilled workers available at low cost is usually considered an important factor that attracts FDI inflows (Ravinthirakumaran et al., 2015). Lower labour costs reduce the cost of production, especially in labour intensive industries since labour costs represent a large proportion of total cost. Hence, MNCs seek to invest in countries that provide cost advantages compared to their competitors by setting up production facilities in countries with low labour costs. However, previous empirical findings about the effect of labour costs on inflows of FDI do not provide a clear-cut conclusion. Wijeweera and Mounter (2008), Chakrabarti (2001), Bevan and Estrin (2004), and Casi and Resmini (2010) find a negative relationship between labour costs and FDI inflows. In contrast, Swendenborg (1979), Nankani (1979), and Wheeler and Mody (1992) indicate a positive and significant impact of labour cost on FDI inflows. Furthermore, Coughlin and Segev (2000), who use wages and productivity as a

proxy of for labour costs in China, find negative effects from wage and positive effects from productivity on FDI inflows. Such diverse findings can be explained, for example, by Cushman (1987) in his study on the effects of real wages and labour productivity on FDI, that a rise in the foreign wage discourages direct investment unless the foreign capital-labour substitution effect is strong. This similar but opposite effect is also applied with exogenous changes in labour productivity. An increase in foreign productivity is likely to raise FDI, while an increase in labour productivity in the home country will lower FDI.

Due to unavailable data on labour costs in Cambodia, we only use average labour productivity[4] as a proxy for labour costs. This proxy was also employed in the empirical study by Cuyvers et al. (2011) and Ioannatos et al. (2001) to represent labour costs.

Hypothesis 6: Following the results emphasized by some empirical findings, we expect a positive relationship between the relative productivity of the home-to-host country and inflows of FDI in this study.

- Relative interest Rate

To enter a foreign market, an MNC is likely to consider the cost of borrowing between the home country and the host country. Low interest rates mean a low cost of borrowing, which provides a cost advantage for investors. Hence, if the interest rate in the home country is lower than in the host country, the home country MNC has a cost advantage over their competitors in the host country, which encourages FDI flows to the host country. In this regard, several empirical studies indicate a positive relationship between interest rates and FDI inflows since higher interest rates in the host country makes an investment from the home country more profitable (Billington, 1999; Cevic and Camurdan, 2007; Farrell et al., 2000; Jayasekara, 2014). However, if the foreign investor depends on the capital market in the host country to raise funds for their investment, this impact could be reverse. For instance, Bevan and Estrin (2004), Boateng et al. (2015) and Koojaroenprasit (2013) find the negative relationship between interest rates and FDI inflows.

Hypothesis 7: The effect of interest rates on FDI inflows, which will be explored through our empirical results, depends on the capital market investors choose.

- Bilateral Investment Treaties

As mentioned in section 3.2, BIT is used as a means to reduce the uncertainty of an expropriation risk. It is an important instrument to protect foreign investors. Empirical studies on the effects of BIT on FDI inflows did not provide a clear-cut result. Hallward-Driemeier (2003), in her study on the effects of BIT on FDI between

[4]Labour productivity is calculated by dividing real GDP with total labour force.

OECD countries and developing countries, finds that BIT has no effect on the flows of FDI from developed to developing countries. Tobin and Rose-Ackerman (2005) obtain a very weak positive relationship between BIT and FDI inflows in low-risk countries and a negative effect of BIT on FDI in high-risk countries from their analysis on a panel data set of 176 countries. Salacuse and Sullivan (2005) only find a positive effect for BIT from the United States, while BIT from OECD countries (Organization of Economic Cooperation and Development) are negative but not statistically significant whereas Neumayer and Spess (2005a) find that BIT has increased the FDI inflows.

Hypothesis 8: : Although the empirical results have been mixed, the economic logic behind the relationship between BIT and FDI flows still stands. We expect a positive effect from BIT on FDI inflows.

Some additional sets of control variables are also included in our study to measure potential effects on inflows of FDI in Cambodia, such as the distance between the home and host country, the impact of Cambodia's accession to the World Trade Organization (WTO) in 2004, and the impact of integration into the Association of South-East Asian Nations (ASEAN) on FDI inflows to Cambodia. A summary of the expected hypothesized signs are listed in Table 3.1.

Table 3.1: Hypothesized signs

Variables	Expected Sign
Market size (GDP and GDP growth)	+
Inflation	-
Exchange rate	-
Trade	+
Governance	+
Labour cost and productivity	+
Relative interest rate	+/-
Bilateral Investment Treaties	+
Distance	-
WTO	+
ASEAN	+/-

Note: (+), (-) correspond to the expected positive and negative effects. (+/-) means that the impact depends on the magnitude.

3.5 Empirical specification and estimation methodology

Based on the OLI paradigm and hypothesis described above, we construct our model by adopting control variables similar to the model of FDI determinants used by Cuyvers et al. (2011). We also add more variables, the governance and institutional factors described in Busse and Hefeker (2007), with more attention

on the role of BIT as discussed in Tobin and Rose-Ackerman (2011), Egger and Merlo (2007), Busse et al. (2010), Hallward-Driemeier (2003) and Neumayer and Spess (2005b). The choice of this empirical model is based on the current stage in the development of Cambodia. First, the factors that have influenced FDI inflows are not well understood due to the absence of empirical studies in this field and the limited information about FDI activities in Cambodia. Second, the transformation of the political and economic system in the 1990s from a strictly regulated and centralized economy to a more dynamic and open business environment by improving and simplifying the investment law, the introduction of a competitive corporate tax, a liberal investment policy and a wider openness to the rest of the world, make Cambodia an interesting case study for examining how governance and trade agreements have influenced FDI inflows. Third, the availability of data and information on both dependent and independent variables has precluded the development of a more sophisticated study, such as a spatial econometrics model or a complex FDI model.

Our study adopts both static and dynamic panel data methods. The relationship between FDI and its determinants is estimated by regressing equation 3.1 using the static method as for the first model.

$$\begin{aligned} lnFDI_{jct} &= \beta_0 + \beta_1 lnRGDP_{jct} + \beta_2 lnGDPG_{ct} + \beta_3 lnRER_{jct} + \beta_4 lnTRADE_{jct} \\ &\quad + \beta_5 lnRIR_{jct} + \beta_6 lnINFLA_{ct} + \beta_7 lnRLP_{jct} + \beta_8 lnDIST_{jc} \\ &\quad + \beta_9 GOV_{ct} + \beta_{10} BIT_{jc} + \beta_{11} ASEAN_{jc} + \beta_{12} WTO_{jc} + \varepsilon_{jct} \end{aligned} \tag{3.1}$$

Where the subscripts j, c and t refer to the home country, Cambodia, and time, respectively. The composite error term $\varepsilon_{jct} = \alpha_j + \mu_{jt}$, where α_j is home country-specific, which is the unobserved heterogeneity among home countries, and μ_{jt} is white noise. Our dependent variable $lnFDI_{jct}$ is the logarithms of annual inflows of real bilateral FDI in Cambodia in millions of USD from 1998 to 2014.

Regarding explanatory variables, we employ some home-to-host country relative factors, which are at least perceived by investors. This is because when investors from the home country decide to invest in a particular host country, they usually compare the economic, political and institutional factors of the host country to their country as explained in our hypothesis discussions. In this regard, we use the ratio of some variables to analyse the attractiveness of business environments in Cambodia compared to the home country of investors. The first explanatory variable is the logarithms for home-to-host-country real GDP ratio at the constant (2005) prices denoted as $lnRGDP_{jct}$. The variable $lnGDPG_{ct}$ is the annual GDP growth in Cambodia. $lnRER_{jct}$ is the logarithms of the ratio of the real

exchange rate of the US dollar to the home country currency[5]. $lnTRADE_{jct}$ is the logarithms for Cambodia's international trade (exports and imports) from and to the home country in thousands of USD. $lnRIR_{jct}$ is the logarithms for the ratio of Cambodia's real interest rate[6] to the real interest rate in the home country. $lnINFLA_{ct}$ is the logarithms for the inflation rate in Cambodia. $lnRLP_{jct}$ is the logarithms for the ratio of labour productivity in Cambodia and the home country. $lnDIST_{jc}$ is the logarithms for the geographic distance between Cambodia and the home country in kilometres. GOV_{ct} is the annual governance scores for Cambodia. It will be replaced by the following indicators: Government Effectiveness (GE), Regulation Quality (RQ), Rule of Law (RL), Control of Corruption (CC), and Political Stability (POLS). We have excluded an indicator regarding Voice and Accountability from our model because the indices of Voice and Accountability have changed negligibly over the period considered in this study. Other studies; for example, Busse and Hefeker (2007), Desbordes and Vicard (2009) and Tobin and Rose-Ackerman (2011) use political risk index provided by the Political Risk Services (PRS) group. However, data on Cambodia are not available. Therefore, we use World Governance Indicators, which are calculated based on different sources including that of the PRS group. The estimation ranges from approximately -2.5 (weak performance) to 2.5 (strong performance). BIT_{jc} is a dummy that equals 1 starting from the year when the BIT between the two countries entered into force. $ASEAN_{jc}$ is a dummy that equals 1 starting from the year when the two countries became members of ASEAN. WTO_{jct} is a dummy that equals 1 starting from the year when the two countries became member of the WTO (See the full description of data and the data sources in the Appendix C.1). There are in total 17 home countries[7] included in this study. The inflows of FDI from these countries represent 99% of the total inflows into Cambodia from 1998 to 2014 according to UNCTAD data.

As some observations of bilateral FDI flows and Inflation are negative, we use the following procedure to transform the variable[8]:

$$y = ln\left(x + \sqrt{(x^2 + 1)}\right)$$

[5]Normally this variable should be defined as the ratio of real Cambodian currency (Riel) per USD to the real home country's currency per USD. However, the degree of dollarization in Cambodia is about 80% (NBC 2016). Therefore, using the exchange rate of Cambodian local currency (Riel) to the US dollar is not relevant for practical purposes.

[6]The real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator.

[7]The FDI home countries are: Australia, Canada, China, France, China, Hong Kong SAR, India, Japan, Rep. of Korea, Malaysia, Netherlands, Russian Federation, Singapore, Taiwan Province of China, Thailand, United Kingdom, USA and Viet Nam.

[8]This transformation is used in Busse and Hefeker (2007)

With this transformation method, the values of x are converted from a linear scale at small absolute values to a logarithmic scale at large values. Therefore, the sign of x is maintained.

First, we estimate our panel dataset using the static model by conducting pre-tests to compare between three estimators; namely, pool Ordinary Least Squares (OLS), Random Effects (RE) and Fixed Effects. To check for multicollinearity, we use the Variance Inflation Factor (VIF). After that, the OLS model and Random Effects model are estimated together. To decide which model is more appropriate, the Breush and Pagan Lagrangian multiplier test for random effects is carried out. Next, the standard Hausman test is used to check whether the random effects or the fixed effects model is more efficient.

Our statistical concern regarding the static estimator described earlier is the possible problem of endogeneity between our dependent variable (FDI flows) and some explanatory variables. For example, economic growth could be the result of FDI flows. To deal with this form of endogeneity, some empirical studies such as Cuyvers et al. (2011), Egger and Merlo (2007) and Busse and Hefeker (2007) have employed one-year-lags for all explanatory variables. However, this may not be a strong solution for the concern that FDI anticipates economic growth as well as the problem of a possible selection bias (Tobin and Rose-Ackerman, 2011).

In addition to the concern regarding endogeneity, the problem of autocorrelation could cause inefficiency in our estimation. As one can notice in Figure 3.7, the dependent variable (FDI inflows) and the independent variable (Trade) trend upward over time. These trend variables could lead to incorrect estimations of standard errors and cause an estimates coefficients bias.

The Arellano-Bond generalized method of moments (GMM) system estimator is designed to deal with the above concerns. The use of this instrumental variable estimator has increased rapidly year by year[9]. The popularity of this estimator is explained by its ability to solve the problem of autocorrelation of the residual since the lagged dependent variable is included as an additional regression. It can also deal with endogeneity in some of the control variables, and also with the data sets that have a small number of time periods and many individuals. Therefore, our FDI determinants model is transformed to the dynamic panel model as shown in equation 3.2.

[9]Roodman (2007) provided the graphic of the number of citations using GMM estimators from 1991 to 2006.

$$\begin{aligned} lnFDI_{jct} &= \beta_0 + \alpha lnFDI_{jct-1} + \beta_1 lnRGDP_{jct} + \beta_2 lnGDPG_{ct} + \beta_3 lnRER_{jct} \\ &+ \beta_4 lnTRADE_{jct} + \beta_5 lnRIR_{jct} + \beta_6 lnINFLA_{ct} + \beta_7 lnRLP_{jct} \\ &+ \beta_8 lnDIST_{jc} + \beta_9 GOV_{ct} + \beta_{10} BIT_{jc} + \beta_{11} ASEAN_{jc} \\ &+ \beta_{12} WTO_{jc} + \varepsilon_{jct} \end{aligned} \tag{3.2}$$

We apply the system GMM estimator which uses moment conditions to derive a set of instruments for the endogenous variables by simultaneously estimating level equations and a first-difference equation of the observations in levels. It uses lagged values of the regressors from the levels of regression as instruments to eliminate inconsistency resulting from a bias in the first-difference equation, and uses the lagged values of the regressors from the first-difference equation as instruments in the levels (Tobin and Rose-Ackerman, 2011; Roodman, 2007). Therefore, the validity of the dynamic panel model using the Arellano-bond GMM estimator depends on the validity of the instruments and on the assumption that the error term is not serially correlated (Tobin and Rose-Ackerman, 2011). To test the overall validity of the instrument set, we verify using the conventional test of overidentifying restrictions proposed by Sargan (1958) in order to justify the validity of additional moment conditions associated with the level equations. We test the null hypothesis that the instruments are uncorrelated with the estimated residuals. If the null hypothesis cannot be rejected, the model is validated. Furthermore, the Arellano-Bond tests for first and second order serial correlation in the differenced error term (AR-1 and AR-2) will also be presented in our results. Because the GMM model is constructed in a manner that the differenced error term is the first difference of serially uncorrelated errors, a negative first-order serial correlation is expected, which does not affect the consistency of the estimator. The second-order correlation would indicate a first-order serial correlation in the levels equation and would imply that the lags of our dependent variables, which are being used as instruments, are endogenous. For the results, we check each of our estimations for a negative and statistically significant AR-1 term plus a statistically insignificant AR-2 term.

Due to the small number of countries in our sample, we limit the lag of the endogenous variables by a maximum four lags. We do not use all available lags because that would reduce the sample size and increase the instrument count[10].

[10]These techniques are recommended by Roodman (2007) and also applied in Mileva (2007)

3.6 Estimation results

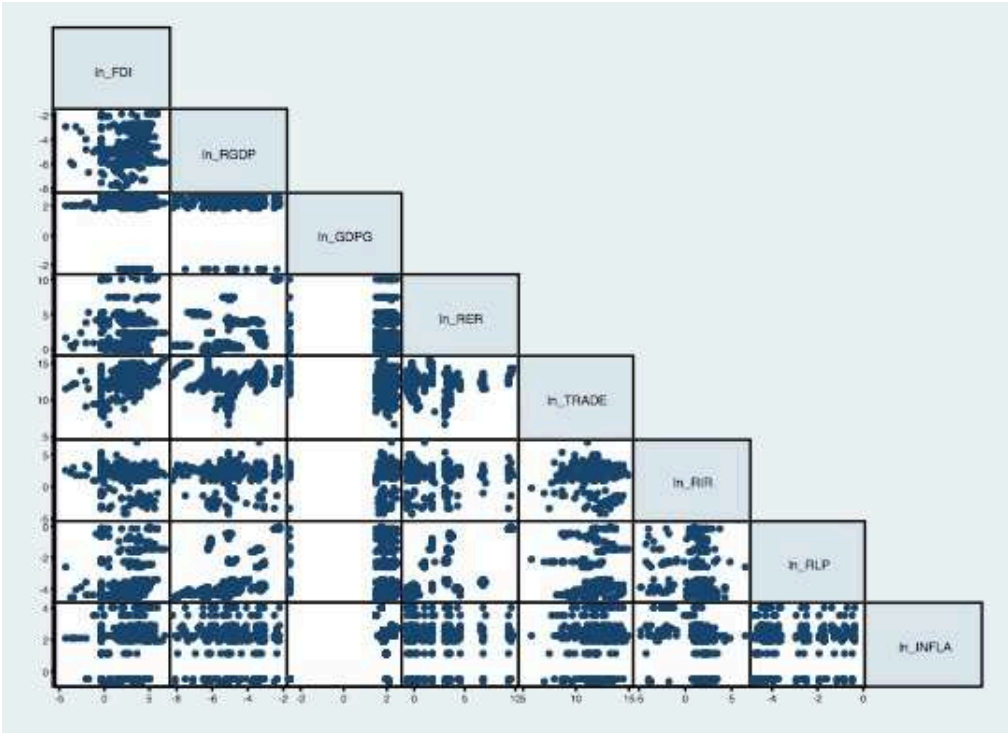
We start our analysis by having a quick look at the descriptive summary statistics from our dataset in Table 3.2. First, it is important to analyze some relative factors between Cambodia and the home country. The mean of the relative GDP is 0.02, implying that on average the real GDP of Cambodia is almost 50 times less than the GDP of the investor countries. The mean of the relative real interest rate of Cambodia is 4.5 times higher than that of the investor countries. Interestingly, the average labour productivity is about 9 times lower in Cambodia compared to home country labour productivity. Government indicators, which are proxied by GE, RQ, RL, CC and POLS, range from a minimum of -1.3 to a maximum of -0.03, indicating a weak level of governance performance in Cambodia[11]. The complete correlation matrix table for all variables is also presented in Appendix C.2.

Table 3.2: Descriptive summary statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
FDI_{cjt}	289	30.4088	59.47376	-29.104	543.8
$lRGDP_{cjt}$	289	0.0202746	0.0268843	0.0003099	0.1174783
$GDPG_{ct}$	289	7.948084	2.912366	0.0868579	13.24991
RER_{cjt}	289	1071.353	3994.117	0.499772	21148
$TRADE_{cjt}$	289	394801.3	562626.6	464	4066682
RIR_{cjt}	289	4.540753	25.32887	-44.3534	399.6048
RLP_{cjt}	289	0.1178599	0.1962426	0.0087018	0.7905762
$INFLA_{ct}$	289	5.263769	6.111644	-0.7919946	24.99714
$DIST_{cj}$	289	5570.656	4435.954	535.9692	14415.25
GE_{ct}	289	-0.8982353	0.0904004	-1.07	-0.68
RQ_{ct}	289	-0.3811765	0.1390119	-0.58	-0.15
RL_{ct}	289	-1.081765	0.0923385	-1.25	-0.93
CC_{ct}	289	-1.074118	0.1187288	-1.23	-0.85
$POLS_{ct}$	289	-0.5660554	0.357683	-1.3	-0.03
BIT_{cj}	289	0.3217993	0.4679768	0	1
WTO_{cj}	289	0.6089965	0.4888216	0	1
$ASEAN_{cj}$	289	0.2214533	0.4159452	0	1

[11]Estimate of governance (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance)

Figure 3.7: Correlation matrix graphs



Source: Author's calculation

Table 3.3 presents the results of the static model estimation. All estimations are based on 289 observations. Column 1 examines the relationship between FDI inflows into Cambodia with the 11 independent variables using OLS estimators as our base model. The Variance Inflation Factor (VIF) in column 1 of the OLS estimator is 2.2, suggesting the absence of the problem of multicollinearity. However, the Breusch and Pagan Lagrangian multiplier test for random effects rejects the null hypothesis of no significant difference across units; therefore, random effects are present in our data.

We apply the Hausman test to decide between the Random Effects or Fixed Effects estimator. The result in column 2 shows that the null hypotheses cannot be rejected. Hence, the Random Effects estimator is more efficient than the Fixed Effects estimator. Column 3 to 7 present the estimations with the introduction of governance indicators into the model. To avoid the problem of collinearity between the variables of governance, we add those variables one at a time to our model. Both the Breush and Pagan Lagrangian test and the Hausman test confirm that Random Effects is more consistent and efficient than the OLS and the Fixed Effects exception in column 5, which indicates that the Fixed Effects is more efficient than the Random Effects when the variable Rule of Law (RL_{ct}) is included. As a matter of comparison for sensitivity tests, we keep using the Random Effects as our estimator.

The results from the Random Effects estimator show that the slope of the estimated parameter of relative GDP ($lnRGDP_{jct}$) and GDP growth ($lnGDPG_{jct}$),

which are proxied for the market size, are negative although the level of the significance of our control variables changes with the exact specification. GDP growth is statistically significant in the base model in column two and with the inclusion of the variable RQ_{ct} and RL_{ct} in column four and five, respectively, while relative GDP is statistically significant only with the inclusion of the variable Rule of Law (RL_{ct}) in the model. The negative slope of the relative GDP of Cambodia relative to the home country's GDP indicates that a larger market size in the home country may induce FDI inflows to Cambodia because the expansion of the home country's economic size tends to encourage more firms to look for international markets or international locations. For example, the coefficient of -0.6 in column 5 implies that a 1% increase in GDP in the home country relative to the GDP of Cambodia *ceteris paribus* augment the FDI inflows to Cambodia by 0.6%. This result is in line with the findings of Cuyvers et al. (2011) in their study, for the first time, on determinants of FDI in Cambodia using the relative GDP of home-to-host country to represent market size based on an ordinary least squares regression method. With this negative result, one can also interpret, in other words, that larger GDP in Cambodia relative to the investor country's GDP does not attract more FDI inflows. This result is also coherent with the negative effects of the GDP growth rate on the FDI inflows in Cambodia. This is not surprising because the GDP in Cambodia is on average about 50 times smaller than the GDP of investor countries. Therefore, GDP and the GDP growth rate have a marginal impact on the investor decisions. Moreover, according to the FDI survey report published by the National Institute of Statistics and the National Bank of Cambodia in 2016, 24% of FDI in Cambodia is in the manufacturing industry, which is dominated by garment and footwear and accounts for 86% of the total manufacturing industry. Garment and footwear products account for 78% of total exports from the country. Therefore, GDP and GDP growth rate are not an important part of investment decisions because Cambodia is a production platform and not a market of for FDI. This negative relationship could also be found in several other studies. For instance, the first empirical test by Dunning (1980) found that relative market size is significantly negative. This result is later supported in the study by Büthe and Milner (2008), who use several linear regressions on a data set of 122 developing countries. Gani (2007), who also uses GDP as a proxy for market size and applies this to the case of Asian and Latin America countries, finds a negatively significant relationship between FDI inflows and market size.

Interestingly, the logarithm for bilateral trade ($lnTRADE_{jct}$) is positive and statistically significant both with OLS and random effects. For example, the coefficient of 0.38 in column 1 implies that a 1% increase in bilateral trade between Cambodia and an investor country *ceteris paribus* leads to a 0.38% increase in FDI

inflows to Cambodia from the home country. This result is in line with the findings of Cuyvers et al. (2011), who studied the determinants of FDI in Cambodia, and Busse and Hefeker (2007), who studied the determinants of FDI based on data from a sample of 89 developing countries. This result confirms that bilateral FDI and bilateral trade are actually complementary. The positive effect of trade and the negative effect of market size on FDI consistently support the assumption that FDI in Cambodia is resource-seeking investment. As mentioned in our hypothesis, investors consider aspects of trade policy that facilitate both the export of resources and the import of capital goods and supplies needed to operate their facilities.

Relative Interest Rate ($lnRIR_{jct}$) is negative and statistically significant at the 10% level. This result supports the findings of Bevan and Estrin (2004), Boateng et al. (2015) and Koojaroenprasit (2013) in our hypothesis discussion that an increase in interest rates in Cambodia relative to the home country of foreign firms reduces the inflows of investment. Following this result, we can confirm the hypothesis that MNCs depend on the capital market in Cambodia to raise fund for their investments.

Distance ($lnDIST_{jc}$) has an expected negative sign and is significant in both OLS and Random Effects estimators. The result is consistent with all the literature on economic geography, which suggests that a greater distance presents additional costs when obtaining relevant and detailed information and the cost of managing production facilities in the host country. Therefore, distance reduces the FDI inflows.

The coefficient for the WTO is positive and significant at 1% for all models. In this regard, becoming the a member of the World Trade Organisation has significantly increased FDI inflows to Cambodia. It is useful to remember that Cambodia is the first least developed country having joined the WTO in 2004. Membership of the WTO obliges Cambodia to make necessary reforms to comply with its rules and regulations, which are favourable for international investments.

Inflation ($lnINFLA_{ct}$) is statistically significant only with the inclusion of the variable Rule of Law (RL) in the model. However, we ignore this result due to the absence of support in other estimations. Other control variables such as Relative Exchange Rate ($lnRER_{jct}$) and Relative Labour Productivity ($lnRLP_{jct}$) are not statistically significant on the inflows of FDI to Cambodia in this static model.

Table 3.3: Determinants of FDI inflow using the OLS and Random Effects estimation

Dependent Variable	*OLS*	*Random Effects*					
Log of FDI inflows	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$lnRGDP_{jct}$	-0.140	-0.406	-0.286	-0.385	-0.647**	-0.400	-0.200
	(0.134)	(0.260)	(0.266)	(0.260)	(0.266)	(0.260)	(0.271)
$lnGDPG_{ct}$	-0.169	-0.182*	-0.102	-0.219**	-0.265***	-0.0417	-0.0690
	(0.108)	(0.0990)	(0.106)	(0.0991)	(0.0984)	(0.118)	(0.110)
$lnRER_{jct}$	0.00450	0.00988	0.0124	0.0254	0.0285	0.000816	0.0192
	(0.0490)	(0.112)	(0.112)	(0.112)	(0.113)	(0.112)	(0.111)
$lnTRADE_{jct}$	0.389***	0.268**	0.359***	0.264**	0.0559	0.276**	0.406***
	(0.0855)	(0.123)	(0.131)	(0.122)	(0.132)	(0.123)	(0.136)
$lnRIR_{jct}$	-0.123**	-0.104*	-0.0973*	-0.0920*	-0.0726	-0.0926*	-0.0938*
	(0.0573)	(0.0548)	(0.0546)	(0.0545)	(0.0539)	(0.0547)	(0.0546)
$lnRLP_{jct}$	-0.0445	-0.133	-0.0937	-0.140	-0.234	-0.121	-0.0509
	(0.101)	(0.222)	(0.223)	(0.222)	(0.224)	(0.222)	(0.222)
$lnINFLA_{ct}$	0.0996	0.0928	-0.0190	0.156	0.253**	-0.102	0.0289
	(0.0992)	(0.0926)	(0.108)	(0.0950)	(0.0984)	(0.128)	(0.0958)
$lnDIST_{jc}$	-0.668***	-1.109**	-0.881*	-0.995**	-1.456***	-1.144**	-0.682
	(0.229)	(0.446)	(0.460)	(0.448)	(0.453)	(0.446)	(0.477)
BIT_{jc}	0.125	-0.603*	-0.522	-0.549	-0.672*	-0.596*	-0.473
	(0.234)	(0.352)	(0.353)	(0.350)	(0.346)	(0.350)	(0.353)
WTO_{jc}	0.965***	1.350***	1.429***	1.751***	1.500***	1.080***	1.967***
	(0.276)	(0.300)	(0.301)	(0.336)	(0.294)	(0.323)	(0.398)
$ASEAN_{jc}$	-0.190	-0.0763	-0.0355	0.143	0.149	-0.205	0.0708
	(0.394)	(0.648)	(0.646)	(0.651)	(0.642)	(0.648)	(0.645)
GE_{ct}			-2.687**				
			(1.355)				
RQ_{ct}				2.377**			
				(0.936)			
RL_{ct}					4.697***		
					(1.161)		
CC_{ct}						-3.089**	
						(1.424)	
$POLS_{ct}$							-1.311**
							(0.561)
Constant	2.335	5.836	1.109	5.519	14.50***	3.067	0.592
	(2.143)	(3.828)	(4.500)	(3.819)	(4.352)	(4.027)	(4.396)
VIF	2.2	-	-	-	-	-	-
Breusch and Pagan		37.58***	36.64***	40.23***	47.73***	39.34***	37.86***
Hausman *p-value*		0.5650	0.8136	0.5241	0.0000	0.7198	0.8427
Observations	289	289	289	289	289	289	289
R-squared	0.352	-	-	-	-	-	-
Number of ID		17	17	17	17	17	17

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Our variable of interest, BIT, is negative and statistically significant only at the 10% level in column 2, 5, and 6 while in column 1, 3, and 4, the coefficients for BIT lose their statistical significance. This indicates a weak association between BIT and FDI. Therefore, BIT has only a marginal negative effect on FDI inflows. Even though these results go against expectations, they could be justified following the results of Tobin and Rose-Ackerman (2005), which also showed a the negative coefficient for BIT on FDI inflows in a category of countries with high-levels of risk, and the positive effect of BIT in low-levels of risk. Tobin and Rose-Ackerman (2005) explain that BIT cannot entirely substitute for an otherwise weak investment environment. This is

also true in the case of Cambodia, as the majority of developing countries are in the high-risk category, which can be explained by the poor governance scores in Figure 3.3. Hence, this negative result may imply that signing bilateral investment treaties cannot entirely make up for a potentially high risk and poor business environment in a host country as an alternative means to attract more FDI inflows. In addition, foreign investors may not rely on BIT between two governments as a commitment to invest in a country. They could move their production or subsidiary affiliates to any country that provides higher ownership, location and international advantages.

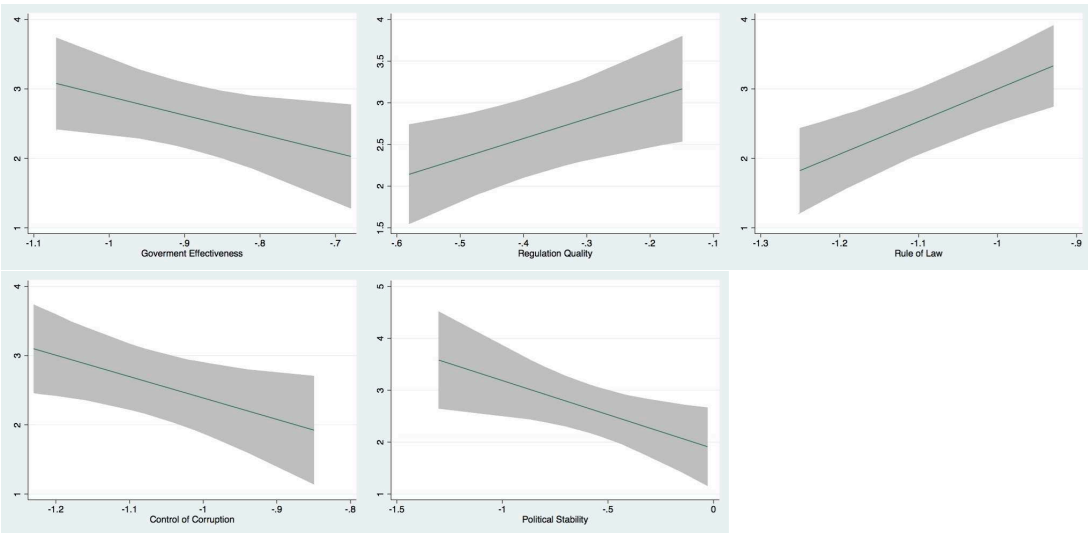
Regarding the indicators of governance, the variables Regulation Quality (RQ_{ct}) and Rule of Law (RL_{ct}) are positive and statistically significant at 5% and 10% respectively, as expected. These results indicate that the quality of law and regulations are the important factors to attract foreign investment in a developing country such as Cambodia. However, Government Effectiveness (GE_{ct}), Control of Corruption (CC_{ct}), and Political Stability ($POLS_{ct}$) are negative and statistically significant. The study by Büthe and Milner (2008), in their econometric analyses on 122 developing countries from 1970 to 2000, finds a similar negative effect of political stability in the host country on the inflows of FDI. Morrissey and Udomkerdmongkol (2012) explain that in a low-income country with poor governance, foreign investors often seek to share ownership advantages with domestic investors or with the government in the form of joint ventures, as the foreign investors have advantages in terms of greater access to investment finance, technology, and the global market over domestic investors, who have an advantage over local incentives and domestic markets. According to the report of the National Institute of Statistics and the National Bank of Cambodia 2016, 90% of FDI in Cambodia originates from Asian countries, in which China, including Hong Kong and Taiwan, are the main investors followed by four ASEAN countries, including Malaysia, Singapore, Thailand, and Vietnam. Hence, the negative results for Governance Effectiveness, Control of Corruption, and Political Stability may possibly indicate that the weak governance performance may not present as a serious threats, affecting the opportunity to invest in the host country from the perspective of investors who originate from those Asian countries. These empirical results reflect the current characteristics of Cambodia, where the quality of public services and civil services is very low, there is no efficient measure to fight against corruption, which is rampant in most of pubic services[12] , and the political tension that happens before and after each general election. Therefore, the effects of these aggregate indicators show that MNCs that decide to invest in the kingdom are motivated firstly by the factors related to law and regulations, especially investment

[12]A report on the level of corruption in Cambodia is available at: http://www.business-anti-corruption.com/country-profiles/cambodia#

law and the tax regime rather than by government and public administration capacity. This emphasizes once again a characteristic of resource-seeking FDI.

To provide a clear picture of the probability of changes in FDI inflows produced by a unit change in each governance variable, Figure 3.8 presents the results graphically based on the results in Table 3.3. The relationship between FDI inflows and governance indicators is in linear form. We notice that a marginal improvement of the Rule of Law (RL) score, for example, from -1.2 to -1.0, has a significant probability of increasing of FDI inflows by more than 1%. This marginal effect is moderate in the case of Regulation Quality (RQ) as the score rise from about -0.67 to about -0.22 can leverage the probability of FDI inflows of only 1% (from 2.1% to 3.1%). The probability of a decline in FDI inflows related to changes in the Control of Corruption is high, while Governance Effectiveness and Political Stability moderately affect the probability of a decline in FDI.

Figure 3.8: Marginal effects of governance indicators on the inflows of FDI using Random Effects in Table 3.3 at the 95% interval



Source: Author's calculation

Table 3.4 presents the estimation results for the dynamic model of FDI determinants from Equation 3.2. All reported system GMM results are one-step estimates. Overall, the specifications work well as indicated by the three crucial criteria: there is a statistically significant first-order autocorrelation in the residuals (AR-1). The second-order serial correlation in the first-differenced residuals is statistically insignificant as indicated by AR-2 in the Table 3.4. Finally, the Sargan test does not reject the null hypothesis that the moment conditions are jointly satisfied.

Table 3.4: GMM estimations results

Dependent Variable	*GMM*[a]					
ln_FDI_{jct}	(1)	(2)	(3)	(4)	(5)	(6)
$\ln_FDI_{jct-1}$	0.247***	0.241***	0.247***	0.256***	0.229***	0.280***
	(0.0857)	(0.0852)	(0.0830)	(0.0911)	(0.0817)	(0.0896)
$lnRGDP_{jct}$	-1.242**	-1.037*	-1.248**	-1.221**	-0.890*	-0.440
	(0.507)	(0.597)	(0.512)	(0.528)	(0.536)	(1.057)
$lnGDPG_{ct}$	-0.0972	-0.0193	-0.0947	-0.108	0.0950	0.148
	(0.181)	(0.212)	(0.187)	(0.202)	(0.253)	(0.297)
$lnRER_{jct}$	-0.156**	-0.167**	-0.156**	-0.157**	-0.159**	-0.128*
	(0.0687)	(0.0667)	(0.0690)	(0.0696)	(0.0679)	(0.0746)
$lnTRADE_{jct}$	0.395	0.450	0.392	0.417	0.370	0.898*
	(0.349)	(0.391)	(0.332)	(0.385)	(0.337)	(0.496)
$lnRIR_{jct}$	-0.00466	-0.00720	-0.00467	-8.23e-05	-0.000996	-0.00152
	(0.0602)	(0.0600)	(0.0603)	(0.0607)	(0.0595)	(0.0607)
$lnRLP_{jct}$	0.671***	0.708***	0.671***	0.659***	0.648***	0.694***
	(0.210)	(0.206)	(0.210)	(0.211)	(0.205)	(0.210)
$lnINFLA_{ct}$	0.0221	-0.0511	0.0188	0.0670	-0.217	-0.112
	(0.146)	(0.181)	(0.160)	(0.180)	(0.248)	(0.203)
$lnDIST_{jc}$	-1.386***	-1.214*	-1.394***	-1.396**	-1.157**	-0.331
	(0.503)	(0.634)	(0.494)	(0.566)	(0.527)	(1.165)
BIT_{jc}	-2.559*	-2.782*	-2.574*	-2.875*	-2.552*	-1.843
	(1.500)	(1.464)	(1.525)	(1.507)	(1.481)	(1.629)
WTO_{jc}	1.314**	1.342***	1.312**	1.230**	1.249**	1.319**
	(0.513)	(0.517)	(0.510)	(0.524)	(0.510)	(0.526)
$ASEAN_{jc}$	0.674	0.492	0.678	0.663	0.350	0.126
	(0.572)	(0.616)	(0.577)	(0.580)	(0.587)	(0.882)
GE_{ct}		-1.009				
		(1.767)				
RQ_{ct}			-0.0830			
			(1.250)			
RL_{ct}				2.074		
				(1.894)		
CC_{ct}					-2.716	
					(1.979)	
$POLS_{ct}$						-1.287
						(1.336)
Constant	5.298	3.537	5.347	7.489	2.605	-6.740
	(5.548)	(7.672)	(5.176)	(8.110)	(6.053)	(11.20)
Sargan-overid. *p-value*	0.391	0.352	0.392	0.295	0.436	0.391
AR(1) *p-value*	0.000	0.000	0.000	0.000	0.000	0.000
AR(2) *p-value*	0.182	0.203	0.192	0.219	0.251	0.391
No. of Instruments	27	28	28	28	28	28
Observations	272	272	272	272	272	272

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

[a]All models are one-step system GMM estimates.

Column 1 in Table 3.4 presents the results of the based estimates model followed by the results from column 2 to 6 when governance indicators are included .

We noticed that the coefficient of BIT still maintains a negative sign and is statistically significant at less than the 10% level with an exception when POLS is

included in the model, which makes BIT marginally insignificant in this dynamic model. The results in our dynamic model confirms once again the finding that BIT and FDI are not strongly relevant. In addition, even though BIT exists, and is considered to provide assurances and act as a determinant of the host country in favour of foreign investors, it does not encourage inflows of FDI. This could also indicate a weak business environment perceived by foreign firms in Cambodia, which is considered to have more important effects on their business.

Contrary to the results in static model, all governance indicators are not statistically significant in this Arellano-Bond method. Government Effectiveness, Rule of Law, Control of Corruption and Political Stability retain the same sign as in the static model, except for Regulatory Quality, which becomes negative but not statistically significant. With less variation in the data regarding governance indicators as mentioned in Figure 3.3, we are not surprised to find that these variables lose statistical significance when we change the estimation model from a Random Effects estimator to a dynamic estimator.

Contrary to the random effects estimation, the Relative Exchange Rate coefficient is negative and statistically significant as expected in this dynamic model. This result is in line with the findings of Liu (2010), Froot and Stein (1991) and Chakrabarti (2001). Hence, we do not agree with Cuyvers et al. (2011), who found a positive effect of exchange rate on FDI in Cambodia. Our result emphasises the fact that MNCs use Cambodia as an export platform rather than for their markets because foreign firms benefit from the depreciation of the Cambodian currency via cheaper labour costs, and export their products to serve foreign markets so that the depreciation of the local currency attracts more foreign investment.

Relative Labour Productivity is positive and statistically significant as expected. We realize that the FDI inflows to Cambodia are basically attracted to labour-intensive industries mainly garment and footwear sectors. In general, the labour wages are much lower in Cambodia compared to the host country. The minimum wage in the textile industry was USD 128 in 2014[13]. In this regard, the lower wage with higher increases in productivity in the host country compared to the home country attracts more FDI inflows from the home country to Cambodia. This finding is also in line with Liu et al. (2001), and Liu (2010), who found a positive effect from labour productivity on FDI in China

Trade (TRADE) is no longer statistically significant in the GMM dynamic regression, except in the case of a marginal significance at less than 10 per cent with the inclusion of the POLS variable in the model. At first glance, this result is

[13]Source: Cambodia daily news available at:
https://www.cambodiadaily.com/archives/govt-sets-minimum-wage-for-garment-workers-at-128-72212/

surprising. However, the GMM dynamic estimator uses first differences and lags as instruments, which indicate that increases in trade between the two countries in previous periods are not closely associated with the improvement in FDI flows in more recent periods. This is also the case for the Relative Interest Rate (ln_RIR) variable, which is negative but no longer significant.

Besides some differences in the results discussed above between the Random Effects and the GMM model, other control variables still maintain the same sign and magnitude in both models. Relative GDP ($lnRGDP_{cjt}$) is negative and statistically significant at less than the 10% level to less than the 5% level. Distance is also negative and statistically significant. The WTO is very positive and statistically significant at less than 1% for all specifications in the dynamic model. Inflation rate ($INFL_{cjt}$) and the ASEAN dummy have no effect on FDI inflows in Cambodia in both estimation methods.

Last but not least, a one-year delay of FDI is found to be positive and statistically significant at less than 1% in all models. This outcome supports the studies of Erdogan and Unver (2015) and Egger and Merlo (2007) that the FDI variable is actually dynamic. It also implies that FDI inflows in the current year depend on the inflows of the previous year.

Table 3.5 intends to examine whether there are marginal effects of interaction between BIT and governance indicators on FDI inflows. Desbordes and Vicard (2009), Hallward-Driemeier (2003), and Neumayer and Spess (2005b) suggest that the positive and statistically significant coefficient of the interaction variable indicate that BIT is complementary to host country governance indicators, whereas the negative and statistically significant coefficient implies that BIT and governance are substituted. According to the results of our FDI dynamic estimation, the coefficients of the interaction between BIT and the five governance indicators are not statistically significant. Therefore, there are no complementarity or substitution effects between bilateral investment treaties and governance conditions in Cambodia toward the inflows of foreign direct investment. In another words, foreign investors who decide to set up their production facilities in the kingdom do not rely on the bilateral investment treaty with their home country or on the importance of the governance and institutional quality of the host country.

3.6.1 Robustness check with alternative estimator techniques and control variables

While some variables are statistically significant solely in the Random Effects model or the Dynamic GMM model, we re-estimate the results of random effects from Table 3.3 in order to conduct a sensitivity analysis on the static model. We estimate

Table 3.5: GMM estimation results with interaction between BIT and Governance

Dependent Variable	*GMM*				
ln_FDI_{jct}	(1)	(2)	(3)	(4)	(5)
ln_FDI_{jct-1}	0.281***	0.261***	0.348***	0.258***	0.313***
	(0.0864)	(0.0830)	(0.0994)	(0.0811)	(0.0889)
$lnRGDP_{jct}$	-0.494	-0.771	-1.206**	-0.735	0.0421
	(0.610)	(0.574)	(0.574)	(0.543)	(1.038)
$lnGDPG_{ct}$	0.120	-0.0705	-0.0740	0.0847	0.216
	(0.231)	(0.191)	(0.214)	(0.258)	(0.297)
$lnRER_{jct}$	-0.122*	-0.112*	-0.110*	-0.103*	-0.0864
	(0.0632)	(0.0621)	(0.0657)	(0.0616)	(0.0656)
$lnTRADE_{jct}$	0.165	0.183	0.125	0.137	0.752
	(0.377)	(0.300)	(0.398)	(0.311)	(0.517)
$lnRIR_{jct}$	-0.00583	-0.0123	-0.00820	-0.00709	-0.00525
	(0.0628)	(0.0605)	(0.0644)	(0.0604)	(0.0615)
$lnRLP_{jct}$	0.612***	0.553***	0.540***	0.489***	0.608***
	(0.203)	(0.193)	(0.205)	(0.187)	(0.193)
$lnINFLA_{ct}$	-0.164	0.0158	0.0301	-0.190	-0.163
	(0.204)	(0.163)	(0.192)	(0.253)	(0.211)
$lnDIST_{jc}$	-0.613	-0.945*	-1.211**	-0.900*	0.194
	(0.643)	(0.498)	(0.578)	(0.512)	(1.129)
BIT_{jc}	8.692	-2.407	15.39	2.633	1.267
	(8.258)	(2.599)	(12.27)	(6.853)	(2.936)
WTO_{jc}	1.314**	1.217**	1.115**	1.103**	1.277**
	(0.540)	(0.508)	(0.547)	(0.512)	(0.532)
$ASEAN_{jc}$	-0.00752	0.233	0.690	0.220	-0.294
	(0.633)	(0.634)	(0.633)	(0.599)	(0.889)
GE	-4.918				
	(3.724)				
*BIT*GE*	9.651				
	(9.069)				
RQ		1.652			
		(2.100)			
*BIT*RQ*		-4.954			
		(5.874)			
RL			-2.870		
			(4.221)		
*BIT*RL*			14.49		
			(11.35)		
CC				-3.338	
				(2.947)	
*BIT*CC*				2.502	
				(6.268)	
POLS					-2.096
					(1.669)
*BIT*POLS*					1.882
					(3.847)
Constant	-0.332	5.973	2.657	1.922	-8.566
	(8.645)	(5.219)	(9.068)	(6.887)	(11.22)
Sargan-overid. *p-value*	0.269	0.281	0.331	0.279	0.352
AR(1) *p-value*	0.000	0.000	0.000	0.000	0.000
AR(2) *p-value*	0.217	0.221	0.198	0.251	0.150
No. of Instruments	29	29	29	29	29
Observations	272	272	272	272	272

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
All models are one-step system GMM estimates.

our regression following the instrumental estimator in the spirit of Hausman and Taylor (1981) (HT). First, the validity of our estimator depends on the legitimacy of instrumental variables that are exogenous. This legitimacy is confirmed through the test of over-identification[14], which does not reject the null-hypothesis of the legitimacy of the set of instruments. Moreover, we also conduct the canonical correlations[15] test to compare the different sets of our instrumental variables. Bowden and Turkington (1984) suggest that one should use the instruments for which the canonical correlations with the regressors are maximized. As shown in Table 3.6, the geometric average of canonical correlation is 0.9 for all specifications, indicating the high relevance of our instruments. These results emphasize the absence of the mis-specification for our HT estimator.

[14]Over-identification test is the squared standard error of the Within regression and the difference between the estimates and the variance-covariance matrices of the parameters between the Within and the HT regression.

[15]Canonical correlations analysis is a standard tool of dimensionality in multivariate statistics. It is used to measure the squared correlation between the set of instruments and the regressors (see example in Baltagi and Khanti-Akom (1990)).

Table 3.6: Sensitivity analysis using Hauman-Taylor estimator

Dependent Variable	Hausman Taylor[a]					
Log of FDI inflows	(1)	(2)	(3)	(4)	(5)	(6)
$lnRGDP_{jct}$	-1.034	-0.581	-0.243	-1.372	-1.114	-0.294
	(0.977)	(1.078)	(1.236)	(0.989)	(0.792)	(1.106)
$lnGDPG_{ct}$	-0.181*	-0.117	-0.224**	-0.278***	-0.0381	-0.0852
	(0.0977)	(0.105)	(0.0983)	(0.0966)	(0.117)	(0.110)
$lnRER_{jct}$	-0.178	-0.121	-0.152	-0.117	-0.156	-0.0883
	(0.357)	(0.388)	(0.465)	(0.363)	(0.284)	(0.396)
$lnTRADE_{jct}$	0.261*	0.341**	0.223	-0.0354	0.272*	0.389**
	(0.157)	(0.166)	(0.162)	(0.166)	(0.153)	(0.172)
$lnRIR_{jct}$	-0.105*	-0.0985*	-0.0936*	-0.0732	-0.0927*	-0.0934*
	(0.0543)	(0.0542)	(0.0538)	(0.0528)	(0.0544)	(0.0543)
$lnRLP_{jct}$	0.182	-0.0824	-0.757	-0.187	0.345	-0.161
	(1.069)	(1.150)	(1.360)	(1.081)	(0.877)	(1.156)
$lnINFLA_{ct}$	0.0722	-0.0118	0.150	0.255***	-0.125	0.0305
	(0.0936)	(0.107)	(0.0988)	(0.0988)	(0.129)	(0.0958)
$lnDIST_{jc}$	-1.859	-1.421	-1.592	-2.482**	-1.828**	-1.042
	(1.152)	(1.297)	(1.641)	(1.189)	(0.902)	(1.369)
BIT_{jc}	-0.944**	-0.902**	-0.927**	-0.920**	-0.893**	-0.877**
	(0.425)	(0.429)	(0.435)	(0.413)	(0.409)	(0.430)
WTO_{jc}	1.568***	1.567***	1.921***	1.862***	1.287***	1.999***
	(0.327)	(0.326)	(0.357)	(0.322)	(0.345)	(0.398)
$ASEAN_{jc}$	-0.130	-0.0405	0.178	0.112	-0.267	0.133
	(0.800)	(0.804)	(0.816)	(0.777)	(0.781)	(0.814)
GE_{ct}		-2.232[β]				
		(1.401)				
RQ_{ct}			2.382**			
			(0.950)			
RL_{ct}				5.413***		
				(1.168)		
CC_{ct}					-3.127**	
					(1.407)	
$POLS_{ct}$						-1.159*
						(0.615)
Constant	10.60	5.186	10.04	21.75**	7.218	3.413
	(8.833)	(10.43)	(13.01)	(9.413)	(6.903)	(10.85)
Canonical correlation[b]	0.89	0.90	0.89	0.90	0.89	0.91
Test of over-id[c] *p-value*	1.00	1.00	1.00	1.00	1.00	1.00
Observations	289	289	289	289	289	289
No. of groups	17	17	17	17	17	17

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

[a]Instrument variables: $lnRGDP_{jct}$, $lnTRADE_{jct}$, and $lnRLP_{jct}$

[b] Information on the association between two sets of variables (see e.g.,Baltagi and Khanti-Akom (1990)).

[c]This test is applied to the differences between Fixed effect and Hausman-Taylor estimators

[β]Significant at 10.1 percent

Table 3.6 presents the results from the HT estimators. In general, the results from HT are very closed to the Random Effects. The coefficient for BIT is slightly higher in HT than in RE and statistically significant for all columns. Governance Indicators also maintain the same sign but a lower level of statistical significance than in RE, particularly GE that is negative and statistically significant at 10.1%. The other control variables such as TRADE and Distance have weaker levels of significance in this HT estimation showing that TRADE and Distance are not strongly associated with the inflows of FDI when the problem of endogeneity is controlled for. The remaining control variables are more or less the same as in the Random Effects

estimations.

In addition, we also add two control variables in this HT model to test whether China and the global financial crisis in 2008 have any influence on FDI. The CHINA dummy takes the value 1 when bilateral FDI flows are with China and 0 when otherwise. The CRISIS variable is a dummy which is equal to 1 for the year of the global financial crisis 2008-2009 and 0 otherwise. As described in section 3.2, China is the main investor in Cambodia, accounting for 44% of total investment stocks by 2014. Therefore, it is interesting to test the effects of Chinese bilateral investments on FDI in Cambodia. Cuyvers et al. (2011) also add the Asian financial crisis as a dummy in their regression model on FDI determinants in Cambodia. The authors find a negative but not significant effect of this dummy on FDI. For the purpose of a robustness check, we also check if the global financial crisis in 2008 has any effects on FDI inflows and whether this dummy presents any significant changes to other variables in our model. The results presented in Table 3.7 show that both China and the Crisis have no effects on FDI inflows in Cambodia. In addition, with the inclusion of the two additional control variables, BIT and Governance variables still maintain their sign and magnitude. Therefore, our finding of negative and significant impact of BIT and the different significant effects of governance variables on bilateral FDI inflows are robust to the inclusion of control variables.

Table 3.7: Sensitivity analysis with additional control variables

Dependent Variable	Hausman Taylor[a]					
Log of FDI inflows	(1)	(2)	(3)	(4)	(5)	(6)
$lnRGDP_{jct}$	-1.002	-0.376	-0.174	-1.375	-1.094	-0.0221
	(1.198)	(1.267)	(1.354)	(1.194)	(1.094)	(1.291)
$lnGDPG_{ct}$	-0.275*	-0.224	-0.332**	-0.333**	-0.112	-0.141
	(0.145)	(0.147)	(0.145)	(0.141)	(0.165)	(0.162)
$lnRER_{jct}$	-0.141	-0.0317	-0.0505	-0.0965	-0.140	0.00875
	(0.370)	(0.385)	(0.448)	(0.375)	(0.323)	(0.395)
$lnTRADE_{jct}$	0.252	0.331**	0.210	-0.0361	0.265*	0.369**
	(0.162)	(0.168)	(0.165)	(0.170)	(0.159)	(0.173)
$lnRIR_{jct}$	-0.116**	-0.112**	-0.106*	-0.0799	-0.101*	-0.100*
	(0.0560)	(0.0557)	(0.0554)	(0.0547)	(0.0563)	(0.0563)
$lnRLP_{jct}$	0.162	-0.241	-0.763	-0.126	0.314	-0.414
	(1.215)	(1.260)	(1.427)	(1.222)	(1.085)	(1.258)
$lnINFLA_{ct}$	0.101	0.0170	0.187*	0.270***	-0.0967	0.0524
	(0.0995)	(0.110)	(0.105)	(0.103)	(0.137)	(0.102)
$lnDIST_{jc}$	-1.746	-1.131	-1.313	-2.374*	-1.778*	-0.770
	(1.187)	(1.274)	(1.515)	(1.218)	(1.037)	(1.361)
BIT_{jc}	-0.926**	-0.891**	-0.919**	-0.920**	-0.875**	-0.893**
	(0.432)	(0.432)	(0.438)	(0.420)	(0.421)	(0.433)
WTO_{jc}	1.573***	1.564***	1.934***	1.856***	1.302***	1.985***
	(0.330)	(0.329)	(0.357)	(0.326)	(0.348)	(0.400)
$ASEAN_{jc}$	0.00349	0.142	0.349	0.206	-0.170	0.230
	(0.807)	(0.810)	(0.826)	(0.786)	(0.793)	(0.819)
$CHINA$	0.613	2.305	3.864	1.132	0.102	3.156
	(5.229)	(5.478)	(6.759)	(5.360)	(4.498)	(5.606)
$CRISIS$	-0.385	-0.458	-0.432	-0.230	-0.283	-0.214
	(0.442)	(0.442)	(0.437)	(0.429)	(0.444)	(0.449)
GE_{ct}		-2.462*				
		(1.424)				
RQ_{ct}			2.458**			
			(0.958)			
RL_{ct}				5.350***		
				(1.175)		
CC_{ct}					-3.018**	
					(1.424)	
$POLS_{ct}$						-1.157*
						(0.640)
Constant	9.894	2.996	7.926	20.97**	7.047	1.561
	(8.704)	(9.906)	(11.65)	(9.298)	(7.447)	(10.50)
Canonical correlation	0.90	0.91	0.90	0.91	0.90	0.91
Test of over-id *p-value*	1.00	1.00	1.00	1.00	1.00	1.00
Observations	289	289	289	289	289	289
No. of groups	17	17	17	17	17	17

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

[a]Instrument variables: $lnRGDP_{jct}$, $lnTRADE_{jct}$, and $lnRLP_{jct}$

3.7 Policy implications and concluding remarks

This chapter has explored in detail the factors that affect inflows of foreign direct investment based on panel data from 1998 to 2014. As we have mentioned, some of the major contributions of our findings, which are different from a number of previous empirical studies, are the fact that this study employs both a theoretical background and empirical results to explain inflows of FDI in Cambodia, taking into account both macroeconomic and governance aspects using both static and dynamic estimation techniques to compare and discuss estimation results from each model. The validity of each estimator is confirmed following several diagnostic tests in econometric estimation methods.

We summarize our results with some policy recommendations as follows: First, the Random Effects proved to be the most suitable estimators in the static model. We found two indicators of governance (Regulation Quality and Rule of Law) in the host country that attract inflows of FDI. This clearly indicates that the role and quality of law are important for foreign firms investing in the country. Therefore, the enforcement of the rule of law and the amendment of new laws and regulations to adapt to the needs of country and investors are necessary because Cambodia still lacks some judicial mechanisms to fully assure confidence among local and international firms. These include the absence of a commercial court to deal with business disputes or the enforcement of an intellectual property rights law to attract more investments in new technology and innovation. The other three indicators (Government effectiveness, Control of Corruption and Political Stability) negatively affect inflows of FDI. This indicates that MNCs may, in fact, ignore the current weak governance system and focus on other benefits and incentives to operate their activities in Cambodia. However, it does not necessarily mean that weak governance, high levels of corruption, or the presence of violence attracts more FDI into Cambodia. If we look at the very low governance indicator scores along with little changes in recent years as presented in Figure 3.3, the necessary measures need to be implemented to improve the quality and effectiveness of public and civil services, to fight against corruption, which is rampant in most public service organisations, and to maintain security and political stability in the country in order to attract more foreign investments, especially to diversify the types of foreign investment beyond resource-seeking investments.

BIT has a negative influence on FDI but its effect is marginal. As mentioned earlier, signing a BIT between two countries has not had much influence on the decisions of MNCs according to our estimation model. As discussed in Section 3.6, the attractiveness of Cambodia toward foreign investments is based partly on its very open investment policy and foreign investment incentives. Hence, the government

should focus on the improvement of other sectors that are more important for attracting FDI such as infrastructures or good governance, rather than relying on investment treaties as a tool to negotiate with foreign investors.

Next, our empirical results noticeably indicate that trade between the two countries and membership of the WTO are major determinants that attract inflows of FDI. Therefore, trade liberalization and international trade integration are important for Cambodia since they produce positive externalities by increasing more FDI.

GDP and GDP growth rates do not attract more FDI due to the very small size of the Cambodian economy compared to the economy of the MNCs' home countries. In this regard, Cambodia should focus in the long term on the development of more skilled-labour sectors through the development of qualified human resources to create more value added in its economy and to increase the purchasing power of the population so that Cambodia can attract more potential FDI, seeking new markets for their products and services.

Another important aspect to look at is the Relative Interest Rate that has induced FDI inflows. The government should consider a suitable monetary policy that could lower interest rates in order to encourage local fund raising for foreign direct investments.

Even though, the static approach is widely used in the empirical study on the determinants of FDI, they may lead to biased results due to autocorrelation and the endogeneity of independent variables. To deal with these problems, we use the Arellano-Bond system GMM estimator. The results of this show some changes in terms of the level of the significance of variables. Trade and Distance keep the same signs but the level of significance is lower in the dynamic estimation compared to the static estimation. Relative labour productivity is positive and statistically significant. As we have pointed out, the higher productivity attracts more foreign investments. Therefore, improving labour productivity should deserve more attention from the government by providing training and skills development through vocational training programmes. The government should not rely in the long term solely on the labour-intensive industry like textiles and garments. Diversifying to create a more skilled labour force should be considered since the productivity of the labour force will also increase.

Moreover, the appreciation of the US dollar compared to the investor's home country currency reduces FDI inflows to Cambodia. However, Cambodia is a highly dollarized country, which has limited mechanisms for implementing monetary policy between the US dollar and the investor's home currency. Therefore, the exchange rate used by foreign firms depends on the strength of the US currency. De-dollarized processes should also be considered by policy makers to a provide better control by

the government in terms of monetary and investment policies, but this should be carried out in a rigorous way because foreign investments are sensitive to changes in currency conversion rates according to our estimation.

The results of both static and dynamic estimations help us to conclude that FDI in Cambodia is mostly resource-seeking FDI rather that other types of FDI mentioned in Dunning's OLI paradigm. This can be explained by the fact that foreign direct investments are not influenced by local attractiveness factors such as market size or governance performance, which represent a market for their products. In contrast, factors like bilateral trade and WTO membership have attracted more FDI. This clearly implies the importance of foreign markets rather than the local market.

This study provides an insight into various factors, which determine inflows of FDI in Cambodia. Some consistent findings emerge, and they could give rise to future research, which is recommended when data and information are available, especially micro-level data related to the nature and types of foreign investments. Some possible research should be carried out, for example, on the types and nature of FDI looking at things like joint-ventures or sole ownership, which could explain the negative or positive effects of Governance Indicators on FDI. The productivity spillover of FDI and the relationship between local private investments and foreign direct investments are also interesting topics to explore.

Chapter 4

Relationship between tourism and trade

4.1 Introduction

The idea of a relationship between international trade and international travel has long been recognised, in particular since Marco Polo (1254-1324) travelled from Italy to China. The journey, having been practiced for centuries, was known as business travel and followed the Silk Road to China. This topic has attracted the attention of scholars who specialise in international trade and tourism, who want to investigate this relationship. Analyses of the link between international trade and tourism in both developed and developing countries over the past several decades have shown that these very often display a similar trend. In one sense, the development of the tourist industry in destination locations will increase imports, which will be reflected in the balance of trade. Moreover, tourist visits generally provide information and may improve the image of the destination location as well as that of its products around the world and hence create new opportunities for trade.

The analysis of the relationship between tourism and trade can be found in several articles including Kulendran and Wilson (2000), Khan et al. (2005) and Kadir and Jusoff (2010). These authors investigate the link between international travel and trade (import, export, total trade) using time series econometrics techniques and focusing on the case of a specific country. However, there are only a few articles examining the short-run and long-run relationship between tourism and trade using a cointegrating panel data approach for the case study of a specific country.

The objective of this chapter is to study, for the first time, the empirical links between international tourism and trade for the case of Cambodia and its partners. It seeks to answer three questions of interest: Does bilateral trade encourage tourist arrivals in Cambodia and do tourist arrivals in return generate trade? In addition,

is there any evidence of an inverse relationship between these variables? To be able to elaborate answers to these questions both dynamic heterogeneous panel data and time series techniques will be applied to analyse both the long-run and short-run relationship. We estimate the cointegration vector and analyse the short-run causality between variables following the estimation methodologies described in the paper by Santana-Gallego et al. (2011a) to study these causal relationships.

This chapter contributes to the literature in several ways. First, it explores, for the first time, the empirical study of a relationship between tourism and international trade in a least-developed country with an open economy like Cambodia. Second, the causality between variables is analysed base on panel data and time series data as part of a case study of a specific country. Finally, the application of several tests and the analysis of the short-run and long-run relationships between the variables using dynamic heterogeneous panel cointegration techniques provide a clear insight into the importance of various interpretations.

This chapter is organised into the following sections: Section 4.2 discusses the theoretical and empirical literature on the links between tourism and trade and provides some justifications for the choice of the estimated models. Section 4.3 details descriptive information about the trade and tourism sectors in Cambodia. Section 4.4 describes the methodologies applied and the interpretation of the results. Finally, this chapter proposes some policy recommendations following the discussion of the results with a summary and suggestions for further research in Section 4.5.

4.2 Theoretical relationship between tourism and trade

The World Tourism Organization (UNWTO) defines tourism as "*the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes.*" Over the past six decades, tourism has experienced a gradual increase and development to become one of the largest and fastest-growing economic sectors. According to the WTO (2017b), international tourist arrivals have surged from 25 million worldwide in 1950 to 1,235 million in 2016. Tourism generated USD 216 billion in exports through international passenger transport services rendered to non-residents and represented 7% of the world's exports in goods and services in 2016. Despite its importance as an exportable good and popularity in the empirical research context, tourism was not initially integrated into the theory of trade. Hazari and Sgro (2004) are the pioneers who systematically integrated tourism into the pure theory of international trade.

In the traditional trade theory of the Ricardian and Heckscher-Olin (hereafter referred to as HO) models, patterns of trade are explained based on the differences in technology and factor endowments. The HO model was later developed with the inclusion of factor mobility, non-traded goods and intermediate goods in both competitive and distortionary models. Hazari and Sgro (2004) suggest another extension of the HO models to include tourism, which is considered the temporary movement of consumers from one country to another to consume non-traded goods and services. The non-traded goods are goods that cannot move across boundaries since the cost of moving them is, by definition, extraordinarily high or infinite. For instance, the Angkor Wat Temple in Cambodia or the Eiffel Tower in France. Hazari et al. (1993) and Hazari and Sgro (2004) use the dependency model to explore the interdependence between monopoly power in trade and tourism. Similarly, Nowak et al. (2003) endogenize tourism in a two-country model of trade. In their model, non-traded goods are produced in one country only. The movement of consumers, specifically tourists, can therefore consume such goods. Hence, tourism creates monopoly power in trade.

In addition, empirical evidence on the nexus between tourism and trade has been confirmed following diverse arguments based on theoretical frameworks. Kulendran and Wilson (2000) studied, for the first time, the causal relationship between international trade and international travel flows using time series econometric techniques. According to Kulendran and Wilson (2000), an increase in international trade flows leads to an increase in international travel flows, and vice versa since the countries become more open to the outside world. Consequently, the question of whether a causality link exists between the two flows is to be discussed as follows:

The first theoretical argument claims that tourism promotes trade. This could be explained by the fact that tourists may consume goods and services, which are not produced in the tourist destination country and thus lead to imports from other countries. This direct effect can be illustrated in any international trade model, in which consumers are allowed to engage in consumption. Specifically, the volume of trade is affected by the shift consumption from origin to destination country and by the change in consumption pattern in destination country with respect to the consumption in country of origin (Santana-Gallego et al., 2011a; Massidda and Mattana, 2013; Khan et al., 2005).

Convincing claims that explain the reverse causal relationship in the sense that international trade encourages tourism also exist. First, international trade requires business travel between countries. Second, the transactions between partner countries encourage international visits to the source countries as the image of the products or services from the source country create interest among consumers. Finally, an increase in bilateral trade increases the availability of products required

by visitors. For instance, visitors may prefer to visit a country where they can find the products they usually consume in their country of origin (Kulendran and Wilson, 2000; Khan et al., 2005).

Massidda and Mattana (2013) suggest that the direction of the causality link detected between tourism and trade is crucial for defining policy implications. The authors explain: "*A causality running from tourism to trade would justify a tourism policy as a means for addressing structural deterioration in the trade balance. An inverse causality direction would motivate government interventions on exploiting the international trade channel as a means for increasing tourist arrivals into a country.*" However, the empirical results on the relationship between tourism and trade remain controversial. The evidence of a clear positive long-run equilibrium relationship between tourism and trade is always detected, whereas the evidence on the causality links is rather mixed depending on the difference across contribution and/or methodologies used. However, most of previous research focuses mainly on short-run causality analysis while long-run Granger causality only appears in some research papers. Interestingly, Santana-Gallego et al. (2011a) study the relationship between tourist arrivals and departures and trade in a case study of OECD countries using panel data techniques. The authors found that inbound tourism can increase international trade and the international flows of goods may promote tourist arrivals and departures. Another study by Santana-Gallego et al. (2011b) on the causal relationship between trade and tourism using aggregate data from the Canary Islands shows a bidirectional nexus between exports and tourist arrivals, and a unidirectional link in the sense that tourist arrivals promote imports and also total trade. Furthermore, the analysis by Fry et al. (2010) on the relationship between tourist arrivals and trade in South Africa reveals that there is a long-term relationship between tourist arrivals and trade, and that there exists evidence of bidirectional causality between the two variables. Kulendran and Wilson (2000) also investigate long-run Granger causality between tourism and trade in a case study of Australia and its top travel and trading partners. The results confirm that Granger-causality between trade and tourism happens only with Japan. Finally, Khan et al. (2005) found either unrelated or weakly significant Granger-causality between tourism and trade when observing Singapore and its partners. A summary of previous research on the relationship between tourism and trade is listed in Table 4.1.

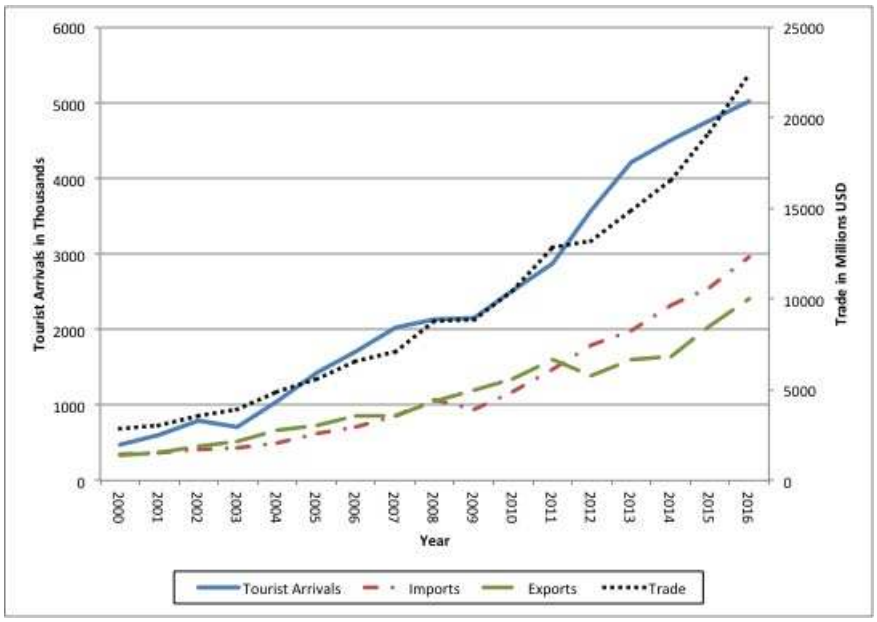
As presented and discussed in the work of Santana-Gallego et al. (2011a), Santana-Gallego et al. (2010), Massidda and Mattana (2013) and Fry et al. (2010), the investigation of the relationship between tourism and trade variables in panel data concerns the existence of cointegration in the ARDL-ECM model proposed by Pesaran, Shin, and Smith (1997; 1999). Furthermore, to study the causality nexus,

given the evidence of cointegration, an ECM framework is needed to perform the estimations. Therefore, the chosen methodologies in the following sections also rely on the estimation procedures in Pesaran, Shin, and Smith (1997; 1999).

4.3 Trade and tourism patterns in Cambodia

Cambodia used to be one of the most famous tourist destinations in Southeast Asia in the 1960s, receiving 50,000 to 70,000 visits from tourists annually (Chheang, 2008). However, the tourism industry was totally destroyed by the civil wars, and particularly the genocidal regime of the Khmer Rouge in the 1970s. Since the 1990s, after the end of the civil war and with support from the international community, the development and reconstruction of tourism started to emerge at a remarkable speed. Tourism is considered one of the major foreign exchange earners and job creators in the post-conflict economic and social reconstruction of Cambodia. It is also seen as a mechanism for changing the image of Cambodian culture and history from the mass killing fields and land mines to a country of peace and stability (Chheang, 2008). After more than 20 years of development, tourism has become one of the growth drivers for Cambodia with a direct contribution of USD 2.4 billion or 12.2% of GDP in 2016 (World travel and tourism council 2017). It is also a key component of the service sector with a forecast growth rate of 10.7% in 2017 and about 6.5% for 2017-2027. In terms of its contribution to employment, travel and tourism directly employs 998,000 people (11.4% of total employment), and about 2,252,500 in both direct and indirect jobs in 2016.

Figure 4.1: Evolution of tourist arrivals and trade in Cambodia



Source: Author's calculation

An examination of the evolution of Cambodia's tourist arrivals and trade indicates that an increase in the volume of total trade including imports and exports and a rise in the number of tourist arrivals in the kingdom seem to indicate a relevant relationship between the two factors as presented in Figure 4.1. The

Table 4.1: Previous research on the relationship between tourism and trade

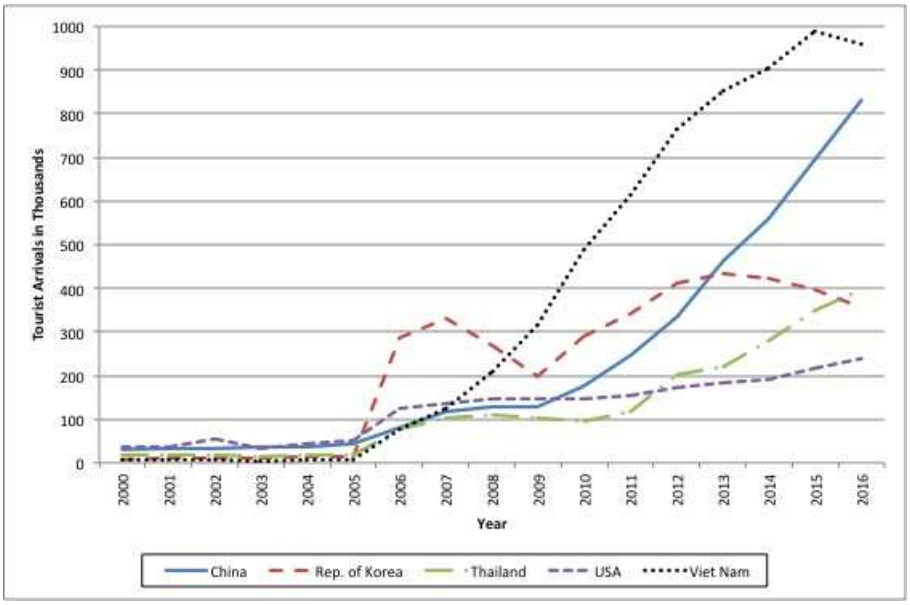
Authors	**Focus**	**Model**	**Results**
Kulendran and Wilson (2000)	Relationship between international trade and international travel using Australia data	Cointegration and Granger-causality	The results confirm the prior beliefs that there is a relationship between international travel and international trade.
Khan et al. (2005)	Tourism and trade using Singapore data	Cointegration and Granger-causality	Cointegration between tourism and trade exists but not common and two-way Granger causality only happens between business travel and imports.
Kadir and Jusoff (2010)	Tourism and trade using Malaysia data	Cointegration and causality tests	No evidence of long-run relationship and there is only a one-way causal effect running from imports to tourist arrivals.
Fry et al. (2010)	Relationship between tourism and trad in South Africa	Cointegration tests, Granger causality and Block exogeneity tests	The results of the panel data analysis show that for South Africa as a whole, there is indeed a long-term relationship between tourist arrivals and trade, and that bidirectional causality exists. The results for individual country case studies are mixed.
Santana-Gallego et al. (2011b)	Tourism and trade in small island region using Spanish data	Cointegration and causality tests	There is a long-term bidirectional relationship between tourism and trade, while the short-run link lies mainly in the trade generated by tourist arrivals.
Santana-Gallego et al. (2011a)	Tourism and trade in OECD countries	dynamic heterogeneous panel data techniques	The long-run results reveal that inbound tourism can promote the international trade and also that international flow of goods requires and may encourage tourist arrivals and departures. The results suggest a short-run nexus between tourism and trade, and that these variables are cointegrated.

number of tourists increases almost steadily, except for the slight drop in 2003 due to the SARS epidemic that spread in the region. Interestingly, the number of tourists in Cambodia has soared since 2006 thanks to the Open Sky policy of the government that introduced an e-visa for tourists. Cambodia is the first country in Southeast Asia that allows tourists to apply for an e-visa online. The entry visa can also be issued on arrival at international airports and border checkpoints, which provides greater convenience for tourists visiting the country. At the same time, the volume of trade, including imports and exports, experienced almost the same increase. For instance, in 2016, the number of tourists visiting Cambodia reach 5 million and total trade was about USD 22.4 billion with an average increase in tourist arrivals of 17% between 2001-2016 and an average rise in total trade of 14% for the same period.

The five main countries of origin for tourist arrival in Cambodia in 2016 were Vietnam (19%), China (17%), South Korea (7%), Thailand (8%) and the United States (4%). These five main source countries for tourist arrivals are also the five main trading partners with Cambodia as presented in Figure 4.2 and Figure 4.3.

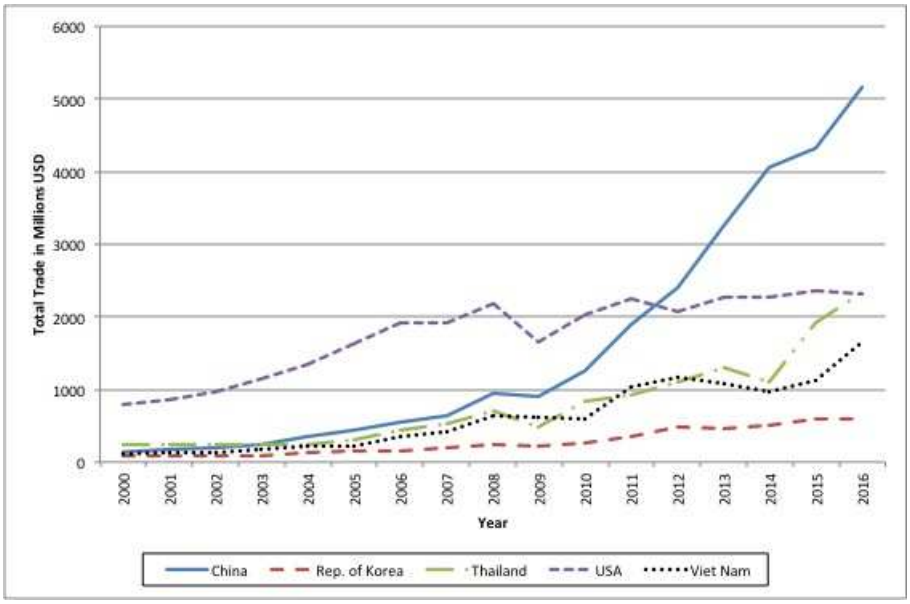
The evolution of tourist arrivals by country of origin and the total bilateral trade flows with 22 partner countries from 2000-2016 are presented in appendix D.1 and D.2.

Figure 4.2: Evolution of tourist arrivals from top-five countries



*Source:*Author's calculation

Figure 4.3: Evolution of total trade between Cambodia and five major countries



*Source:*Author's calculation

4.4 Estimation methodologies and results

4.4.1 Data

The empirical models are estimated based on bilateral trade data of Cambodia with 22[1] main tourist origin and trading partners over the period 2000-2016. The choice of the sample period was mainly conditioned by the availability of tourism data. The bilateral data on exports, imports and total trade are extracted from the International Trade Center in thousands of US dollars. For the purpose of estimation, the nominal values of these series are converted into real terms using US price indices from 2010. The annual international tourist arrivals from sample countries in Cambodia are compiled from annual and diverse reports from the Ministry of Tourism in Cambodia. All series are expressed in logarithms.

The causality analysis of tourist departures and trade is excluded due to the unavailability of outbound tourism data. Moreover, tourists outbound from Cambodia to other countries are marginal compared to inbound tourist arrivals. The second part of the analysis uses time series data, which consists of quarterly data from 2006 to 2016 and applies the case of bilateral trade with China and ASEAN as a whole and the tourist arrivals originating from those countries. The period in this study is also conditioned by available quarterly data on tourism in Cambodia. As with the panel data, all trade series in this time series data are converted into real terms using seasonally adjusted US price indices from 2010

[1]The list of partner countries is in Appendix D.1.

(2010q1=100). The time series sample consists of 40 observations.

4.4.2 Panel unit root test

The unit root tests in the panel data framework are carried out in a similar way to the time series data. However, to minimise the risk of erroneous inferences, we use an array of several different tests following two types of assumptions. First, the panel unit root tests are performed assuming independence across countries. These tests use the Augmented Dickey-Fuller (ADF) model, which can be expressed as in equation 4.1:

$$\Delta y_{it} = \rho_i y_{i,t-1} + \sum_{j=1}^{p} \gamma_i \Delta y_{i,j-1} + x_{it}^{'}\beta + \varepsilon_{it} \tag{4.1}$$

where $i = 1, ..., N$ indexes panels; $t = 1, ...,$T indexes time; y_{it} is the variable being tested; the x_{it} term represents a column exogenous vector, which includes any fixed effects or individual trends; p_i is the mean-reversion coefficient; p is the lag length of the autoregressive process; the ε_{it} term represents the idiosyncratic disturbance assumed to be a mutually independent.

Panel unit root tests are used to test the null hypothesis H_0 : ρ_i=1 for all i against the alternative $H_a : \rho_i < 1$, which indicates that y_{it} is weakly stationary. In this regard, two natural assumptions about ρ_i can be drawn from the ADF model in the panel data. First, Breitung (2001) and Levin et al. (2002), who test the null hypothesis of unit root versus the alternative hypothesis of no unit root, and Hadri (2000), who test the null hypothesis of no unit root against the alternative hypothesis of unit root, make a simplified assumption that $\rho_i = \rho$ for all i. This means that the persistence parameters are common across countries. The second assumption is based on individual unit root processes by allowing ρ_i to be freely varying across units. This assumption is applied in the unit root tests[2] of Maddala and Wu (1999), Choi (2001), and Im et al. (2003). These authors test the null hypothesis of unit root versus the alternative hypothesis of some individuals without unit roots.

As for the second assumption, we intend to apply panel unit root tests, which allow dependence across countries. Bai and Ng (2004) argue that panel unit root tests, which assume independence across countries, must be restrictive. The violation of this assumption leads to an over-rejection of the non-stationarity hypothesis. To deal with this econometric problem, the second generation of unit root tests applied by Bai and Ng (2004), Moon and Perron (2004), and Breitung and Pesaran (2008), consider cross-sectional dependence across units. In this study,

[2]Maddala and Wu (1999) and Choi (2001) use ADF and Phillops-Perron tests, while Im et al. (2003) apply the Im-Pesaran-Shin test. The details of each test can be found in STATA journal available at: https://www.stata.com/manuals13/xtxtunitroot.pdf

we adopt the Panel Analysis of Nonstationarity in the Idiosyncratic and Common components (PANIC) approach of Bai and Ng (2004) because it is more general than the other tests proposed by Moon and Perron (2004) or Breitung and Pesaran (2008). The PANIC approach is carried out in two steps.

The first step is to conduct a preliminary PANIC analysis on each variable y_{it} to extract common factors. It can be represented in the form of equation as $y_{it} = c_i + \beta_i t + \lambda_i^{'} F_t + e_{it}$, where c_i is a specific constant, t is a time trend, F_t represents an $r \times 1$ vector of common factors, λ_i is a vector of factor loading coefficients and e_{it} is an idiosyncratic error.

Next, the second step is to determine if the non-stationarity comes from the common factors, the idiosyncratic error or both. In this regard, the unit root tests on both common factors and idiosyncratic components are carried out following two assumptions. Assumption (A) uses the standard ADF test to analyse the nonstationarity of the estimated common factor ($\hat{F_t}$) if $r = 1$. The ADF equation, which includes an intercept $ADF^c_{\hat{F}}$ and a linear trend $ADF^\tau_{\hat{F}}$, can be expressed as $\triangle \hat{F}_t = c + c_1 t + \delta_0 \hat{F}_{t-1} + \sum_{i=1}^{p} \delta_1 \triangle \hat{F}_{t-i} + \nu_t$, in order to test the null of $I(1)[H_0 : \delta_0 = 0]$. Assumption (B) applies the ADF test on the non-stationarity of the defactored estimated idiosyncratic error in the univariate augmented autoregression such as $\triangle \hat{e}_{it} = \lambda_{i0} \hat{e}_{i,t-1} + \sum_{j=1}^{p} \lambda_{ij} \triangle \hat{e}_{i,t-j} + \varepsilon_{it}$ to test the null of $I(1)[H_0 : \lambda_{i0} = 0]$. We denote an intercept as $ADF^c_{\hat{e}}(i)$, and the linear trend as $ADF^\tau_{\hat{e}}(i)$ for the $i-$th cross-section unite in this factor model.

To deal with the problem occurring from the low power of univariate unit root tests when T is small, Bai and Ng (2004) suggest pooling individual ADF $t-$Statistic following the results of $p-$values of $ADF^c_{\hat{e}}(i)$ and $ADF^\tau_{\hat{e}}(i)$ to obtain a standardized Choi's type statistic for the idiosyncratic error with constant ($P^c_{\hat{e}}$) and linear trends ($P^\tau_{\hat{e}}$) in the factor model, which converge for $N, T \rightarrow \infty$ to a standard normal distribution (Santana-Gallego et al., 2011a).

Table 4.2 presents the results of unit root tests following the two types of assumptions described in Section 4.4.2. The first assumption, which considers no cross-difference across countries, is performed using five different tests namely Levin-Lin-Chu, Hadri, Breitung, Im-Pesaran-Shin, ADF-Fisher, and PP-Fisher. The statistical properties of each variable are studied individually, and each estimated model presents both panel-specific means and linear time trends. The panel unit root test results show that all variables present a unit root as the hypothesis of a unit root cannot be rejected at the 1% significant level for all the cases.

As for the second type of assumption when unit root tests are carried out under cross-dependence between countries, the $ADF_{\hat{e}}^{c}$ and $ADF_{\hat{e}}^{\tau}$ results[3] for common factors and the $(P_{\hat{e}}^{c})$ and $(P_{\hat{e}}^{\tau})$ results for the idiosyncratic error provide evidence of the unit root in each variable. These results also mean that there is a significant proportion of the idiosyncratic disturbance terms. Therefore, the unit root hypothesis is adequate and all the series are integrated. The results from both no cross difference and under cross difference across countries confirm the presence of the unit root for all variables, and thus, the cointegration between variables can be examined.

4.4.3 Dynamic estimation

Pesaran, Shin, and Smith (1997; 1999) propose new techniques to estimate the long-run parameters and the speed of adjustment to the long-run equilibrium or the error correction term (EC) using the dynamic panel data framework in which the parameters are heterogenous across groups. Their approach use an autoregressive distributive lag model (ARDL), which could be specified in the form of two variables as follows:

$$y_{it} = \sum_{j=0}^{p} \lambda_{ij} y_{i,t-j} + \sum_{j=0}^{q} \delta_{ij} x_{i,t-j} + \mu_i + \nu_{ij} \tag{4.2}$$

where i =1, 2,..., N is the number of countries; t=1, 2,..., T is the sample period for each i-th group; x_{it} indicates a k x1 vector of explanatory variables; δ_{ij} is the k x1 coefficient vectors; λ_{ij} is scalars; μ_i is fixed effects; and p and q are the autoregressive and distributed polynomial lags, respectively.

If the variables in equation 4.2 are non-stationary $I(1)$ and cointegrated, the error term is a stationary $I(0)$ process for all i. The main characteristic of cointegrated

[3]These tests are performed using STATA code from Simon Reese, who has coded the Bai and Ng (2004) PANIC PURT along with his own Reese and Westerlund (2016) PANICCA PURT. The code can be downloaded as the STATA command *xtpanicca* from https://sites.google.com/site/medevecon/code/xtpanicca.zip?attredirects=0

Table 4.2: Unit Root Tests

Variables	Levin-Lin-Chu (LLC) t^*-Adjusted		Hadri Z-Stat		Breitung t-Stat		Im-Pesaran-Shin W-stat		ADF-Fisher Chi-2		PP-Fisher Chi-2		Bai and Ng			
	Fixed	Trend	Fixed	Trend	Fixed	Trend	Fixed	Trend	Fixed	Trend	Fixed	Trend	$ADF^c_{\hat{F}}$	$P^c_{\hat{e}}$	$ADF^\tau_{\hat{F}}$	$P^\tau_{\hat{e}}$
Tour	2.17	-2.13	40.23	24.00	8.05	2.69	6.08	0.23	7.94	51.56	4.97	34.45	0.90	-0.62	-2.30	0.95
	(0.99)	(0.02)	(0.00)	(0.00)	(1.00)	(1.00)	(1.00)	(0.59)	(1.00)	(0.20)	(1.00)	(0.85)	(0.91)	(0.27)	(0.02)	(0.83)
Imports	8.02	-0.41	39.17	29.12	4.63	4.24	8.57	1.79	11.93	73.60	23.82	83.54	2.87	-4.23	-0.24	-0.79
	(1.00)	(0.34)	(0.00)	(0.00)	(1.00)	(1.00)	(1.00)	(0.96)	(1.00)	(0.00)	(0.99)	(0.00)	(1.00)	(0.00)	(0.60)	(0.21)
Exports	12.04	4.38	29.58	23.51	7.50	7.18	11.53	8.15	9.76	10.42	10.67	17.86	-4.12	-1.84	-0.67	0.82
	(1.00)	(1.00)	(0.00)	(0.00)	(1.00)	(1.00)	(1.00)	(1.00)	(1.00)	(1.00)	(1.00)	(1.00)	(0.00)	(0.03)	(0.42)	(0.79)
Trade	9.27	1.08	37.62	27.90	8.38	5.78	10.88	5.87	6.95	23.98	6.75	27.97	4.12	-2.40	0.46	0.83
	(1.00)	(0.86-)	(0.00)	(0.00)	(1.00)	(1.00)	(1.00)	(1.00)	(1.00)	(0.99)	(1.00)	(0.97)	(1.00)	(0.01)	(0.82)	(0.80)

(LLC) t^*-Adjusted, and Breitun t-stat test the H_0 of common unit root. Hadri Z-stat tests the H_0 of stationary. IPS w-stat, ADF and PP-Fisher-chi2 test the H_0 of individual unit root process.

Bai and Ng Fixed indicates individual effect and Trend indicates individual effect and individual linear trends. Both Fixed and Trend represent the deterministic components of the test. The Bai and Ng test H_0: All panels contain unit roots against H_a: At least one panel is stationary.

p-values are in parentheses.

variables is their responsiveness to any deviation from the long-run equilibrium (Blackburne and Frank, 2007). This means that an error correction model in which the short-run dynamics of the variables in the system are influenced by the deviation from equilibrium. Therefore, the error correction model can be reparameterized from equation 4.2 into the following expression:

$$\Delta y_{it} = \theta_{1i} y_{i,t-1} + \lambda_{1i} X_{it} + \sum_{j=1}^{p_i} \alpha_{1,ij} \Delta y_{i,t-j} + \sum_{j=1}^{q_i} \beta_{1,ij} \Delta x_{i,t-j} + \mu_{1i} + \vartheta_{1i} t + \varepsilon_{1,it} \quad (4.3)$$

where y_{it} and x_{it} are $I(1)$ variables; θ_{1i} indicates the error correction coefficient for i-th group; λ_{1i} represents the long-run parameter for i-th group; $\alpha_{1,ij}$ and $\beta_{1,ij}$ denote the country-specific coefficients of short-run dynamics; μ_{1i} represents country-specific intercepts and ϑ_{1i} is the time trend parameter; $\varepsilon_{1,it}$ denotes an iid innovation; p_i and $q_i$are the lag length of the ARDL model. Equation 4.4 presents the same feature as equation 4.3 for Δx_{it}.

$$\Delta x_{it} = \theta_{2i} x_{i,t-1} + \lambda_{2i} y_{it} + \sum_{j=1}^{p_i} \alpha_{2,ij} \Delta y_{i,t-j} + \sum_{j=1}^{q_i} \beta_{2,ij} \Delta x_{i,t-j} + \mu_{2i} + \vartheta_{2i} t + \varepsilon_{2,it} \quad (4.4)$$

As described in Pesaran, Shin, and Smith (1997; 1999), equation 4.3 and 4.4 can be estimated using Mean-Group (MG) and Pooled Mean-Group (PMG) estimators. The MG estimator allows the intercepts, slope coefficients, and error variances to differ across groups, while the PMG estimator combines both MG and Fixed-effects estimation approaches. Specifically, the PMG estimator allows the intercept, short-run coefficients, and error variances to differ across groups (as would the MG estimator) but constrains the long-run coefficients to be identical across groups (as would the fixed-effect estimator). Since equation 4.3 and 4.4 are nonlinear in the parameters, Pesaran, Shin, and Smith (1999) use a maximum likelihood procedure to get the PMG estimator where the long-run coefficients (λ_1 and λ_2) are considered as equal across countries. To obtain the MG estimator, one can use these regressions to estimate with individual specific λ_{1i} or λ_{2i}, which are then averaged over N.

Three hypotheses could be drawn from these ARDL models, which assume all parameters are equal for different groups and $p_i = q_i \equiv p$. First, regarding the cointegration where the null hypothesis is $H_0 : \theta = 0$, the rejection of the null hypothesis implies that both variables are cointegrated. This parameter is expected to be significantly negative under the prior assumption that the variables indicate a return to a long-run equilibrium. The second hypothesis focuses on the long-run elasticity, where the null hypothesis is $H_0 : \lambda = 0$. The rejection of the null hypothesis

indicates the existence of long-run elasticity between tourism and trade variables. Finally, the third hypothesis intends to test the short-run causality between variables following the Granger (1981) approach. The null hypothesis, which considers all parameters are equal for all groups, is $H_0 : \beta_{1,.1} = ... = \beta_{1,.p} = 0$. In this case, the Wald statistic is distributed as x_p^2, where p denotes the number of lag. The rejection of the null hypothesis indicates that there is short-run causality between tourist arrivals and trade variables.

To decide between the PMG and MG estimators, the Hausman test is performed to test for the slope of homogeneity. Under the null hypothesis of homogeneity, the PMG estimator is consistent and efficient. If the model is heterogeneous, the PMG estimator is inconsistent while the MG estimator is consistent in either case.

Table 4.3 presents the results from the panel PMG and MG estimates, which are applied considering an optimal ARDL(1,1)[4] for both tourist arrivals and trade variables following the Akaike Information Criteria. Both PMG and MG estimate results are presented using the two-equation model: the normalized cointegrating vector (λ_1, λ_2) and the short-run dynamic coefficients (θ_1, θ_2). For instance, Table 4.3a shows the results of the causal link in two directions: Tourist arrival and Imports and vice versa.

In comparing the PMG and MG estimators, the Hausman tests indicate in almost all cases, except the relationship between Trade and Tourist arrivals, that the null hypothesis of homogeneity cannot be rejected, the PMG estimates are efficient and consistent. Following the Hausman tests, the results of the cointegration vector are discussed based on PMG estimates.

The results from the sub-tables 4.3a, 4.3b, and 4.3c show that the coefficients of adjustment terms (θ_1, θ_2) are negative and statistically significant as expected. The speed of adjustment estimated from each model indicates the return to a long-run equilibrium, and thus, both variables Tourist arrivals and Trade (import, export, total trade) are cointegrated as mentioned in the first hypothesis.

Regarding long-run coefficients λ_1 and λ_2, the results from sub-tables 4.3a, 4.3b, and 4.3c show as positive and statistically significant for all cases, confirming once again the evidence of cointegration between variables in our model. The positive and statistically significant at the 1% level also implies the existence of strong complementarity between Tourist arrivals and Trade variables (Imports, Exports, and Total Trade).

In addition to the PMG and MG estimates, the cointegration vector can be estimated using the Fully Modified Ordinary Least Squares (FMOLS) estimator

[4]Since there is no STATA command that can estimate an optimal ARDL structure from panel data, I calculate an optimal lag structure for each country separately, and then, select the most common optimal lags for each variable following the Akaike Information Criteria (AIC).

Table 4.3: Panel estimation results from PMG and MG for the cointegration test and long-run relationship

(a) Tour vs. Imports

Parameters	PMG	MG	Parameters	PMG	MG
Imports $\longrightarrow$Tour			Tour $\longrightarrow$ Imports		
λ_1	0.753***	1.158**	λ_2	0.641***	1.841***
	(15.88)	(2.22)		(7.56)	(3.16)
θ_1	-0.297***	-0.502***	θ_2	-0.183***	-0.314***
	(-4.45)	(-6.77)		(-6.58)	(-6.68)
Constant	0.830***	2.314***	Constant	0.664***	-2.744**
	(3.98)	(3.02)		(9.53)	(-2.51)
Hausman	0.48	-	Hausman	1.02	-
	[0.49]	-		[0.31]	-
Observations	352	352	Observations	352	352

(b) Tour vs. Exports

Parameters	PMG	MG	Parameters	PMG	MG
Exports $\longrightarrow$ Tour			Tour $\longrightarrow$Exports		
λ_1	0.825***	0.767***	λ_2	0.517***	0.330
	(15.86)	(3.86)		8.29	0.88
θ_1	-0.231***	-0.353***	θ_2	-0.185***	-0.210***
	(-4.19)	(-5.71)		-6.75	-7.14
Constant	0.433***	0.519	Constant	1.071***	0.237
	(3.27)	(0.81)		7.77	0.30
Hausman	0.06		Hausman	0.22	
	[0.80]			[0.64]	
Observations	352	352	Observations	352	352

(c) Tour vs. Trade

Parameters	PMG	MG	Parameters	PMG	MG
Trade $\longrightarrow$ Tour			Tour $\longrightarrow$ Trade		
λ_1	0.757***	0.611***	λ_2	0.517***	2.116**
	(15.89)	(7.19)		(9.10)	(1.27)
θ_1	-0.192***	-0.307***	θ_2	-0.185***	-0.316***
	(-3.47)	(-5.22)		(-6.33)	(-7.00)
Constant	0.263**	1.689***	Constant	1.071***	-2.186**
	(3.73)	(4.56)		(7.69)	(0.07)
Hausman	3.56		Hausman	2.29	
	[0.06]			[0.13]	
Observations	352	352	Observations	352	352

t-Student are in parentheses*** p<0.01, ** p<0.05, * p<0.1

Table 4.4: Robustness test from different panel estimates for long-run parameters

Methods	Tour⟶Imports		Imports⟶Tour		Tour⟶Exports		Exports⟶Tours		Tour⟶Trade		Trade⟶Tour	
	λ	$t-Stat$	λ	$t-Stat$	λ	$t-Stat$	λ	$t-Stat$	λ	$t-Stat$	λ	$t-Stat$
PMG	0.753***	15.88	0.641***	7.56	0.825***	15.86	0.517***	8.29	0.757***	15.89	0.517***	9.10
MG	1.158**	2.22	1.841***	3.16	0.767***	3.86	0.330	0.88	0.611***	7.19	2.116**	1.27
FMOLS	0.798***	5.71	0.417***	4.63	0.466*	1.79	0.334***	4.45	0.696***	3.48	0.509***	5.03
DOLS	0.810***	4.07	0.386***	3.41	0.684*	1.87	0.309***	2.89	0.712***	2.58	0.487***	4.51

proposed by Pedroni (1996; 2001) and the Dynamic Ordinary Least Squares (DOLS) estimator suggested by Kao and Chiang (2001).

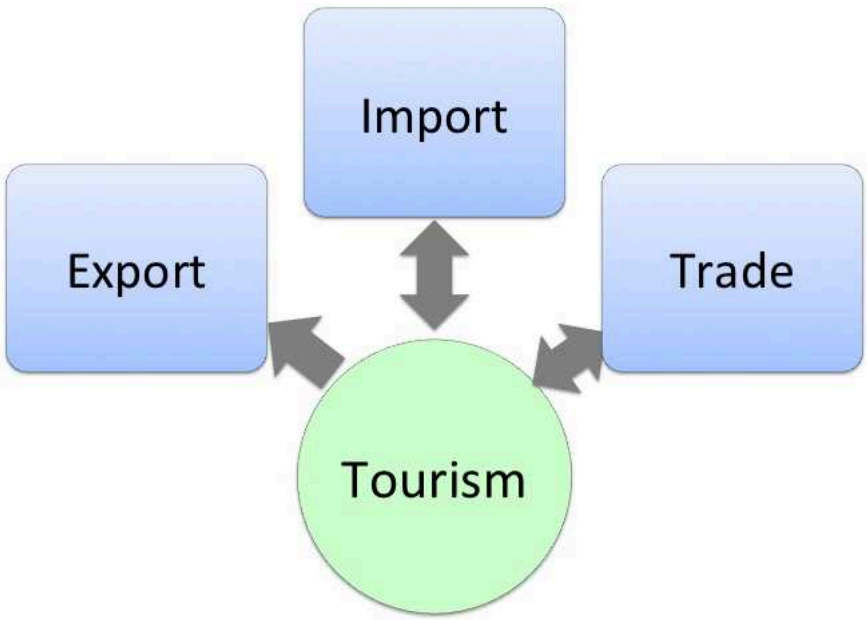
Table 4.4 presents the long-run parameter of the panel PMG, MG, FMOLS and DOLS estimates. The FMOLS and DOLS are performed as robustness tests for the long-run elasticity estimation. As can be observed in Table 4.4, a 1% increase in tourist arrivals leads to an increase from 0.75 to 1.15% in imports, from 0.46 to 0.82% in exports, and from 0.61 to 0.75% in total trade. In regard to the reverse effect, a 1% increase in imports generates a 0.38-1.84% increase in tourist arrivals in Cambodia while a 1% increase in exports from Cambodia to a partner country increases inbound tourists from that country from 0.30 to 0.51%. Finally, a 1% increase in total trade between the two countries increases tourist visits to Cambodia from 0.48 to 2.11%.

Table 4.5: Granger-Causality tests from Panel PMG and MG

Granger-causation relationship	Chi square χ^2_p		Dumitrescu & Hurlin
	PMG	MG	lag(1)
Tour⟶Imports	7.84***	7.05***	9.71***
Imports⟶Tour	0.13	7.88***	3.29***
Tour⟶Exports	1.19	17.97***	10.23***
Exports⟶Tours	1.12	2.34	1.02
Tour⟶Trade	7.24***	14.02***	6.63***
Trade⟶Tour	0.08	7.22***	3.9589***

⟶ indicate the direction of causality

Figure 4.4: Graphic of Granger-Causality between tourism and trade



We now turn our attention to the results of the short-run causal relationship linking each pair of variables as described in the third hypothesis in our ARDL

model. Table 4.5 presents the short-run causality in the sense of Granger (1981) using PMG and MG estimates. First, the results from the PMG and MG estimates do not provide a clear-cut conclusion on the short-run causal relationship between tourist arrivals and trade variables. Therefore, a recently developed method by Dumitrescu and Hurlin (2012) for testing the granger causality in panel data is also performed to be able to draw a final conclusion. The application of Dumitrescu and Hurlin (2012) procedures in STATA is carried out using user-written commands developed by Lopez et al. (2017). The Granger causality results obtained from the Dumitrescu and Hurlin estimates in column 4 of Table 4.5 are very similar to results from the MG estimates. With statistical significance at the 1% level, there is a bidirectional causal nexus between tourist arrivals and imports of products into the country. This is also the case for tourist arrival and total trade. However, there is only a unidirectional causal relationship where tourist arrivals cause exports of products from Cambodia to the visitor's country. Figure 4.4 presents the directions of the Granger causality links graphically.

4.4.4 Time series analysis

As can be observed in section 4.3, China and the two main ASEAN countries (Thailand and Vietnam) are in the top five countries in terms of tourist arrivals and trading partners with Cambodia. It is therefore important to study in greater detail whether there is any causal link between tourists originating from those countries and bilateral trade in goods. The tourism and trade data for countries are estimated using econometric techniques in time series data.

The first step to examine Cambodia's main tourism and trading partners in time series data is to study the statistical properties of each variable individually. As in the case of panel data, we investigate the stationary and non-stationary in the series using the Augmented Dickey-Fuller test. The ADF unit root tests are applied for tourism and trade flows with no intercept and trend. The null hypothesis of a unit root cannot be rejected if $p > 1\%$ while it may be rejected if $p < 1\%$. As can be observed in Table 4.6, tourism and trade variables are non-stationary for both cases (China and ASEAN) when considering no intercepts. However, when testing for unit roots by assuming an intercept and trend, export data are stationary for ASEAN countries. Since tourism and total trade presents evidence of a unit root on level form (by assuming no intercept), and hence all series are integrated with the same order, and the cointegration test between variables can be explored to investigate whether there is a long-run nexus between tourism and trade in Cambodia with both China and ASEAN countries.

Table 4.6: ADF unit root test

Variables	China			ASEAN		
	lags length	No intercept	Trend	lags length	No intercept	Trend
Tour	3	0.9447	0.9124	4	0.0916	0.9970
Import	1	0.7630	0.5217	1	0.0271	0.1194
Export	2	0.9488	0.5721	1	0.3045	0.0031
Trade	1	0.8101	0.4482	2	0.0102	0.0616

Note: The lag lengths are chosen according to Akaike's Information Criterion.
The values present in the table are the MacKinnon approximate p-value.

Table 4.7 presents the Johansen cointegration test to determine whether there exists cointegration between tourism and trade. Before starting the cointegration test, an optimal lag length needs to be identified to avoid the problem of over-specifying or under-specifying it. To identify the lag length, the Schwarz Bayesian Information Criterion (SBIC) is chosen. Ivanov et al. (2001) suggest that in the context of a vector autoregression model (VAR), AIC tends to be more accurate using monthly data, HQIC works better for quarterly data on samples over 120 and SBIC works fine with any sample size for quarterly data. This last selection criterion fits the sample data in this study that use quarterly data for the period 2006-2016. Column 2 and 6 in Table 4.7 show the optimal lag length for the VAR model for the case of China and ASEAN countries.

The results from the Johansen cointegration test are presented in Table 4.7, where I(0) indicates no cointegration vectors, and the I(1) means at least one cointegration vector exists between the two variables. In the case of a 0 cointegration vector [I(0)], the trace statistic value is smaller than the 5% of critical value, meaning that the null hypothesis of no cointegration cannot be rejected. In the case of I(1), the null hypothesis of at least one cointegration vector cannot be rejected because the trace statistic value is smaller than the 5% of critical value. Table 4.7 shows that a cointegration relationship only exists between tourist arrivals and exports, whereas evidence of cointegration cannot be found between tourist arrivals and imports or tourist arrivals and total trade. Hence, the long-run nexus only exists between tourist arrivals and exports from Cambodia to China and from Cambodia to ASEAN countries. As a result, the causality nexus will be performed with the unrestricted VAR model instead of the VECM model to estimate the short-run causality.

Table 4.7: Lag length and Johansen cointegration results

Parameters	China				ASEAN			
	lag length	Order of coint.	Trace stat.	5% crit. value	lag length	Order of coint.	Trace stat.	5% crit. value
Tour-Import	4	I(0)	6.28	15.41	1	I(0)	14.64)	15.41
Tour-Export	4	I(1)	0.02	3.76	2	I(1)	2.50	3.76
Tour-Trade	4	I(0)	7.59	15.41	2	I(0)	13.11*	14.07

Note: The lag lengths are defined following Schwarz's Bayesian Information Criterion (SBIC).
*The data reported from maximum statistic instead of trace statistic

Table 4.8: Granger Causality results from VAR model

Granger causality	China	ASEAN
	x^2	x^2
Tour→Import	64.27	4.22
	(0.000)	(0.040)
Import→Tour	21.24	0.92
	(0.000)	(0.338)
Tour→Export	17.53	17.77
	(0.002)	(0.000)
Export→Tour	52.73	3.74
	(0.000)	(0.154)
Tour→Trade	72.51	5.1851
	(0.000)	(0.075)
Trade→Tour	24.36	5.9365
	(0.000)	(0.051)

p-value are in parentheses
→indicates the direction of causality

Before performing short-run causality tests from our VAR model, the stability and residual autocorrelation tests have been carried out to assess the validity of our model. In general, these tests provide satisfactory results and there is no evidence to contradict the validity of our VAR model. Table 4.8 presents the short-run granger causality results between tourist arrivals in Cambodia and bilateral trade applying for the case of relationships with China and with ASEAN countries. First, focusing our attention on the results between Cambodia and China, the analysis indicates that there is a bidirectional nexus between tourist arrival from China and bilateral trade in the sense that tourist arrivals lead to bilateral trade (imports, exports, and total trade), and *vice versa.* For the case of ASEAN countries, the bidirectional links exist between tourist arrivals and imports and tourist arrival and total trade, while there is a unidirectional nexus in the sense that tourist arrivals promote exports from Cambodia to ASEAN countries.

To complement the results obtained from the Granger causality test, the impulse-response functions are estimated in order to identify the effect of shocks

on how a variable in a dynamic system model responds to a single 1% exogenous change in another variable of interest. Massidda and Mattana (2013) suggest that there are two types of shock that can impact on any one of the variables in the systems. First, an external or international event such as changes in tastes and attitudes, which affect any of the origin countries, or international events or episodes that impact the world as a whole including terrorist attacks, natural disasters or epidemic diseases affecting tourism activities. The second type of shock can come from internal choices in both the public and private sector, which aims at promoting the tourism sector in the country. For instance, an important investment in tourism activities with an aggressive prices and marketing strategies on the part of the private business community or any intervention or policy from the public side to promote the tourism sector, such as increasing the attractiveness of the country as a tourism destination or organising big events that attract more tourists from foreign countries. Those factors are potential shocks that can affect both tourism and trade variables in the system.

Figures 4.5 and 4.6 illustrate the estimated impulse-response function depicting the responses to a one per cent standard deviation shock hitting the system variables with a bootstrap 95% confidence interval for the period of 8 quarters (2 years). Figure 4.5 presents the impulse-response for the case of tourist arrivals from China. As can be observed, the exogenous shocks in both trade variables and tourist arrivals from China are positive and have a greater influence on each other between the first and 4th quarters and slightly reduce its effect after the 4th quarter. Moreover, the unitary shock in tourism has a greater impact on trade variables than in the opposite case and the response from both trade variables and tourist arrivals are not monotonic. For instance, sub-figures 4.5a and 4.5c show how the shock on tourist arrivals increases import and total trade from Q1 to its maximum level at Q3, reaching a peak of about 0.11% for both imports and total trade before they sharply drop to the lowest level in Q4.

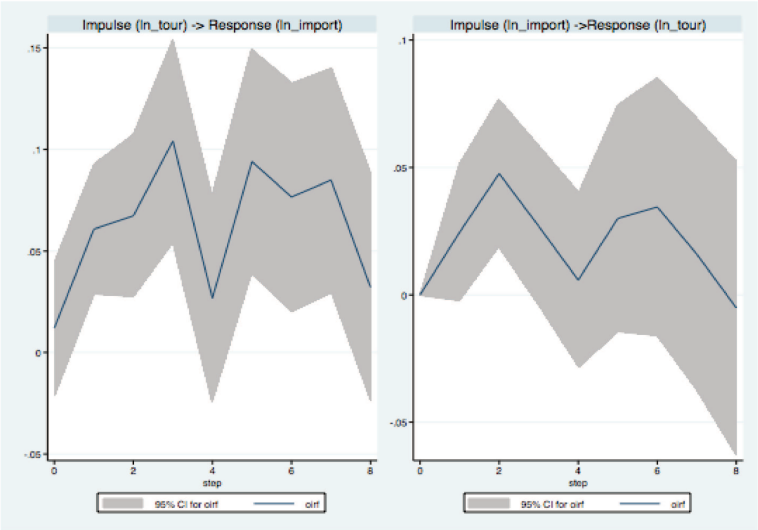
Now turning to Figure 4.6, which illustrates the effect of an exogenous shock between tourist arrivals and trade variables for the case of ASEAN countries. Sub-figure 4.6a shows how a positive shock on tourist arrivals originating from ASEAN countries increases bilateral trade between Cambodia and ASEAN countries steadily up to Q6, and this is also the case for the reverse shock with a modest instantaneous effect that accumulates over time. Regarding the impulse-response effects between tourist arrivals and exports in Sub-figure 4.6b, the response of exports to a shock from tourist arrivals reaches the maximum reaction very quickly; then the response coefficient remains steady at around 0.05%. Similar effects also happen for the case of the reverse effects starting from Q2. Interestingly, sub-figure 4.6c reveals that any kind of event that contributes to a rise in tourism activity

has a positive impact on total trade from an initially negative position of -0.01% to a positive and steady position of 0.025%. However, the response from tourist arrivals to the shock of total trade is not monotonic for its reverse case. As can be observed in sub-figure 4.6c, the initial positive impact becomes negative at Q1 before reaching its maximum response at 0.025% Q4

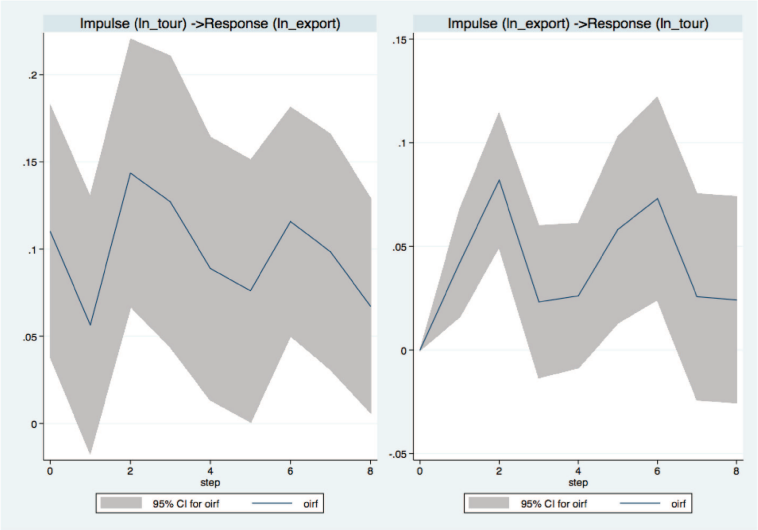
In general, the results of impulse-response functions are consistent with the results obtained from Granger causality tests in Table 4.8, which suggests a positive causal link between tourist arrivals and trade variables.

Figure 4.5: Impulse–response functions Cambodia and China

(a) Tourism and Import



(b) Tourism and Export



(c) Tourism and Total trade

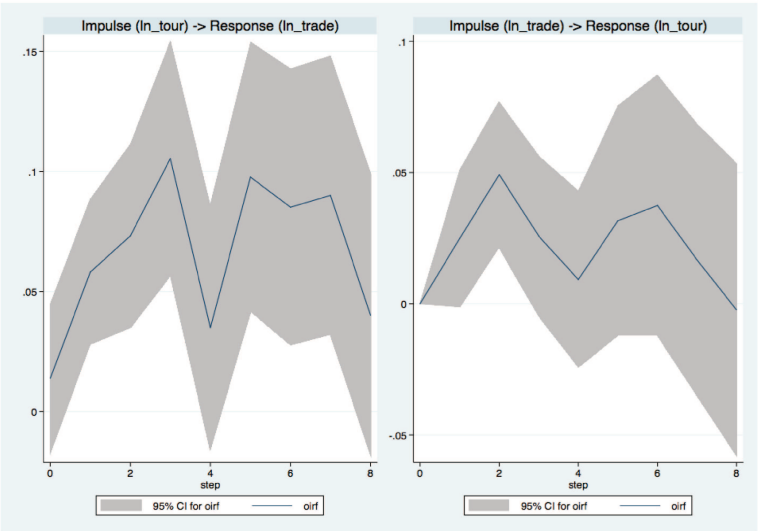
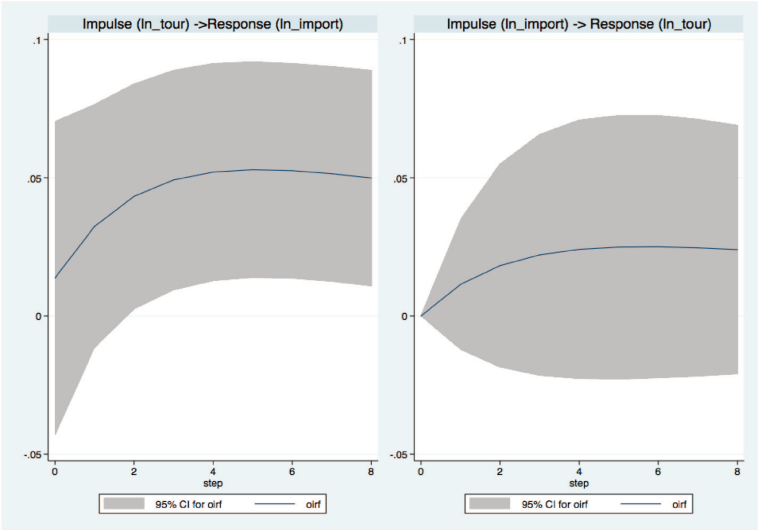
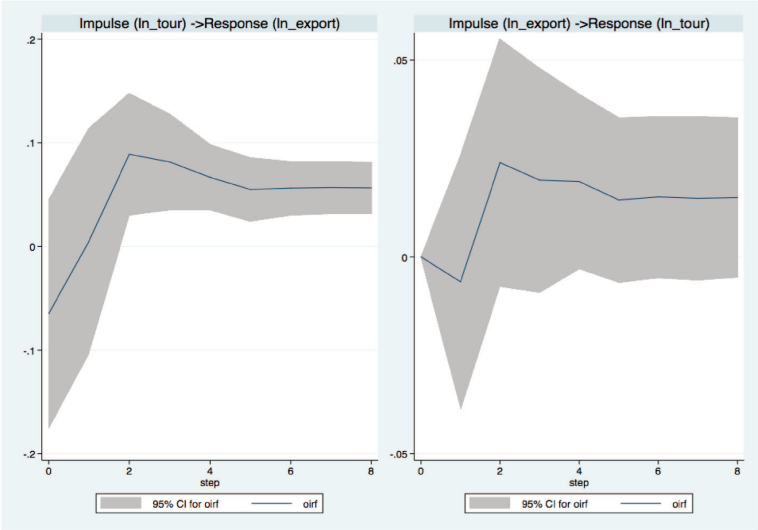


Figure 4.6: Impulse–response functions Cambodia and ASEAN

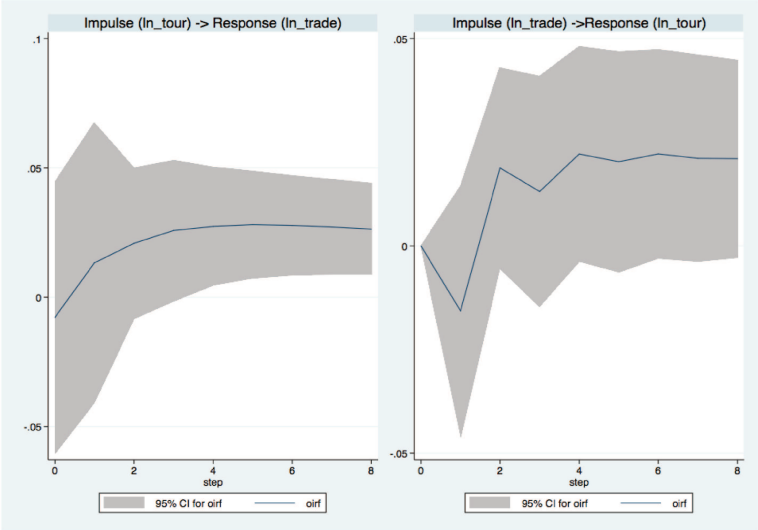
(a) Tourism and Import



(b) Tourism and Export



(c) Tourism and Total trade



4.5 Concluding remarks and policy recommendations

This chapter investigates the empirical relationship between tourist arrivals and trade using bilateral trade and tourism data from Cambodia in relation to 22 main countries as sources of inbound tourist arrivals and the value of trade. This represents a pioneer empirical study of this kind of relationship analysis for the Cambodian case. The study is relevant and crucial for both tourism and trade since the two sectors are the main growth drivers for economic growth and job creation for Cambodia.

For Cambodia as a whole, the results reveal that there exists a long-run nexus between tourist arrivals and trade variables, namely imports, exports, and total trade in the sense that tourist arrivals promote trade and trade also encourages inbound tourism to Cambodia. When examining the relationship between tourism and trade between Cambodia and China or ASEAN countries, the results of cointegration analysis indicate that there is no evidence of long-run links between tourism and two of the trade variables, namely imports and total trade. The evidence of a long-run relationship only exists between tourist arrivals and exports from Cambodia to those countries.

As for the short-run causality in the study on Cambodia using panel data, there is bidirectional causality running from tourist arrivals to imports and total trade and vice versa, whereas only on-way causality exists between tourist arrivals and exports in the sense that tourist arrival may lead to exports of goods from Cambodia to the tourists' country of origin. For the case of tourist arrivals and trade with China, the evidence of bidirectional short-run causality is found between tourist arrivals and all trade variables. For ASEAN countries, two-way short-run causality exists between tourist arrivals and imports as well as total trade, while only a unidirectional causal nexus exists in the sense that tourist arrivals increase exports.

Some policy recommendations can be drawn following the results of both the long-run and short-run relationship between tourism and trade from our models. The results, which suggest a positive long-term relationship between tourism and trade, imply that both flows are complementary. Therefore, there is no evidence of an inverse relationship between the two sectors. The important finding of positive links encourage the implementation of policies to promote trade and tourism in Cambodia in the following ways: The policy aims at reducing transaction costs in trade and/or the tourism sector such as in port and airport fees, transport, communication infrastructures, free trade agreements, and currency unions may benefit both trade and tourism businesses in terms of expanding markets, increasing growth, and strengthening business strategies resulting from the opportunities created by the complementary relationship between flows of tourists and goods.

Considering the short-run causality, the results on a causal relationship indicate that tourism encourages imports, exports, and total trade, while the reverse direction could only be found in that "imports and total trade increase tourism" based on the first part of analysis using panel data with 22 partner countries and the case of ASEAN countries, while the bidirectional causal relationships running from tourist arrivals to all trade variables and from all trade variables to tourist arrivals exist in the case of China. In this regard, government policies to promote tourist arrivals in Cambodia would not only provide benefits to actors in the tourism industry but also provide indirect promotional effects for the country's international trade. Therefore, trade and tourism authorities should closely cooperate with each other and coordinate their efforts to amplify the benefits from the positive relationship between this two sectors in order to booster the economic performance of Cambodia.

In addition to the recommendations at the policy-making level, other stakeholders in trade and tourism may find some useful information from this study. A robust complementary relationship between tourism and trade is of importance for decision-makers in private companies, particularly transport operators, tour operators, and in the hotel and hospitality industry when targeting countries that have high levels of trade with Cambodia like China and ASEAN countries. Furthermore, given the simultaneous links between tourism and trade, the forecast growth of international tourist arrivals are signals that help in timing the supply-side of goods and services, precisely in terms of planning for buying and selling products from and to the tourists' country of origin.

Following the results from this study, further research can proceed in several directions. For instance, some control variables could be considered in future studies since tourist arrivals and trade can be influenced by controlled factors such as exchange rates, travel costs, price competitiveness, or income levels. Furthermore, the causal relationship is not limited to that between tourism and trade. One can extend the research to analyse this causal relationship between three or more factors by adding, for instance, economic growth, income, and so on.

General conclusion

The present thesis studies the patterns of trade and investment of Cambodia in the context of regional and global economic integration. It evaluates the performance of trade and the attractiveness of foreign direct investment through the comparative advantages of export commodities, the level of intra-industry trade, the determinants of exports, the determinants of foreign direct investment, and the link between trade and tourism. The three sectors of trade, foreign investment and tourism are the backbone of the Cambodian economy, and they take central place in the discussions in this thesis. The overall objective is to explain the different factors that influence those sectors by using both theory-driven and data-driven approaches. This thesis is crucial not only for a more thorough understanding of a series of phenomena observed in Cambodia's trade and economy during each period considered, but also for the development of specific economic policies that can assist Cambodia in achieving its development goals and its long term objectives.

The different chapters presented in this thesis mainly contain empirical analysis of the problematics raised. The thesis also takes advantage of recent theoretical advances in each area of research to complement the empirical modelling and to support the results and conclusions. Each chapter of the study focuses only on Cambodia's case with the group of countries that play an important role in terms of trade, investment, and tourism. Accordingly, "trade competitiveness and regional integration" studies the case of Cambodia and ASEAN, and intra-ASEAN and extra-ASEAN trade. "The determinants of exports and trade potential" studies the export flows from Cambodia to 40 importing countries, while "FDI attractiveness and the role of governance and bilateral investment treaties" looks at the 17 countries that provided 99% of the total FDI inflows into Cambodia in 1998-2014. Finally, "the relationship between tourism and trade" considers the 22 countries that are the main sources of tourist arrivals and main trading partners for Cambodia and includes them in the sample for our estimation models.

Our thesis started with a descriptive analysis of the general economic structures of Cambodia and the progress of integration into the ASEAN Economic Community. Economically, Cambodia has done well during the past decade with an average GDP growth rate of 7%. However, analysis of the economic structures shows that

the levels of diversification in each main sector are very limited. The agricultural sector depends mainly on rice production, while the industry sector is dominated by garment and textile production, and tourism accounts for a large share of the service sector. In terms of economic integration, ASEAN focuses on reducing trade barriers and promoting intra-regional investment so that it can compete more effectively with the rest of the world. However, intra-ASEAN trade accounted for only 28.9% of total trade in 2015, which is well below the equivalent shares of 50% for NAFTA and 63% for the European Union. This chapter does not limit itself only to data analysis, it also conducts some estimations on the revealed comparative advantages of export products to ASEAN and to the world market and on the level of intra-industry trade of those export commodities, and it conducts correlation analysis between the two indexes. The results obtained from our calculations show that the average of the RCA indexes of export products from Cambodia to ASEAN and to the world market is above one, indicating that those products have comparative advantages in their respective markets. However, the ratio of the number of products that have comparative advantages to the products that have comparative disadvantages is very low, indicating a high level of concentration of comparative advantages in a small group of commodities in total exports. The results of the intra-industry trade analysis indicate a low level of two-way exchange of goods in individual industries between Cambodia and ASEAN and Cambodia and the rest of the world. The results imply that Cambodia trades with countries that have a different level of technologies and resources. An explanation of this assumption can be that the international trade between countries that have comparable levels of technology, capital and skilled labour usually takes the form of two-way exchange within industries, resulting in a high level of intra-industry trade. The correlation analysis between RCA and IIT shows negative links between the two indexes for most low technology products, and so we can conclude that in agriculture, resource-based industry, and low technology industry, an increase in the comparative advantages of export products does not encourage two-way trade flows within that industry.

The second chapter gives a more detailed analysis of Cambodia's export patterns using econometric analytical approaches. We applied a gravity model for trade to investigate different factors that affect exports. To match the changes in international trade patterns following from the introduction of new technology and modern logistics systems, and an increase in the integration of regional and global trade, various macroeconomic variables have been included in this study. We evaluate not only the impact on exports of some traditional variables of the gravity model like GDP, distance and common borders, but also other aspects including foreign direct investment, tariffs and non-tariff barriers, logistic performance, and

the quality of regulation of both Cambodia and its 40 importing partners. The results from the gravity model estimations are validated with a comparison between different estimators so that potential econometric biases can be identified. The estimation results show that FDI, logistics performance, regulation, and borders play a significant role in increasing Cambodia's exports, while tariffs and distance are barriers to its exports. Surprisingly, NTBs do not have a negative impact on exports. This positive effect could come from the efforts of exporters who are in search of new markets for their products. It also reflects the characteristic of Cambodia as a developing country that benefits from most favoured nation tariffs and GSP treatments from many partners. In this regard, more attention should be paid to improving its export capacity, including through the development of soft and hard logistic infrastructures and the creation of laws and regulations that would help to develop the private sector and foreign direct investment. The study also concludes that exports from Cambodia to Free Trade Area zones such as ASEAN, EU15 or NAFTA have reached their potential but further moderate export potential could be found for some individual countries and for the ASEAN+3 countries.

The third chapter of this thesis investigates the determinants of Cambodia's attractiveness for FDI. It uses an empirical study to shed some light on the determinants of foreign direct investment in Cambodia, using both static and dynamic estimation techniques on panel data. We employ both theoretical backgrounds and empirical results to explain inflows of FDI in Cambodia. The study takes account of both macroeconomic aspects and governance aspects in the determinant models for FDI. The validity of each estimator is confirmed in several diagnostic tests using econometric estimations to find the best possible results. First, we found Random Effects to be the most efficient estimator in the static model. The results show that an improvement in Regulation Quality and the Rule of Law in Cambodia increases foreign direct investment in the country. This clearly indicates that the quality of law and regulations are important for foreign firms. The effectiveness of the judicial system affects the confidence of local and international firms, so creating a commercial court to deal with business disputes or the enforcement of intellectual property rights for instance would attract more investment in new technology and innovation. We found three governance indicators, namely Government Effectiveness, Control of Corruption, and Political Stability, that have a negative impact on FDI inflows in Cambodia. These negative relationships can arise because foreign firms may not take account of the current weak governance system as setting bad conditions for their activities in Cambodia. However, this does not necessarily mean that weak governance, a high level of corruption or the threat of violence attract more FDI into Cambodia. In fact, given

the very low scores for governance indicators and the lack of improvement over the years, these negative effects did not surprise us. This means that appropriate measures need to be passed to improve the quality and effectiveness of public and civil services, to fight against the corruption which is rampant in most public services, and to maintain security and political stability in the country in order to attract more foreign investment, and especially to diversify into different forms of foreign investment other than resource-seeking investment. BIT also has a negative influence on FDI inflows but its effect is marginal. Bilateral investment treaties are not a tool for attracting more foreign investment to Cambodia as we expected in our hypothesis. We also found that bilateral trade and membership of the WTO increase inflows of FDI. According to these findings, the current trade liberalisation and international economic integration are important for Cambodia because those two factors produce positive externalities for foreign investment. Due to the very small size of the Cambodian economy compared to the economies of foreign investors, we found that market size factors, proxied by GDP and the GDP growth rate, do not increase FDI. Moreover, The Relative Interest Rate also induced FDI inflows, and so a suitable monetary policy should be implemented with lower interest rates in order to encourage local fund raising for foreign direct investment. In the dynamic estimation, the results from the Arellano-Bond system GMM estimator show some changes in the level of significance of the variables, as the governance indicators are not statistically significant in this method for instance. Moreover, the Trade and Distance variables keep the same signs but have a lower level of significance in this dynamic estimation than in the static estimation. In this GMM model, we found that the appreciation of the US dollar against the investor's home country currency reduces FDI inflows to Cambodia. However, Cambodia is a highly dollarised country in which the central bank has a limited impact on the monetary policy between the US dollar and the currency of the investor's country. Thus the exchange rate used by foreign business firms depends totally on the situation of the US currency. De-dollarisation processes should also be considered by policy makers to give the government more control through its monetary policies and investment policies, but this should be done in a rigorous way because foreign investments are sensitive to changes in the currency according to our estimation. From the results of both the static and dynamic estimations, we conclude that FDI in Cambodia is mostly resource-seeking FDI rather than the other types of FDI mentioned in Dunning's OLI paradigm. The FDI is not influenced by local attractiveness factors such as GDP, GDP growth or governance performance that represent the local market conditions for products. On the other hand, an increase in bilateral trade and the membership of the WTO have attracted more FDI inflows, indicating the importance of foreign markets

rather than local market attractiveness for foreign investment in Cambodia.

The final chapter of this thesis is devoted to investigation of the empirical relationship between tourist arrivals and trade in Cambodia. The research into these two particular topics is motivated by the gradual rise of the tourism sector in Cambodia's economy as well as by the existing theories and hypotheses that link tourism to trade. Initially, international trade theory did not include tourism as one of the factors that are used to explain the patterns of trade. However, over the past six decades, tourism has become one of the largest and fastest-growing economic sectors, representing 7% of the world's exports in goods and services in 2016. With tourism playing an increasing role in international trade, scholars have systematically considered tourism as a mobility factor in their theoretical models. Tourism is one of the economic pillars for sustainable growth and development for Cambodia and it contributed 12.2% of GDP in 2016. Study of the relationship between trade and tourism is thus crucial and relevant for a better understanding of another dimension of Cambodia's economy, since tourism and trade are the main drivers of economic growth and the main job creators of the country. We analyse these relationships with two separate cases. First, we employ dynamic heterogeneous panel data techniques to investigate the links between the variables for Cambodia and 22 partner countries. Then, we use a time series data approach for the bilateral trade and tourist flows with China and ASEAN, which are the two main sources of tourists and trading partners. For the first case study, the results suggest that there is a positive long-term nexus between trade and tourism. These results answer our research hypothesis that both tourism and trade are complementary and there is no evidence of an inverse relationship between the two flows. In addition, a robust complementarity relationship between tourism and trade may be useful for decision makers, specifically for private companies such as transport operators, tour operators, and hotel and hospitality services, who can elaborate strategies to target the countries that trade with Cambodia, like China and the ASEAN countries. Given the simultaneous links between tourism and trade, the forecasts for growth in international tourist arrivals are a signal that can help in timing the supply-side of goods and services, allowing precise planning of the purchase and sale of products from and to the country of origin of tourists. When the relationship between tourism and trade is examined for Cambodia with China and with ASEAN, the results of the cointegration analysis indicate no evidence of long-run links between tourism and imports. The same result is also found between tourism and total trade. Evidence of a long-run relationship exists only between tourist arrivals and exports from Cambodia to both China and the ASEAN countries. From the short-run causality analysis applied to the first case study, bidirectional causality runs from tourist arrivals to imports and tourist arrivals to total trade and back again, while there is

only one-way causality between tourist arrivals and exports in that tourist arrivals may lead to exports of goods from Cambodia to the country of origin of the tourists. For the case of tourist arrivals and bilateral trade with China, evidence is found for bidirectional short-run causality between tourist arrivals and all trade variables. For the case of Cambodia and ASEAN, two-way short-run causality exists between tourist arrivals and imports and between tourist arrivals and total trade, while only a unidirectional casual nexus is found in the sense that tourist arrivals increase exports.

This thesis illuminates certain aspects of Cambodia's economy in which trade, foreign investment, and tourism are the main subjects of discussion. It is shown in this thesis that the three sectors are the key components of the economic development of the country and the source of welfare and prosperity for it. In the outcomes of the analyses in the different chapters, this thesis reveals the notable and complementary effects of the three mains sectors in Cambodia's economy. Accordingly, an increase in the country's exports encourages more inflows of foreign investment and tourist visits. The reciprocal effects are also confirmed in that foreign direct investment and tourist arrivals increase bilateral trade. Thus the results of these positive links encourage the implementation of policies to promote trade, investment and tourism, which could be focused on the common factors such as cutting transaction costs in trade, tourism and investment by minimising costly and lengthy procedures for exports and investments, fighting against corruption in public services, improving the quality of governance and regulations, reducing port and airport fees, and improving the quality of transport and communication infrastructures. These improvements may benefit all three sectors through market expansion and growth in the available sources of investment from foreign investors, which can create business opportunities for all the operators in each sector thanks to the complementary relationships.

Finally, this thesis paves the way for future research into Cambodia's macroeconomy, particularly for trade and foreign investment. To the best of our understanding, this thesis is among the rare empirical research papers on Cambodian trade and investment in the academic literature. The research has challenged numerous obstacles such as the shortage of data and information, the absence of previous research to provide some clues for better understanding and comparison of the previous and current situations, and the unreliability of different sources of data, notably the quasi-unavailable data from local sources. These obstacles have prevented us from developing more sophisticated analysis using advanced econometric analysis, applying analytical models based on micro-level and firm-level data, or providing more robustness tests, because the period of available data is short. The four empirical chapters in this thesis deal with analysis

at the macro level, and so a possible avenue for future research could be a focus on micro-level and firm-level analysis when such data as aggregate demand and supply of products, or the nature and type of foreign investment in Cambodia become available. In addition, some control variables could be taken into account in the future studies on the relationship between tourism and trade, since tourist arrivals and trade can be influenced by controllable factors such as the exchange rate, travel costs, price competitiveness, or income levels.

Appendix A

Appendix to Chapter1

Table A.1: Name of Company interviewed in the survey and its total workforce

N°	Nationality of Company	Workforce for each company
1	SSEZ	90
2	Wan Hai Hanger	26
3	Zhong Zheng	610
4	IZUMI	400
5	ASLE	500
6	Continental Cycle	230
7	Clear Water Leather Supply	450
8	Briliant Shoes	25
10	SPSEZ	15
9	OJITEX Harta Packaging	150
11	KKSEZ	5
12	Camko Motor	33
13	Yazaki	18000
	Total Workforce	**20534**

Appendix B

Appendix to Chapter 2

Table B.1: Cambodian trading partners

ASEAN	**ASEAN+3**	France	**NAFTA**	South Africa
Singapore	Japan	Italy	Canada	Turkey
Thailand	China	Sweden	Mexico	Brazil
Malaysia	Korea, Republic of	Austria	United States of America	India
Viet Nam	**EU-15**	Denmark	**OTHERS**	Pakistan
Philippines	United Kingdom	Luxembourg	Australia	
Indonesia	Germany	Ireland	Russian Federation	
Myanmar	Spain	Greece	Switzerland	
Lao People's	Belgium	Portugal	Hong Kong, China	
Brunei Darussalam	Netherlands	Finland	United Arab Emirates	

Table B.2: Partner countries applying burdensome non-tariff measures on Cambodian exports

	Partner country or territory (export destination for Cambodian products)	Cambodia export value in 2012, US$'000**	Share in total Cambodian export value	Number of companies that export to this country*	Share of affected companies among those exporting to this country	Number of NTM cases reported to be applied by this country	Share in total NTM cases
ASEAN	Singapore	684,061	8.8%	10	50%	11	2.1%
	Viet Nam	114,869	1.5%	8	25%	3	0.6%
	Malaysia	89,512	1.1%	8	62.5%	10	1.9%
	Thailand	74,253	1.0%	6	33.3%	2	0.4%
	Indonesia	8,063	0.1%	2	50%	2	0.4%
	Philippines	2,271	0.0%	3	66.7%	3	0.6%
	Lao PDR	2,066	0.0%	0	.	0	0.0%
	Myanmar	73	0.0%	0	.	0	0.0%
	Brunei Darussalam	12	0.0%	0	.	0	0.0%
	ASEAN subtotal	**975,180**	**12.5%**	**37**	**45.9%**	**31**	**6.0%**
European Union (then- EU27)	United Kingdom	528,020	6.8%	27	55.6%	30	5.8%
	Germany	469,456	6.0%	29	62.1%	29	5.6%
	Belgium	163,319	2.1%	8	50%	4	0.8%
	Spain	149,852	1.9%	13	76.9%	18	3.5%
	France	123,908	1.6%	37	67.6%	40	7.7%
	Netherlands	122,550	1.6%	13	76.9%	21	4.0%
	Italy	110,776	1.4%	18	72.2%	26	5.0%
	Poland	80,897	1.0%	12	58.3%	15	2.9%
	Sweden	32,769	0.4%	3	66.7%	2	0.4%
	Denmark	24,476	0.3%	3	100%	4	0.8%
	Austria	20,063	0.3%	3	100%	3	0.6%
	Czech Republic	8,757	0.1%	3	66.7%	5	1.0%
	Portugal	3,386	0.0%	6	50%	5	1.0%
	Bulgaria	566	0.0%	2	50%	3	0.6%
	Rest of EU-27	50933	0.7%	12	25%	3	0.6%
	EU (then-27) subtotal	**1,889,728**	**24.3%**	**189**	**63%**	**208**	**39.9%**
Rest of the world	United States	2,031,025	26.1%	48	66.7%	55	10.6%
	Hong Kong, China	1,681,747	21.6%	10	90%	21	4.0%
	Canada	417,021	5.4%	18	77.8%	27	5.2%
	Japan	199,135	2.6%	21	80.9%	28	5.4%
	People's Republic of China	179,032	2.3%	31	67.7%	37	7.1%
	Republic of Korea	71,232	0.9%	11	90.9%	19	3.7%
	Mexico	55,040	0.7%	2	100%	3	0.6%
	Russian Federation	37,668	0.5%	10	90%	16	3.1%
	Australia	36,763	0.5%	9	88.9%	10	1.9%
	United Arab Emirates	28,482	0.4%	2	50%	2	0.4%
	Switzerland	22,330	0.3%	5	80%	7	1.3%
	Chinese Taipei	16,543	0.2%	8	75%	16	3.1%
	Norway	15,172	0.2%	3	100%	7	1.3%
	Brazil	14,857	0.2%	2	100%	3	0.6%
	South Africa	13,577	0.2%	4	75%	3	0.6%
	Panama	13,024	0.2%	1	100%	1	0.2%
	Turkey	10,995	0.1%	2	100%	3	0.6%
	India	8,879	0.1%	3	66.7%	2	0.4%
	Other countries	75,166	1.0%	23	61%	22	4.2%
	Rest of the world subtotal	**4,927,688**	**63.2%**	**213**	**75%**	**282**	**54.1%**
Global Total		**7,792,596**	**100%**	**439**	**67%**	**521**	**100%**

Source: ITC NTM Survey in Cambodia, 2013, and ITC calculations based on Trade Map data.
*Companies exporting to several destinations are counted once for every destination. Therefore, the total in this table is higher than the total number of companies interviewed.
**Excluding services, minerals and arms.

Table B.3: Results of the sensitivity estimates of gravity equation

VARIABLES	Dependent: $lnEXPORT_{cjt}$					
	FE	RE	HT1[a]	HT2[b]	HT3[c]	HT4[d]
$lnGDP_{ct}$	1.614***	1.904***	1.764***	1.834***	1.771***	1.818***
	(0.277)	(0.170)	(0.203)	(0.208)	(0.228)	(0.232)
$lnGDP_{jt}$	1.104**	0.386**	0.725**	0.623**	0.770**	0.689*
	(0.449)	(0.190)	(0.286)	(0.293)	(0.346)	(0.353)
$lnFDI_{jt}$	0.105***	0.148***	0.127***	0.121***	0.115***	0.114***
	(0.0353)	(0.0348)	(0.0345)	(0.0348)	(0.0345)	(0.0345)
$lnLPI_{ct}$	4.167***	4.103**	4.121**	4.103**	4.128***	4.122***
	(1.610)	(1.641)	(1.602)	(1.601)	(1.581)	(1.583)
$lnTAR_{cjt}$	-0.0128	-0.134*	-0.0916	-0.0904	-0.0576	-0.0566
	(0.0842)	(0.0783)	(0.0793)	(0.0793)	(0.0800)	(0.0801)
$lnNTB_{cj}$	-0.000401	0.985***	0.645*	0.722**	0.442	0.427
	(0.576)	(0.266)	(0.350)	(0.354)	(0.421)	(0.421)
$lnRQ_{ct}$	1.083**	1.131***	1.113***	1.111***	1.099***	1.096***
	(0.424)	(0.432)	(0.422)	(0.421)	(0.416)	(0.417)
$lnDIS_{cj}$		-0.0412	-0.156	-0.123	-0.609	-0.999
		(0.431)	(0.609)	(0.609)	(1.345)	(1.385)
$ASEAN_{cj}$		-0.0498	-0.303	-0.282	-1.782	-3.061
		(0.972)	(1.367)	(1.367)	(3.847)	(3.996)
$BORD_{cj}$		3.182***	3.015*	2.989*	2.904	2.938
		(1.093)	(1.545)	(1.544)	(2.159)	(2.162)
Constant	-61.49***	-51.35***	-55.23***	-54.48***	-51.86***	-47.15***
	(7.628)	(6.135)	(7.586)	(7.599)	(14.63)	(15.16)
Observations	541	541	541	541	541	541
R-squared	0.505	0.600				
Number of id	39	39	39	39	39	39
Hausman test FE vs RE[h]	—	4788.89***	—	—	—	
chi-2		chi-2(8)				
Hausman test HT vs RE[e]	—	—	10.41	6.15	22.88**	21.52**
Chi-2			chi-2(10)	chi-2(10)	chi-2(10)	chi-2(10)
Test of over-identification[f]	—	—	11.91	9.65	9.17	5.01
chi-2			chi-2(7)	chi-2(7)	chi-2(7)	chi-2(7)
Canonical correlation[g]			0.80	0.82	0.87	0.90

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

[a]HT1: endogenous variables= $lnGDP_{ct}$, $lnGDP_{jt}$.
[b]HT2: endogenous variables=$lnGDP_{ct}$, $lnGDP_{jt}$, $lnFDI_{jt}$.
[c]HT3: endogenous variables= $lnGDP_{ct}$, $lnGDP_{jt}$, $lnFDI_{jt}$, $ASEAN_{cj}$.
[d]HT3: endogenous variables= $lnGDP_{ct}$, $lnGDP_{jt}$, $lnFDI_{jt}$, $lnLPI_{ct}$, $ASEAN_{cj}$.
[e]This test is applied to the differences between Random effect and Hausman-Taylor estimators.
[f]This test is applied to the differences between Fixed effect and Hausman-Taylor estimators.
g Geometric average of the canonical correlation coefficients
[h]This test is applied to the differences between Fixed effect and Random effect estimators.

Appendix C

Appendix to Chapter 3

Table C.1: Definition of variables and data source

Variable	Description	Source
$lnFDI_{jct}$	Annual inflow of real bilateral FDI from home country to Cambodia in million USD	UNCTAD, National Bank of Cambodia, Cambodian investment board
$lnRGDP_{jct}$	Relative real GDP is a ratio of Cambodia's real GDP to Home country real GDP at the constant (2005) prices	UNCTAD
$lnRIR_{jct}$	Real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator.	World Development Indicator, IMF, and Central Bank of Republic of China (Taiwan)
$lnRER_{jct}$	is the exchange rate of US$ to the home country's currency.	UNCTAD
$lnINFLA_{ct}$	The inflation rate of Cambodia.	UNCTAD
$lnGDPG_{ct}$	The annual GDP growth in Cambodia.	UNCTAD
$lnTRADE_{jct}$	Cambodia's international trade(export and import) from and to home country in thousand USD	International Trade Centre and UNCOMTRADE
GE_{ct}	Government Effectiveness ranges from approximately -2.5 (weak performance) to 2.5 (strong performance)	The Worldwide Governance Indicator

RQ_{ct}	Regulation Quality ranges from approximately -2.5 (weak performance) to 2.5 (strong performance)	The Worldwide Governance Indicator
RL_{ct}	Rule of Law ranges from approximately -2.5 (weak performance) to 2.5 (strong performance)	The Worldwide Governance Indicator
CC_{ct}	Control of Corruption ranges from approximately -2.5 (weak performance) to 2.5 (strong performance)	The Worldwide Governance Indicator
POS_{ct}	Political Stability ranges from approximately -2.5 (weak performance) to 2.5 (strong performance)	The Worldwide Governance Indicator
$lnRLP_{jct}$	Relative labor productivity is computed as the ratio of real GDP to the labour force of the country	World Development Indicator
$lnDIST_{jc}$	Distance from Cambodia capital to home country capital in kilometer	CEPII
$ASEAN_{jc}$	The dummy which equal to one starting from the year when the two countries become member of ASEAN	ASEAN Website
BIT_{jc}	The dummy which equal to one starting from the year when the BIT between the two countries entered into force.	UNCTAD database on IIAs
WTO_{jct}	The dummy which equal to one starting from the year when the two countries become member of WTO.	WTO website

Table C.3: BTIs signed and ratified between Cambodia and partners

Parties	**Date of signature**	**Date of entry into force**
Austria; Cambodia;	17/12/2004	
Belarus; Cambodia;	23/04/2014	
Cambodia; China;	19/07/1996	01/02/2000
Cambodia; Croatia;	18/05/2001	15/06/2002
Cambodia; Cuba;	26/09/2001	
Cambodia; Czech Republic;	12/05/2008	23/10/2009
Cambodia; France;	13/07/2000	24/07/2002
Cambodia; Germany;	15/02/1999	14/04/2002
Cambodia; Hungary;	14/01/2016	
Cambodia; Indonesia;	16/03/1999	
Cambodia; Japan;	14/06/2007	31/07/2008
Cambodia; Korea, Dem. People's Rep. of;	01/11/2007	
Cambodia; Korea, Republic of;	10/02/1997	12/03/1997
Cambodia; Kuwait;	04/08/2008	
Cambodia; Lao People's Democratic Republic;	24/11/2008	
Cambodia; Malaysia;	17/08/1994	
Cambodia; Netherlands;	23/06/2003	01/03/2006
Cambodia; Pakistan;	27/04/2004	
Cambodia; Philippines;	16/08/2000	
Cambodia; Russian Federation;	03/03/2015	07/03/2016
Cambodia; Singapore;	04/11/1996	24/02/2000
Cambodia; Switzerland;	12/10/1996	28/03/2000
Cambodia; Thailand;	29/03/1995	16/04/1997
Cambodia; Viet Nam;	01/09/2001	

Table C.2: Correlation Matrix

Variables	ln_FDI	ln_RGDP	ln_GDPG	ln_RER	ln_TRADE	ln_RIR	ln_RLP	ln_INFLA	ln_DIST	GE	RQ	RL	CC	POLS	BIT	WTO	ASEAN
ln_FDI	1																
ln_RGDP	0.1585	1															
ln_GDPG	-0.1217	-0.0271	1														
ln_RER	0.0926	0.3679	0.0025	1													
ln_TRADE	0.5014	0.057	-0.0933	0.057	1												
ln_RIR	-0.1341	-0.0031	-0.023	0.0118	-0.002	1											
ln_RLP	0.1059	0.4225	-0.0138	0.6127	0.0082	-0.115	1										
ln_INFLA	0.145	0.0255	0.4277	-0.0128	0.0805	-0.2514	0.0224	1									
ln_DIST	-0.3031	-0.7785	0	-0.4836	-0.2948	0.0135	-0.5382	0	1								
GE	-0.0057	0.0666	-0.0001	0.0006	0.2392	0.1315	0.0275	-0.3303	0	1							
RQ	-0.1803	-0.0841	0.1103	0.0136	-0.2596	0.0434	-0.0412	-0.3522	0	-0.16	1						
RL	0.176	0.046	-0.0691	-0.0029	0.2033	-0.0425	0.0238	-0.3062	0	0.5166	0.4367	1					
CC	-0.3295	-0.0671	0.1774	0.0175	-0.2193	0.2325	-0.039	-0.6173	0	0.2944	0.6903	0.2723	1				
POLS	0.2349	0.1234	0.0234	-0.0139	0.4151	-0.0087	0.0652	0.184	-0.0003	0.6211	-0.6615	0.2242	-0.3253	1			
BIT	0.2149	0.0308	-0.0553	0.0496	0.2559	0.0313	0.0315	0.0153	-0.2171	0.1146	-0.142	0.051	-0.0898	0.187	1		
WTO	0.405	0.0768	-0.1521	-0.0944	0.4638	-0.0493	-0.0159	0.3128	-0.014	0.2459	-0.6762	0.0693	-0.6088	0.7941	0.218	1	
ASEAN	0.203	0.6907	0.0067	0.2595	0.218	0.0035	0.4071	-0.0415	-0.7576	0.0634	-0.0483	0.0102	0.0017	0.0688	0.1856	0.0346	1

Table C.4: Determinants of Foreign Direct Investment with Random Effects

Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)
FDI inflows	OLS	RE	RE	RE	RE	RE
ln_RGDP	-0.155	-0.279	-0.208	-0.252	-0.260	-0.208
	(0.123)	(0.176)	(0.179)	(0.180)	(0.174)	(0.180)
ln_GDPG	-0.274***	-0.297***	-0.235**	-0.301***	-0.100	-0.234**
	(0.104)	(0.0945)	(0.101)	(0.0959)	(0.110)	(0.103)
ln_RER	0.0200	0.0805	0.0876	0.0838	0.0763	0.0907
	(0.0472)	(0.0829)	(0.0825)	(0.0830)	(0.0822)	(0.0826)
ln_TRADE	0.379***	0.265**	0.325***	0.296**	0.270**	0.333***
	(0.0803)	(0.110)	(0.114)	(0.117)	(0.109)	(0.116)
ln_RIR	-0.0769	-0.0376	-0.0279	-0.0386	-0.0142	-0.0272
	(0.0552)	(0.0517)	(0.0514)	(0.0524)	(0.0508)	(0.0515)
ln_RLP	0.0152	0.104	0.128	0.114	0.122	0.142
	(0.0961)	(0.166)	(0.166)	(0.167)	(0.164)	(0.167)
ln_INFLA	0.256***	0.274***	0.190*	0.275***	0.00886	0.257***
	(0.0981)	(0.0897)	(0.102)	(0.0956)	(0.119)	(0.0910)
ln_DIST	-0.564***	-0.522*	-0.370	-0.455	-0.508	-0.336
	(0.196)	(0.313)	(0.316)	(0.314)	(0.310)	(0.321)
BIT	0.153	-0.365	-0.266	-0.327	-0.328	-0.269
	(0.226)	(0.293)	(0.294)	(0.294)	(0.288)	(0.295)
WTO	0.748**	0.977***	1.376***	1.224***	0.807***	1.763***
	(0.311)	(0.308)	(0.271)	(0.265)	(0.285)	(0.381)
ASEAN	-0.0527	0.369	0.407	0.393	0.310	0.450
	(0.370)	(0.522)	(0.518)	(0.525)	(0.514)	(0.518)
RQ	-1.451	-1.451				
	(0.976)	(0.892)				
GE			-2.759**			
			(1.257)			
RL				-0.990		
				(1.111)		
CC					-4.819***	
					(1.331)	
POLS						-0.961*
						(0.500)
Constant	1.094	1.558	-2.192	0.117	-2.893	-0.960
	(1.885)	(2.952)	(3.415)	(3.398)	(3.181)	(3.235)
VIF	2.11	-	-	-	-	-
Breusch and Pagan	-	53.22***	51.47***	49.90***	58.55***	52.40***
Hausman χ^2	-	0.1624	0.3520	0.2482	0.1280	0.2004
Observations	288	288	288	288	288	288
R-squared	0.402	-	-	-	-	-
Number of homeID		17	17	17	17	17

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

All independent variables are one year lagged.

Appendix D

Appendix to Chapter4

Table D.1: The list of main tourist origin and trading partner countries

No	CODE	COUNTRY	ISO
1	36	Australia	AUS
2	56	Belgium	BEL
3	124	Canada	CAN
4	156	China	CHN
5	251	France	FRA
6	276	Germany	DEU
7	699	India	IND
8	360	Indonesia	IDN
9	381	Italy	ITA
10	392	Japan	JPN
11	418	Lao People's Dem. Rep.	LAO
12	458	Malaysia	MYS
13	528	Netherlands	NLD
14	608	Philippines	PHL
15	410	Rep. of Korea	KOR
16	702	Singapore	SGP
17	757	Switzerland	CHE
18	490	Taipei, Chinese	
19	764	Thailand	THA
20	826	United Kingdom	GBR
21	842	USA	USA
22	704	Viet Nam	VNM

Figure D.1: Evolution of Tourist arrivals by country of origin from 2000-2016

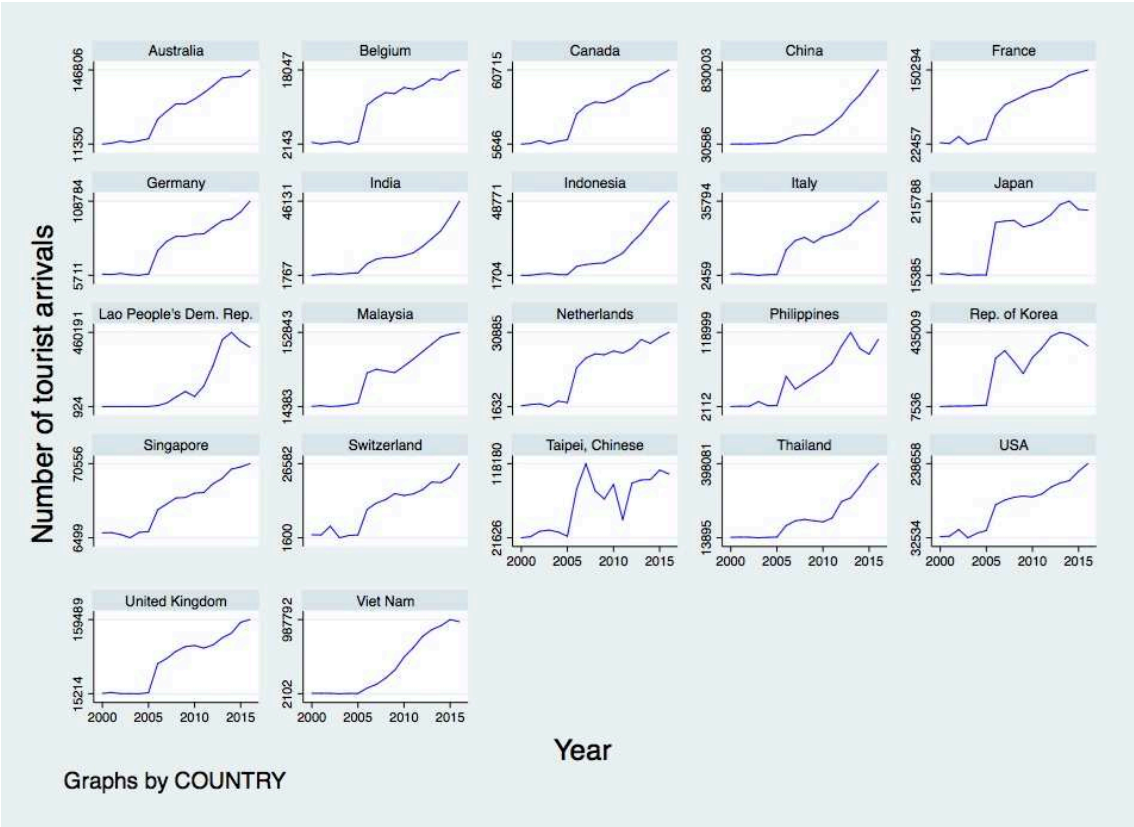
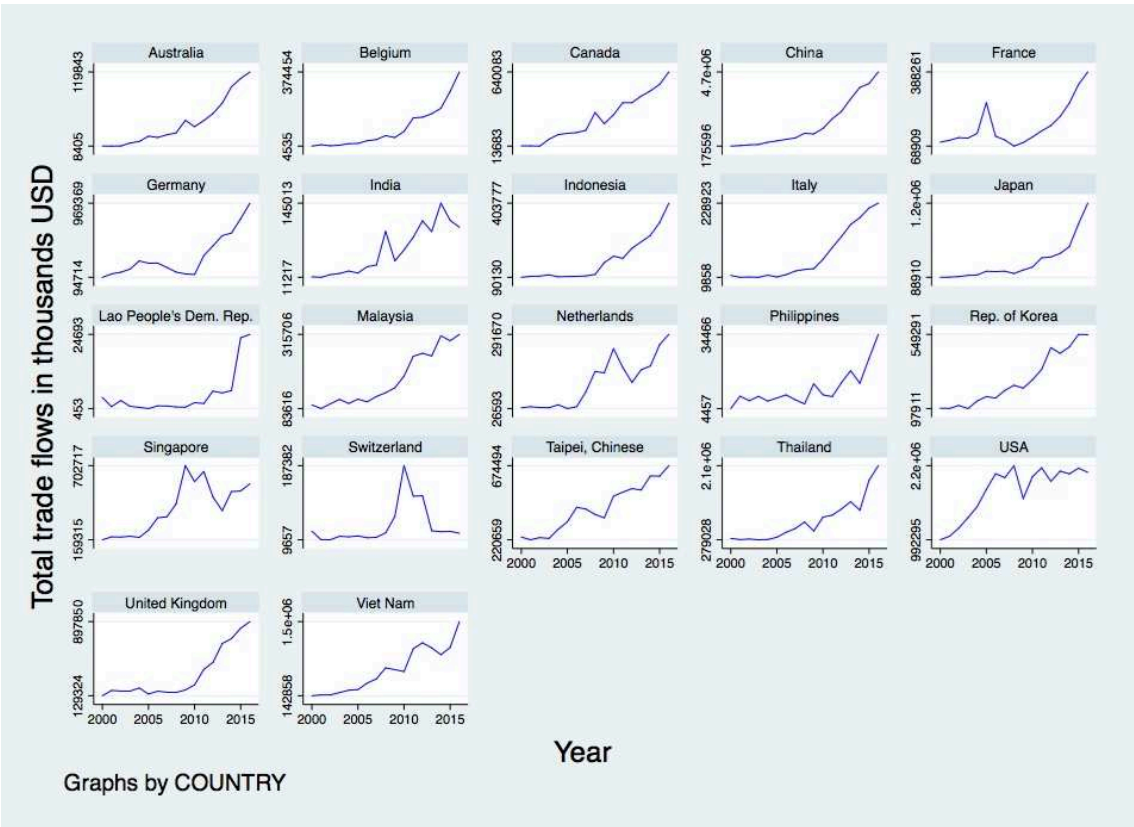


Figure D.2: Total bilateral trade flows from 2000-2016 adjusted to price indices of 2010 in thousands USD



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