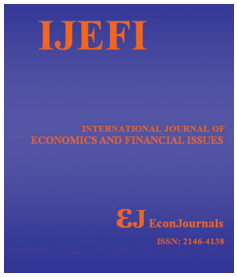

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Assessment the Effect of Free Trade Agreements on Exports of Lao PDR

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ABSTRACT

This research paper focuses on estimating the impact of free trade agreements (FTAs) between Lao PDR and 32 trading partners. The panel gravity model has been applied over the period of 1996-2011. The overall findings indicate that the preferential utilization is relatively low and is highly concentrated in natural resource products. Since most exporters have difficulty complying with the various local content requirements, the information of preferential utilization is limited, lack of export diversification and the quality of goods cannot meet the standard requirements. The results of the gravity model suggest that a reduction of import tariffs based on World Trade Organization commitment has strongly supported trade creation, while several FTAs made with major trading partners are a vital factor to support export growth. The findings suggest Lao's exports under preferences and generalized system of preferences (GSP) treatment would increase trade volume on average by 50% more than those partners who neither have FTAs nor GSP.

Keywords: World Trade Organization, Trade Creation, Gravity Model
JEL Classifications: C23, C33, F12, F15

1. RESEARCH BACKGROUND

International trade has played a crucial role in the process of economic development. It is a significant source of foreign income, stimulates domestic production and generates employment to local people respectively. The formation of economic integration provides several dynamic benefits such as economics of scale in production, greater production efficiency, greater specialization for domestic producers, and increased foreign direct investment (FDI) inflows (Robinson and Thierfelder, 1999).

Lao PDR initiated a gradual shift to a market economy with the introduction of the new economic mechanism for economic liberalization in 1986. The economic growth accelerated after the country became an Association of South East Asian Nations (ASEAN) member in 1997, which was followed by the implementation of the ASEAN Free Trade Area (AFTA) in 1998, under the common effective preferential tariff (CEPT) scheme. This means that Laos is eligible to export to ASEAN markets with a relatively low import tariff of 0-5%, and there is an expectation that all tariff barriers will be completely eliminated by 2015. Currently, Laos has broadened its trade relations with more than 50 countries, and the country has concluded the bilateral trade agreements (BTAs) with 15 countries.[1] These agreements provide a great opportunity to improve market access to Lao's export products with a low import tariff. In addition, under its status as a least developed country (LDC), Laos has received the unilateral tariff preference based on the generalized system of preferences (GSP) from 47 countries, which aims to reduce poverty by stimulating exports (MoIC, 2012).

Furthermore, Laos is granted the unilateral preferential treatments from old ASEAN members (Thailand, Malaysia and the Philippines) under the ASEAN Integrated System of Preferences (AISP) scheme in order to narrow the development gap between new and old ASEAN members. The AISP granted a preferential tariff (PT) rate of 0-5% on 400 of Lao's export products to the

1 They are Argentina, Belarus, Cambodia, China, India, South Korea, Kuwait, Malaysia, Mongolia, Myanmar, Russia, Thailand, Turkey, America and Vietnam.

three ASEAN markets in 2005, (Shaw et al., 2007). Then, Laos can export to the ASEAN dialogue partners with a low import tariff as a consequence of free trade agreements (FTAs), namely ASEAN-China FTAs in 2005, ASEAN-South Korea FTAs in 2007, ASEAN-Japan framework agreement for comprehensive economic partnership (AJCEP) in 2009, ASEAN-Australia-New Zealand FTA (AANZFTA) and ASEAN-India FTA (AIFTA) in 2010. In addition, under the Asia-Pacific Trade Agreement (APTA), Laos is eligible to export some products to China, South Korea, India, Sri Lanka and Bangladesh with a lower PT.

An increase in both bilateral and multilateral trade agreements, it might be a significant factor to stimulate export growth rapidly from $US 324.88 million in 2000 to $US 1.69 billion 2011. The total Lao exports to ASEAN and Oceania markets have revealed a tremendous increase from $US 167.41 million and $US 0.12 million in 2000 to $US 1,116.21 million and $US 334.57 million in 2011. Exports to East Asia remained steady during the period of 2008-2011. In contrast, exports to the European Union (EU) (15) and the United States have sharply declined during the same period (Appendix 1A). It is unclear if the participation in various types of trade agreements will improve market access and export performance of Laos to her trading partners, the main aims of this research are to analyze: (1) the progress of trade liberalization and the export performance of Laos with major trading partners; and (2) the determinants of Lao exports as a consequence of the AFTA and the bilateral and multilateral FTAs being implemented.

This research expects to provide a deeper understanding of the causes and effects of various trade agreements between Laos and its trading partners. The findings from this study will contribute to some policy decisions, which can be applied to improve the country's international trade policy to ensure that local producers gain from the trade agreements.

2. LITERATURE REVIEW

In general international economic theory suggests that greater economic integration and FTAs provide long term benefits in terms of welfare gains and more efficiency in the allocation of resources. On the other hand, negative effects might occur in the short run when domestic producers are not ready for fiercer competition. The concept of trade creation and trade diversion is highlighted by several economists including Salvatore (2007), who suggested that "trade creation occurs when some domestic production in a country that is a member of the FTA is substituted by more efficient production from other member countries" (p. 341). As a result, this will lead to more specialization in production and an increase in consumers' welfare of the member nations. On the other hand, "trade diversion occurs when lower-cost imports from non-members are substituted by higher cost of imports from a FTA members" (p. 343).

Several researchers have found that both bilateral and multilateral FTAs supported trade creation, including Kimberly (2001), Molinari (2003), Carrere (2002), Liu (2009), Amiti and Konings (2007) and Baier and Bergstand (2001). Kimberly (2001) estimated the effect of Canada and the United States FTA (CUSFTA) by using the trade share analysis and disaggregates trade data. The finding suggested that after the CUSFTA was implemented, the share that the United States imported from Canada increased on the average of 10%. Then, Molinari (2003) focused on analyzing the effect of EU trade integration on eight industrial sectors,[2] based on the sectoral gravity model, which covered 21 OECD countries in the EU, for the period from 1977 to 1999. The results indicated that regional trade integration stimulated the trade volume, especially for textiles products, its trade value increased on average 43% compared to pre-integration.

Liu (2009) used a gravity model to assess trade liberalization through World Trade Organization (WTO) accession. The findings indicated that the reduction of import tariffs under most-favoured-nation (MFN) treatment provided strong evidence in promoting trade flows among members. While Amiti and Konings (2007) estimated the productivity gains of Indonesian manufacturing during a period 1991-2001, as a consequence of tariff reduction on final goods and intermediate inputs. The results showed that a reduction of inputs tariffs generated twice higher productivity gains compared to reducing output tariffs. To identify the main factors that contributed to the growth of world trade, whether due to technology-led or a decline in transportation costs. While Baier and Bergstand (2001) have attempted to elaborate these issues, by selecting the real bilateral trade flows of 16 OECD countries from 1958-1960 to 1986-1988, and applying the general equilibrium model. They found that trade liberalization contributed to the real growth of trade flows, which was 3 times greater than that of transport cost reduction.

In contrast, several empirical studies have found mixed effects, as well as trade diversion as a consequence of FTAs including Endoh (1999), Carrere (2002), and Kurz et al. (2008). Endoh (1999) studied three trade integration regions, namely the European Economic Community, the Latin American Free Trade Association (LAFTA), and the Council of Mutual Economic Assistance.[3] The aggregate export value was applied based on the cross sectional data from 1960 to 1994. The findings suggest that the ECC and the LAFTA had both trade creation and trade diversion, but the effect was relatively small.

Furthermore, Carrere (2002) examined eight regional trade agreements (RTAs),[4] which accounted for 130 countries over the period from 1962 to 1996, in order to study the patterns of trade integration from various countries across regions. The findings suggested that the RTAs have stimulated an increase in intra-trade among member countries, along with reducing imports from the rest of the world as a result caused by trade diversion; this evidence was found in six out of eight regions.

2 The eight industrial sectors were textiles, woods, papers, chemicals, non-metals, basic metals, metals, and other manufactures.

3 The CMEA's members consisted of Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, Mongolia, Poland, Romania, the USSR, Cuba and Vietnam.

4 The eight RTAs consisted of European Union (EU), Andean Sub-regional Integration Agreement (ANDEAN), North American Free Trade Agreement (NAFTA), Central American Common Market (CACM), MERCOSUR, Association of South East Asian Nations (ASEAN), European Free Trade association (EFTA), and Latin American Integration Association (LAIA).

Finally, by including trade facilitation factors (border customs processes, number of documents and time needed for transactions) into the gravity equation, and concentrating on the eight preferential trade agreements (FTAs),[5] which covered 30 countries mainly in the African continent, Kurz et al. (2008) found that the countries that had a common border tended to trade more, especially the landlocked countries due to the high transportation cost. While the tariff rates revealed a dubious sign and had a positive effect on trade. Finally, trade creation was found in 3 out of 8 FTAs.

2.1. Research Question and Scope of Study

The effect trade of trade integration on trade flows is a complicated issue for both theoretical ground and estimation method. Although Laos has engaged in various types of FTAs, there is rare empirical research to measure the effect of these agreements on Lao exports. This research focuses on answering the three following questions:

1. Will a reduction of the CEPT and the MFN import tariff support trade creation or trade diversion?
2. How does the country gain from trade liberalization through various types of FTAs?
3. What are the major issues faced by exporters in applying preferences? And what are the urgent trade policies needed in order to improve their export performance?

This research mainly focuses on estimating the effect of trade integration on the export performance of Laos with 32 major trading partners, which are classified into six regions (Table 1). This study expects to capture the effect of various trade agreements on the export performance of Laos; the panel data analysis will be applied for the period (or years) 1996-2011.

3. RESEARCH METHODOLOGY AND DATA

Several approaches have been applied in order to measure the effect of trade integration and capital flows, the gravity model is considered to be one of the most successful methods, which can be utilized to analyze the patterns of international trade including commodity shipping, labor migration and FDI. The model was first introduced by Tinbergen in 1962. The basic concept of the gravity model is applied to measure the bilateral trade flows between two countries based on economic sizes (GDP) and geographical distance, the formula can be written as:

$$F_{ij} = C\frac{Y_i Y_j}{D_{ij}} \quad (1)$$

Where, F_{ij} is trade flow from countries i to j, or it can represent total trade volume, Y_i and Y_j refer to the relevant economic sizes of countries i and j, and D_{ij} is the distance between countries i and j. In order to capture various kinds of trade phenomena, previous studies (Dell' Ariccia, 1998; Elliot and Ikemoto, 2004; Kien and Hashimoto, 2005; Hapsari and Mamgunsong, 2006; and Tumbarello, 2007) included some common factors such as a common border, a common language, a common currency, a colonial history, and a preferential trade agreement.

Table 1: Trading partners are selected for studying

Trading partners	Region
Cambodia	ASEAN
Indonesia	
Malaysia	
Philippines	
Singapore	
Thailand	
Vietnam	
The United States	America
Canada	
Austria	Europe
Belgium	
Denmark	
France	
Finland	
Germany	
Italy	
Ireland	Europe
Netherlands	
Norway	
Portugal	
Poland	
Spain	
Sweden	
Switzerland	
the United Kingdom	
Japan	East Asia
China	
South Korea	
Hong Kong, China	
Taiwan, China	
Australia	Oceania
New Zealand	

To capture the international trade flows between Laos and her major trading partners, this study followed Carrere (2002), Liu (2009), and Baier and Bergstand (2001) by taking the natural logarithm of equation 1, combining the common factors, and including various types of FTA dummy variables, the gravity equation can be written as:

$$\begin{aligned}\log EX_{ijt} = {} & \beta_0 + \beta_1 \log Y_{it} + \beta_2 \log Y_{jt} + \beta_3 \log D_{ij} + \beta_4 \log E_{ijt} + \beta_5 \log T_{jt} \\ & + \beta_6 D_{FTA_{ijt}} + \beta_7 D_{GSP_{jit}} + \beta_8 D_{ASEAN_{ij}} + \beta_9 D_{EU_{ij}} + \beta_{10} D_{E\_Asia_{ij}} \\ & + \beta_{11} D_{America_{ij}} + \beta_{12} D\_border_{ij} + \beta_{13} D\_lang_{ij} + \beta_{14} D_{crisis_{it}} \\ & + \delta_{ij} + \tau_t + e_{ijt}\end{aligned}$$

The subscripts i and j refer to export and import countries and t refers to time. Where EX_{ijt} is the real bilateral export value of country i to country j at time t. Y_{it} and Y_{jt} are the real gross domestic product of countries i and j at time t, respectively; D_{ij} is the average distance between capital cities of countries i and j; E_{ijt} is the real bilateral exchange rate between countries i and j at time t; T_{jt} is an average MFN import tariff based on the WTO commitment; $D_{FTA_{ijt}}$ is a binary variable, which is equal to 1 if

5 The eight FTAs consisted of Arab Maghreb Union (UMA), Community of Sahel-Saharan States (CEN-SAD), Common Market for Eastern and Southern Africa (COMESA), East African Community (EAC), Economic Community of West African States (ECOWAS), Economic Community of Central African States (ECCAS), Inter-Governmental Authority on Development (IGAD), and Southern African Development Community (SADC).

two countries are involved in a bilateral FTA or regional FTA at time t and 0 otherwise; $D_{GSP_{ijt}}$ is a binary variable, which is equal to 1 if the exporting country receives GSP from partner *j* time *t* and 0 otherwise; $D_{ASEAN_{ij}}$ is a binary variable, which is equal to 1 if trading partners are from ASEAN countries, and 0 otherwise; $D_{EU_{ij}}$ is a binary variable, which is equal to 1 if trading partners are from European countries, and 0 otherwise; $D_{E\_Asia_{ij}}$ is a binary variable, which is equal to 1 if trading partners are from East Asian countries, and 0 otherwise; $D_{America_{ij}}$ is a binary variable, which is equal to 1 if trading partners are from America, and 0 otherwise; D_border_{ij} is a binary variable, which is equal to 1 if two countries share a common border and 0 otherwise; D_lang_{ij} is a binary variable, which is equal to 1 if two countries have a common language and 0 otherwise; $D_{crisis_{it}}$ is a dummy variable, which is equal to 1 when the country *i* faced the Asian financial crisis during 1997-1999, and 0 otherwise, and d_{ij} is the individual effects which are associated with each bilateral trade flow. It is a control for all the omitted variables that are specific for each trade flow and that are time invariant, t_t is time specific effects that control for omitted variables that are common for all trade flows but vary over time, and e_t is the error term.

This research utilizes various data sources, bilateral export data is derived from Direction of Trade database, and Ministry of Industrial and Commerce (MoIC), distance between two countries is derived from the website: http://www.timeandate.com, gross domestic product for both export and import countries and exchange rates are derived from the UNCTAD statistics online database, MFN import tariff is derived from the integrated database notifications, WTO, FTAs and GSP information are derived from MoIC the UNESCAP FTA database and the Asia Regional Integration Center, ADB database.

4. THE PROGRESS OF TRADE DEVELOPMENT IN LAO PDR

4.1. Trade Liberalization

The Government of Lao PDR has implemented the first step of the economic reform from a centrally planned economy to a market economy. This reform was a significant move to introduce the Lao economy to a more open market orientation. The core of this reform focused on adapting to one price principle, and the dismantling of the state-owned enterprises monopoly in foreign trade. This will be an initial process of moving forward to the privatization, trade liberalization, and deregulation of the banking sectors.

Laos has been integrating gradually into the world economy since 1989. The reform process accelerated after the country joined the ASEAN in July 1997, and the country started to implement the AFTA in 1998. The speed of AFTA implementation in terms of tariff reduction has shown a great improvement, as indicated by the number of tariff lines placed in the inclusion list, which accounted for 98.96% of total tariff lines in 2008[6]. The elimination of intra-regional tariffs among ASEAN members has signaled significant progress in creating an entire AFTA.

Furthermore, Laos has signed trade agreements (BTA) with 15 countries, which aim to facilitate trade and reduce trade barriers based on MFN treatment. Besides, Laos has participated in the APTA in 1976, and the country can export to China, Korea. R, Japan, India, Austria and New Zealand under the PT treatment based on the framework of FTAs between ASEAN countries and their dialogue partners. In addition, a successful WTO accession in February 2013. Several FTAs have been implemented, and they present a great challenge to Lao exporters to take advantage of PT utilization in order to improve their export performance and integrate into the global economy. Moreover, under the status as one of the LDCs, Laos has received several tariff preferences, including the AISP, which the old ASEAN members (Malaysia, the Philippines and Thailand) agreed to extend for Laos beginning in 2002, and the GSP from 47 countries for both developed and developing countries.

To improve trade development further, the Prime Minister's order No. 24/2004, on facilitating import and export procedures and reducing the burdensome and lengthy technical certification has been implemented to facilitate the movements of goods across the country. The order further addressed the implementation of single-window service at border checkpoints, which was composed of customs, commerce and other technical regulation authorities.[7] This is a significant progress of trade reform in Laos, in order to alleviate trade barriers and support trade growth rapidly.

Currently, government has succeeded in establishing and approving some legislation related to international trade such as improving custom law No. 05/NP, dated on May 20, 2005 to ensure Lao regulations are consistent with the WTO regulations; the Prime Minister Decree No 228/PM, dated on April 11, 2010 on the rule of origin requirements for export and import goods; The Prime Minster Decree no 180/PM, dated on July 7, 2010 on procedure of import goods; a structural reform of government units in international borders from 15 units[8] to 3 basic units, namely customs, immigration and quarantine. Some government projects have initially executed to support trade, especially the establishment of the automated systems for customs data (ASYCUDA), a trade and information center through electronic system and development of logistic parts. These projects will be vital to improving trade facilitation in Laos, which (will?) lead to a reduction in transaction costs and contribute to the steady growth of exports, (MoIC, 2011).

4.2. Progress of Multilateral and Bilateral FTAs between Laos and her Trading Partners

4.2.1. Implementation of AFTA

The implementation of AFTA started in 1998, based on the CEPT scheme, through which import tariffs will be reduced to 0-5% in 2008, and all import tariffs will be completely eliminated in 2015. The CEPT covers all manufactured goods including capital goods and processed agricultural products, the product descriptions are

6 ASEAN secretariat online website.

7 Traders' manual for least developed countries, Lao PDR, the United Nations, 2005.

8 The 15 government units are Immigration, Custom, Commerce, Food and Drug, Quarantine, Fiscal, Public Health, Insurance, Narcotic Control, Post, Tourism, Forestry, Tax, International Relation, and Communication and Transport.

based on the harmonized system (HS) 9 digits and the ASEAN Harmonized Tariff Nomenclature 10 digits, under the condition of a local content requirement of at least 40%. After AFTA was implemented, the average CEPT rate of each ASEAN member slightly decreased from 2000 to 2010, as shown in the Figure 1.

The average CEPT rate of ASEAN-6[9] has shown a significant decline from 4.12% in 2000 to 0.31% in 2010. Amongst the six countries, Singapore is the most liberalized, as indicated by the fact that all import tariffs were already eliminated since the early AFTA implementation, then Thailand has shown a great effort to fulfill the CEPT commitment. The average CEPT rate rapidly decreased more than 6% during the period 2000-2010, and among ASEAN-6 members, the Philippines has the highest import tariff, with an average CEPT of 1.13% in 2010.

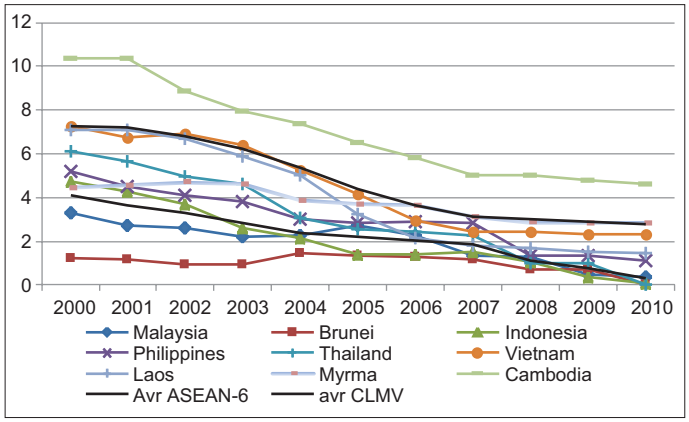
A slowed tariff reduction in the CLMV[10] countries under the CEPT commitment; the average of import tariffs was slowly declined from 7.28% in 2000 to 2.81% in 2010. Among the 4 CLMV countries, Laos is considered to be more liberalized in terms of import tariff reduction, as the average CEPT rate fell from 7.07% in 2000 to 1.44% in 2010. On the other hand, the highest import tariffs were found in Cambodia, where the average CEPT rate was 4.61% in 2010. The reduction of the import tariff expects to stimulate the CLMV's export performance, due to a lower cost of importing inputs from other ASEAN members. In addition, it will attract more FDI inflows to these countries as well.

To accelerate further progress of the AFTA, the ASEAN Summit in 1995 approved the implementation of a Green Lane System for CEPT products. The main purposes are: (1) to reduce transaction costs, which are incurred for CEPT products among ASEAN members; and (2) to simplify the customs procedures of CEPT products. The implementation of the Green Lane System is expected to facilitate the flow of goods across ASEAN borders; as a result this will contribute to sustained growth of trade in this region (ASEAN Secretary, the AFTA Reader, 1998).

9 ASEAN-6 includes Singapore, Malaysia, Thailand, the Philippines, Indonesia and Brunei.

10 CLMV refers to Cambodia, Laos, Myanmar and Vietnam.

Figure 1: Average common effective preferential tariff rate of Association of South East Asian Nation



Source: Association of South East Asian Nation tariff database

4.2.2. The PT utilization under the AFTA commitment

Although Laos implemented AFTA in 1998, exports to ASEAN markets under the PT were relatively small, averaging 1% during the period 2003-2005. Focusing more detail in each trading partner, Lao's exports to the Philippines and Singapore was nearly full PT utilization in 2004 and 2005, which accounted for 96.4% and 80.0% of the total bilateral exports (Table 2). Major export products to the two countries were highly concentrated in agricultural and wood products. PT utilization showed a slight increase from 5.54% in 2009 to 9.74% in 2011, since exports to Vietnam doubled during the period of 2009-2011, while Lao's exports to Indonesia and Malaysia remained relatively high of PT utilization; the main export product was copper cathodes. The overall PT utilization under AFTA remained relatively low; this was because of: (1) a lack of export products diversification; (2) a shortage of raw materials in compliance with the local content requirements; (3) complicated documents procedures and high costs to obtain a certificate of origin; and (4) the insufficient promotion of TP utilization to exporters.

By focusing on export products, we find that PT utilization has highly concentrated on mineral exports (copper cathods and lignite coal), which account for 91.0% of total exports, followed by electronic products (wiring harness) at 6.51%, and garments at 1.94% in 2011 (Figure 2a). Laos is rich in mineral resources, and recent investment liberalization causes large FDI inflows, especially in mineral sectors. The total accumulated FDI inflows to this sector accounted for 43.46% of the total FDI during the period 2006-2011.[11] Then, mineral exports do not have issues with the local content requirements because the entire raw materials are derived from within the country. The largest proportion of exports under PT is found in Thailand, which accounted for 44.42% of the total export, followed by Vietnam and Malaysia 38.05% and 14.65% respectively in 2011 (Figure 2b).

4.3. AFTAs with Dialogue Partners

4.3.1. ASEAN-China FTA

The ASEAN-China Early Harvest Program (EHP) was launched in 2003, aimed at reducing import tariffs for agricultural products listed in chapter 1-8 of HS code[12] between China and ASEAN countries. For the Lao PDR and China, the implementation of tariff reduction under the EHP started in 2006 and all import tariffs were eliminated in 2010. Under EHP China has reduced import tariffs on 372 products from the agricultural sectors to Laos. In addition, Laos has received a zero tariff treatment from China that covers 330 tariff lines based on the ASEAN-China FTA (ACFTA) in 2005, and this agreement states that China and Laos will eliminate import tariffs for products under normal track by 2010 and 2015, respectively.

4.3.2. ASEAN-Korea. R FTA (AKFTA)

AKFTA started implementation in 2006, with the main objective of strengthening and enhancing economic, trade and investment

11 The author's calculation base on the Ministry of Planning and Investment database.

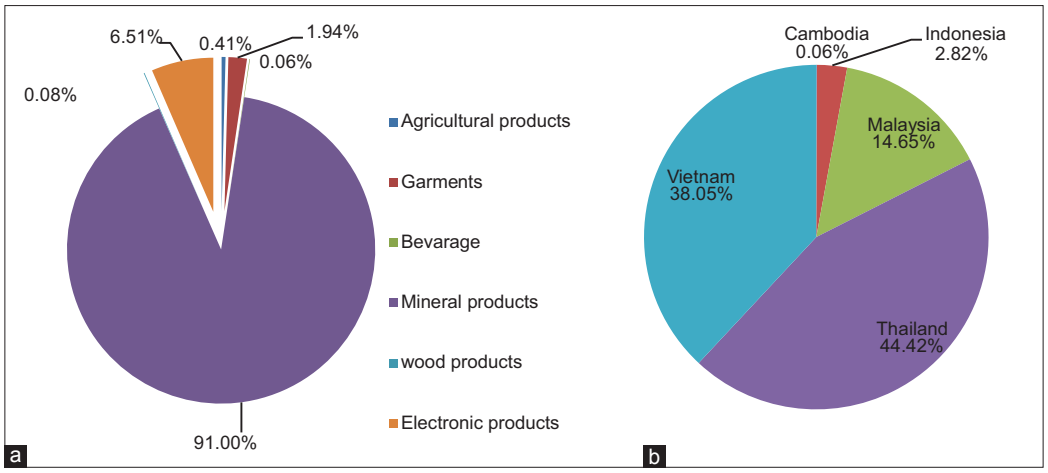
12 Chapter 1-8 refer to live animals, meat and edible meat offal, fish, dairy produce, other animal products, live trees, edible vegetables and edible fruits and nuts.

Table 2: The total Lao's export to ASEAN countries under preferential tariff treatment

Countries	2003 ($ Thousand)			2004 ($ Thousand)			2005 ($ Thousand)		
	Export using PT	Export	PT utilization (%)	Export using PT	Export	PT utilization (%)	Export using PT	Export	PT utilization (%)
Philippines	12.24	158.24	7.74	10.98	11.42	96.14	-	7.29	-
Thailand	1692.43	146,900.61	1.15	2545.49	164,552.59	1.55	4794.72	456,040.79	1.05
Malaysia	-	54.07	-	18.03	24,938.54	0.07	75.22	39,794.77	0.19
Vietnam	-	27,656.45	-	124.50	40,452.36	0.31	1007.86	93,961.52	1.07
Singapore	-	411.67	-	-	219.12	-	65.60	82.00	80.00
Cambodia	-	406.59	-	-	19.50	-	-	33.23	0.00
Indonesia	-	3320.00	-	-	0.44	-	-	172.80	0.00
Total	1704.67	178,907.61	0.95	2699.00	230,193.97	1.17	5943.40	590,092.40	1.01
	2009 ($ Thousand)			2010 ($ Thousand)			2011 ($ Thousand)		
Philippines	-	2.20	-	-	307.32	-	-	6.46	-
Thailand	60,432.58	1,207,577.50	5.00	75,042.02	933,094.72	8.04	48,304.64	936,755.66	5.16
Malaysia	4.23	274.63	1.54	23.85	1762.27	1.35	15,933.72	18,121.18	87.93
Vietnam	12,699.41	133,649.53	9.50	18,741.83	153,310.46	12.22	41,371.80	174,904.54	23.65
Singapore	0.83	242.14	0.34	12.48	1728.93	0.72	-	19.16	0.00
Cambodia	-	304.30	0.00	495.45	3252.70	15.23	63.44	800.14	7.93
Indonesia	-	35.94	0.00	1640.24	1747.37	93.87	3070.50	4526.21	67.84
Total	73,137.05	1,342,086.25	5.45	95,955.86	1,093,563.51	8.77	108,744.09	1,116,129.13	9.74

Source: Export and Import Department, MoIC. PT: Preferential tariff, ASEAN: Association of South East Asian Nations

Figure 2: (a, b) Lao's export products based on the Association of South East Asian Nation free trade area commitment in 2011



Source: Export and import department, MoIC

cooperation among ASEAN members and Korea by liberalizing and promoting trade in goods, services and investment. Under the AKFTA, Korea. R has progressively eliminated import tariffs placed on the Lao PDR on 4734 tariff lines in 2010, and 326 tariff lines (most covering garment and electronic products) will be brought down to 0-5% in 2016, under the condition that regional value content (RVC) is at least 40%.

4.3.3. AJCEP

The AJCEP was put in force in 2009 and aimed to open-up and strengthen economic cooperation and to facilitate trade, service and investment between ASEAN and Japan through the reduction of tariff and non-tariff barriers. Based on the AJCEP, Japan and Laos have committed to eliminating import tariffs for all products on the normal list for a period 10-15 years. For products in the sensitive list, tariffs should be reduced to 0-5% for a period 11-18 years for Japan and 19 years for Laos, under the condition that RVC is 40%. The AJCEP will help Lao exporters access Japanese markets with lower import duties of 0% and 5% on 10,690 products (8-digit HS code), except for 200 agricultural and some industrial products that still retain high import duties.

4.3.4. APTA

The APTA was executed in 1976, which aimed at promoting intra-regional trade through the exchange of mutually agreed concessions by member countries. Under APTA, Laos is eligible to export various products to five countries, namely China, Korea. R, India, Sri Lanka and Bangladesh, with two lists of tariff reduction, and the minimum local value content requirement of 35-45%.

1. National list of concession: consist of 4270 tariff lines (from five country members) including live animals, fish products, agricultural products, vegetables, industrial products, wood products, and leather and garment products. Margin of preference is from 5% to 100%
2. List of special concessions to LDC members: there are 500 tariff lines (from four countries) including fish products, vegetables, agricultural products, garments and industrial products. Margin of preference ranges between 10% and 100%.

4.3.5. AIFTA

The AIFTA, effective since 2010, aimed to promote trade in goods between ASEAN countries and India based on the General Agreement on Tariffs and Trade regulation. Based on the AIFTA, India and Laos have to eliminate all import tariffs for the products in the normal track in 2016 and 2021, respectively. While for products in the sensitive list, all import tariffs will be reduced to 0-5% in 2019 and 2014, respectively. Some special products retain a relatively high import tariff, such as palm oil, coffee, black tea, and pepper, and the RVC is not <35%.

4.3.6. AANZFTA

The AANZFTA came into force in 2010, with the objective of liberalizing trade in goods, services and investment among the parties through a reduction in tariff and non-tariff barriers including customs procedures, sanitary and phytosanitary measures, and technical regulations. Under the AANZFTA, Australia and New Zealand have committed to reduce all import tariffs in chapter 1-97 of HS code to 0-5% during the period of 2010-2020, and the RVC is at least 40%.

4.3.7. BTAs

Lao PDR has signed BTAs with 15 countries: Russia in 1976, Mongolia in 1990, Thailand in 1991, Myanmar in 1995, Korea. R and China in 1997, Vietnam, Cambodia and Malaysia in 1998, India in 2000, Belarus in 2001, Argentina in 2002, the United States in 2003, Turkey and Kuwait in 2008. Most of these agreements focus on MFN treatment, economic cooperation, and promotion of cross border trade with neighboring countries. So far among the 15 BTAs, only the BTA with Vietnam has progressed to the PT arrangement (PTA), which allows exports of each country to enjoy tariff reduction and exemption for some goods originating from both sides. The PTA broadened products coverage of exports from Laos to Vietnam, including electric rice cookers, electric fans, spare parts for motorcycles, beer Lao, tobacco, coffee, rice in the husk, corn and mineral exports (Foreign Trade Policy Department [FTPD], 2012).

4.4. PT Utilization Based on the AFTAs with Dialogue Partners

Laos can exports to the ASEAN Dialogue Partners, especially for the ASEAN-China FTA, AKFTA and AJCEP. Among these trading partners, the preference tariff utilization of Lao exports to Korea. R revealed a great improvement, the total exports under PT rapidly increased from 0.29% in 2008 to 75.87% in 2011 (Table 3), and most export products are garments and textiles and mineral products, which accounted for 58.18% and 29.95% during the period 2009-2011. At the same time the PT utilization of Lao exports to Japan has slightly increased, with an average of 1.82%, and major export products include garment and leather products, which comprised 98.26% of total exports. Due to the low labor costs and relaxed regulations of the local content requirements by allowing import materials from ASEAN members causing most garment exporters can use a large number of PTs.

On the other hand, the PT utilization of Lao exports to China was relatively low, averaging 1% during the period 2009-2011. Export products are highly concentrated on mineral and agricultural products, which accounted for 81.28% and 15.57% of total export. Since the quality of export products is relatively low, some agricultural products are included in the sensitive list, and it is complicated to comply with the sanitary and phytosanitary regulation. Furthermore, the PT utilization based on the Lao-Vietnam FTA reveals a relatively low, with an average of 3% in 2011. Based on this agreement, Laos can export some electrical machinery and equipment and agricultural products free of import duties, and these export products account for 86.37% of total exports during the period 2010-2011. For the PTs based on the AIFTA, the AANZFTA and the APTA, are not yet being applied.

Table 3: Lao exports to ASEAN dialogue partners and bilateral FTAs

Export ($ Thousand)	2008	2009	2010	2011
China	62,611.17	79,252.96	64,672.88	70,631.49
TP utilization (Form E)	-	130.41	1124.11	352.29
TP utilization (%)	-	0.16	1.74	0.50
Japan	10,460.89	26,840.00	52,825.29	32,905.29
TP ulilization (Form AJ)	-	1202.70	1865.76	2072.93
TP utilization (%)	-	4.48	3.53	6.30
Korea	16,793.17	1713.04	1714.88	794.80
TP utilization (Form AK)	49.18	1011.95	440.66	603.04
TP utilization (%)	0.29	59.07	25.70	75.87
Export ($ Thousand)	**2005**	**2006**	**2010**	**2011**
Vietnam	93,961.52	112,142.13	153,310.46	174,904.54
TP ulilization (Form S)	1785.14	3945.37	5402.96	5165.45
TP utilization (%)	1.90	3.52	3.52	2.95

Source: Export and Import Department, MoIC. TP: ???

4.5. The GSP

As a LDC, Laos can export to 47 developed and developing countries under unilateral reciprocal preferences. Laos is granted the unilateral preferences based on the GSP from European countries including Australia, Belarus, Canada, Japan, New Zealand, Norway, Russia, Switzerland, Turkey, China, Korea. R, Chinese-Taipei and India. Moreover, in 2002 the EU granted duty free market access to Laos under the Everything but Arms initiative. In order to export under GSP, exporters are required to follow the RVC, which is at less 30% or materials used have undergone a change in tariff classification at four digit level of the HS code, (FTPD, 2012). Several types of GSP offerings expect to improve market access and accelerate Laos's exports to broader markets.

4.6. The GSP Utilization

According to Table 4, Lao's garments and textiles export under the GSP mainly to the European markets, the share of GSP utilization to total export has grown up from 55.18% in 2007 to 68.57% in 2010. The GSP utilization is dominant for exporting to France, Sweden, the United Kingdom and Spain, which accounted for more than 80% of total exports. In contrast, the garment and textile products exported to Canada, Japan, Norway and the United States have sharply declined, from an average of 31.42% in 2007 to 15.21% in 2010, because some export of garment and textile products are replaced by mineral and wood products.

Table 4: Lao garments and textiles export to European countries and other countries based on the GSP treatment

Distination	2007 ($US Millions)			2008 ($US Millions)			2009 ($US Millions)			2010 ($US Millions)		
	Export under GSP	Export	GSP ulitilization (%)	Export under GSP	Export	GSP ulitilization (%)	Export under GSP	Export	GSP ulitilization (%)	Export under GSP	Export	GSP ulitilization (%)
Austria	-	0.54	-	0.14	0.50	27.23	0.03	0.09	31.28	0.04	0.61	7.35
Belgium	1.18	5.89	20.08	3.97	5.28	75.31	4.07	10.56	38.58	4.63	7.59	60.94
Dendark	0.91	5.96	15.28	3.71	4.04	91.81	3.85	4.54	84.75	4.16	9.27	44.91
Findland	0.48	0.58	82.86	0.19	0.39	47.86	0.02	0.14	13.00	-	0.00	-
France	20.50	35.69	57.44	15.96	25.32	63.02	7.47	10.72	69.70	11.54	12.15	94.95
Germany	28.27	51.71	54.68	30.00	42.86	70.00	39.21	52.79	74.28	40.40	58.68	68.85
Greece	0.02	0.05	34.34	0.00	0.07	6.16	-	0.00	-	0.01	0.01	67.02
Italy	4.52	12.94	34.96	6.68	11.59	57.64	3.86	5.68	67.94	5.60	23.04	24.30
Netherland	13.25	19.47	68.02	12.13	14.84	81.71	13.05	14.97	87.15	14.83	24.26	61.13
Spain	2.65	6.58	40.19	3.47	4.73	73.46	1.67	1.74	95.94	2.99	3.65	81.81
Sweden	0.59	0.83	71.25	0.20	0.30	65.96	0.09	0.46	19.03	0.76	0.80	95.87
United Kingdom	45.35	70.42	64.39	55.52	59.93	92.65	48.45	68.49	70.73	47.58	53.71	88.59
Other countries	1.56	5.49	28.4	1.73	4.83	35.72	1.31	6.30	20.77	4.04	5.40	74.88
Total Europe	119.28	216.16	55.18	133.70	174.69	76.54	123.06	176.47	69.74	136.58	199.17	68.57
Thailand	1.59	382.90	0.42	2.44	516.30	0.47	1.43	1207.58	0.12	0.05	933.09	0.01
Malaysia	0.33	61.25	0.54	0.01	4.21	0.29	0.01	0.27	1.94	0.01	1.76	0.82
Cannada	4.28	5.01	85.47	2.45	4.49	54.65	4.19	4.77	87.94	4.07	8.63	47.15
Japan	1.11	10.83	10.28	2.86	10.46	27.35	3.76	26.84	14.00	4.05	52.83	7.67
Norway	0.43	2.61	16.57	1.70	1.81	93.67	0.30	0.76	39.01	0.01	0.29	3.92
The United States	4.58	34.25	13.37	8.28	44.40	18.65	2.27	36.62	6.20	0.88	41.67	2.12

Source: Export and Import Department, MoIC. GSP: Generalized system of preferences

5. DETERMINANTS OF LAO BILATERAL EXPORTS TO MAJOR TRADING PARTNERS

This section focuses on analyzing factors that influence the real bilateral exports of Laos to major trading partners based on the gravity model in Section 3. The relationship between export and trade liberalization will be analyzed in detail through import tariff reduction and various FTAs, income and common factors.

Five scenarios are included in this analysis: the first scenario (1) analyzes the determinants of real bilateral exports based on the polled ordinary least squares model. The second scenario, (2) applies the fixed effect model, but this estimation method cannot estimate the variables that are constant over time such as distance, and binary variables (common border and common language). The third scenario, (3) of a random effect (RE) model is the alternative method, which is considered to be an effective tool because it can be estimated for both economic variables that are constant and varied over time. However, the RE model has encountered an endogeneity issue, and to solve this problem previous empirical studies including Martínez-Zarzoso et al. (2009) and Baier and Bergstand (2007) suggested using individual country and time effect dummies in panel data estimation, which will be estimated in the fourth, (4) and the fifth, (5) scenarios, respectively.

To ensure consistent results, it is important to choose the most appropriate estimation method. The Hasman test results indicate that the null hypothesis of the difference in coefficient not systematic cannot be rejected, thus RE model is more suitable to estimate the gravity model. Furthermore, to estimate the RE model, one important assumption is needed: the variance of the disturbance terms has to be constant across individuals and times. The Beusch and Pagan test results show that the variance of the disturbance term is not constant over time for all scenarios or there exists heteroskedasticity, except for Scenario 5, so to remediate this issue the robust standard errors are applied. The statistical description of each variable of the gravity regression (Appendix, Table 1b) and the correlation matrix between the bilateral exports and independent variables (Appendix, Table 1c), the main empirical results are summarized in Table 5.

To interpret the empirical results, we will focus on analyzing the model (4) and (5), based on Table 5, trading partners' income (Y_j) has a strong positive effect on real exports for both Scenarios 4 and 5. The elasticity of real partners' income to the real exports ranged from 1.59 to 2.91. The finding is consistent with the fact that Laos highly depends on external markets to stimulate the growth of her exports; these markets have a high purchasing power especially for developed countries and China. In contrast, domestic income (Y_i) turns out to have an adverse effect on real exports and is statistically significant, since most domestic producers are considered to be small and medium enterprises (SMEs), which accounted for 90% of the total enterprises. Most Lao SMEs still lack production capacity and face a shortage of capital for producing goods for export. Therefore, major exporting firms highly depend on foreign capital sources in order to support their export performance and improve technical production. This might be one reason that our results have ambiguous signs.

In regard to location, a longer geographical distance (D) exerts a significant negative effect on exports for Scenario 4, the finding suggests that a 1% point rise in distance between Laos and her trading partners tends to have a negative effect on exports averaging 2.59%, while a longer distance generates

Table 5: The determinants of bilateral exports between Laos and her major trading partners

Independent variables	Models				
	(1) Pooled OLS	(2) FE	(3) RE	(4) RE (tt)	(5) RE (dij)
$logY_{it}$	−1.912** (−0.811)	−3.291** (1.381)	−2.094* (1.150)	−9.762*** (3.161)	−10.613*** (6.445)
$logY_{jt}$	1.540*** (0.108)	4.181** (1.809)	1.673*** (0.328)	1.595*** (0.317)	2.915*** (1.068)
$logD_{ij}$	−2.576*** (0.433)	-	−2.925*** (0.951)	−2.59*** (0.959)	−2.844 (8.490)
$logE_{ijt}$	−0.918 (0.767)	−0.944 (0.867)	−0.839 (0.809)	3.076 (1.931)	2.968*** (0.958)
$logT_{it}$	−1.037*** (0.177)	−0.162 (0.849)	−0.900*** (0.351)	−0.825** (0.345)	−0.282 (0.608)
D_FTA_{ijt}	0.602** (0.256)	0.401 (0.260)	0.509* (0.266)	0.498** (0.253)	0.441** (0.193)
D_GSP_{ijt}	0.043 (0.147)	0.300 (0.217)	0.169 (0.231)	0.300 (0.265)	0.412** (0.166)
D_ASEAN_{ij}	−1.919*** (0.488)	-	−2.025** (0.840)	−1.744* (0.918)	0.606 (11.247)
D_EU_{ij}	0.576*** (0.227)	-	0.514 (0.385)	0.513 (0.440)	−0.756 (1.258)
D_EASIA_{ij}	−1.815*** (0.358)	-	−2.066*** (0.686)	−1.894*** (0.735)	−2.383 (3.160)
$D\_America_{ij}$	0.055 (0.278)	-	−0.073 (0.578)	−0.051 (0.596)	−2.802 (3.419)
D_Border_{ij}	1.774*** (0.247)	-	1.725*** (0.512)	1.737*** (0.504)	0.345 (0.390)
D_Lang_{ij}	0.451* (0.258)	−0.277 (0.172)	0.037 (0.351)	0.002 (0.354)	−0.412 (0.908)
D_Crisis_{it}	0.142 (0.162)	0.198* (0.117)	0.165 (0.110)	−3.544*** (1.064)	−3.576* (2.186)
C	16.078*** (5.937)	−4.220*** (9.406)	16.903** (8.067)	28.516** (14.266)	25.411 (43.572)
Number of observations	528	528	528	528	528
R^2	49.10	15.67	48.79	51.35	67.27
B-P test	101.04***	-	273.94***	279.97***	0.00
Hasman test	-	0.81	-	-	-
δ_{ij}	No	No	No	No	Yes
τ_t	No	No	No	Yes	Yes

Robust standard errors are in parentheses. *, ** and ***Significance at 10%, 5% and 1%, respectively, period of study is from 1996 to 2011, δ_{ij} country time invariant effect, and τ_t time effect, RE: Random effect, OLS: Ordinary least squares

higher transportation costs and depresses trade. In addition, the depreciation of bilateral exchange rates causes domestic goods to be more competitive, and as a result it will support Laos's exports to major trading partners. Our finding is consistent with Carrere (2002) and David et al. (2011) who found that the appreciation of domestic currency relative to trading partners' currencies can affect the production cost and export competitiveness of domestic producers, as a consequence lead to exports shrank.

It is interesting to note that trade liberalization of Laos under WTO commitment has provided significant evidence in supporting trade creation. The finding suggests that a 1% point reduction of import tariffs under the MFN scheme (T) will encourage the real bilateral exports to increase on average by 0.82% (Scenario 4). The most important of Laos's trading partners are Thailand, Vietnam and China (the three countries share 70% of total Lao exports in 2011), whose import tariffs have shown a rapid reduction from 40.08%, 22.22% and 26.65% in 1996 to 12.89%, 11.85% and 7.89%, respectively in 2011. In addition, having abundant natural resources (minerals, rivers and forests) with relatively low labor costs are crucial factors contributing to a growth of exports. The total accumulated export of minerals, wood products and electricity has increased five-fold from $US 210.91 million in 2002 to $US 1.30 billion in 2010, and the share of three export products accounted for 65.80% of the total export in 2010.[13] Our finding is consistent with that of Tumbarello (2007), who found that more trade liberalization through a reduction of import tariffs caused trade among ASEAN-6 countries at a level 5.2 times greater than any county pairs that do not belong to any RTAs. Therefore, the reduction of import tariffs under WTO commitment of Laos' trading partners is a crucial factor in stimulating an expansion of Lao exports.

The FTAs between Laos and her trading partners (D_FTA) encourage an expansion of real exports for both scenarios (4) and (5). The finding suggests that FTA implementation between Laos and her trading partners would increase trade volume by 55.27% ($e^{0.44}-1=55.27$) more than baseline case of neither FTA execution. The PT utilization of Lao exports under AKFTA and ASEAN-Japan FTA show a slight increase from 59.07% and 4.48% in 2009 to 75.87% and 6.30% in 2011, while preferential utilization of Lao exports to ASEAN countries under AFTA has grown by 8.57% during the period 1998-2011. FTAs do not only eliminate import tariffs among inside members, but they also remove several non-tariff barriers including export subsidies, import quotas, and a number of document procedures to obtain export licenses. Therefore, FTAs will be an important component to increase Laos' access to the markets of her major trading partners.

However, the PT utilization under ASEAN-China FTA, AIFTA, APTA, and Lao-Vietnam bilateral FTA is relatively low. The main reasons are as follows: first, the procedures for proving the origin of products are complicated and incur high administrative costs; second, a lack of raw materials and inputs makes most local producers unable to comply with the local contents requirement, (World Bank, 2007). Furthermore, the GTZ enterprise survey in 2007 showed that information of AFTA in Laos was still limited as 79% of Lao enterprises were not aware of AFTA, while 44% of the enterprises who knew about AFTA believed that their export opportunities would not improve under the FTA because their products are less competitive in international markets (Lao-German Programme HRD-ME, 2008).

We find that Laos's exports under the Generalised System of Preferences (D_GSP) have played a crucial role in supporting an increase of Laos' export by 50.68% ($e^{0.41}-1 = 50.68$) greater than

13 The author's calculations based on the MoIC database.

whose partners do not grant GSP. Being one of the LDCs means that Laos receives the GSP from 47 developed and developing countries, and most Lao export products under the GSP are garments, which mainly are exported to European countries. The share of garment exports under GSP utilization has slightly increased from 55.81% in 2007 to 68.57% in 2010. So a larger GSP utilization will stimulate Laos's exports to a wider market.

Geographical proximity between Laos and her trading partners (D_Border) shows a strong positive effect on real exports. Laos has a large trade volume with neighboring countries, namely Thailand, Vietnam and China. The export to the three countries accounted for 90% of total export in 2011. Moreover, the establishment of the special economic zones along border areas between Laos-China (Boten-Bohan) and Laos-Vietnam (Dansavany-Laobao) is important factor to support growth of border trade in this region. Finally, the dummy variable for the Asian Financial Crisis (D_Crisis) turns out to have a significant negative effect on real exports for both scenario (4) and (5). The Asian Financial Crisis caused major ASEAN economies to face economic recession, especially Thailand, Indonesia and Vietnam, and as a consequence Laos' exports to ASEAN markets declined during the period 1997-1999.

6. CONCLUSION AND POLICY IMPLICATIONS

Lao PDR has made a great effort to liberalize trade by participating in both bilateral and multilateral FTAs, as a consequence leads to greater market, more efficient in production, economies scale in production and FDI inflows. This research aims at analyzing the progress of trade development and export performances as a consequence of several FTAs have been by focusing on assessment the bilateral export of Laos with 32 trading partners, which classifies into six regions, namely ASEAN, America, Europe, East Asia and Oceania during the period of 1996-2011. The panel gravity model will be applied; both fixed and RE models are included to capture the success of trade arrangements among member countries.

Since the last decade, Laos has made several trade reforms to stimulate her export performance, and trade liberalization signified a great achievement after the country has implemented the AFTA in 1998, it was followed by the implementation of single window service at international border check points and a reduction of 15 government units to 3 units, including the establishment of ASYCUDA in order to improve trade facilitation, reduce transaction costs, and contribute to steady trade growth. In addition, Laos made further progress toward trade liberalization when the country signed BTAs with 15 countries, participated in 7 multilateral FTAs, which were mainly ASEAN FTAs with dialogue partners, and became eligible for exporting to 47 countries under the GSP treatment under the status of the LDCs.

Nonetheless, overall Lao exports under PT treatment remains relatively low, and the largest preference utilization rate is found in Laos's exports to Korea. R under the AKFTA, which accounted for 75.87% of the total export, it was followed by Laos' exports to ASEAN and Japan based on the AFTA commitment and Japan under the framework agreement for AJCEP, the preferences utilization rates are 9.97% and 6.30%, respectively in 2011. Most export products are highly concentrated in mineral and agricultural products, while Lao exports to major European markets under the GSP treatment are garment and textile products, which accounted for 68.57% of total exports in 2010. However, preferential utilization rate is found to be a relatively small as a consequence of the ASEAN-China FTA, AIFTA, the AANZFTA and the APTA. The main reasons are: (1) information about preferences utilization is limited; (2) most exporters have difficulty complying with the local content requirements due to a shortage of raw materials; and (3) a lack of export diversification products and products that meet the standard quality requirements.

The findings from the gravity regression suggest the basic factors of foreign income and geographical distance turn out have correct signs and are statistically significant for all scenarios. While depreciation of real bilateral exchange rates causes the export price to decrease, it will support an increase in Lao exports to major trading partners as a result. Then, trade liberalization under WTO commitments and several FTAs made with major trading partners are crucial factors to support trade creation and it becomes important to support export growth rapidly. We also find that exports under GSP have played an important role to stimulate an increase in Lao exports by 50.68% greater than whose partners have not granted the GSP. The findings suggest that a large trade value can be achieved when Laos has a common border with her trading partners. Finally, the Asian financial crisis had a negative effect on Lao exports.

To ensure the effective contribution of FTAs and to maintain steady growth of exports under various preferences some policy recommendations are given:

1. A reduction of import tariffs based on CEPT and MFN commitments strongly supports trade creation. Therefore, the government should continue to improve and diversify export products and to process them, especially for agricultural and mineral products, in order to create more value added as well as to generate more employment for local people
2. Several FTAs have been signed, yet the benefits to exports are relatively small. Hence, to increase benefits to exports under preferences, exporters should broaden and diversify a number of the export products, and more caution in selecting FTAs based on their comparative advantages should promote the utilization of the preferences of FTAs to the private sectors
3. Ministry of Industry and Commerce should invest more in human resource development by sending the potential staff to train abroad about technique of preferential utilization in order to generate academic experts who specialize in each FTA PT and GSP. In addition, government should organize regular technical trainings to promote preferential utilization to entrepreneurs together with follow-up evaluation programs; this is to ensure the effectiveness FTAs utilization.

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APPENDIX

Table 1a: The share of Lao export to different regions ($US Million)

Region	1995	2000	2005	2008	2011
ASEAN	171.00	167.41	590.04	678.19	1116.21
East Asia	14.10	22.93	63.47	106.78	106.94
Oceania	-	0.12	92.70	93.44	334.57
EU (15)	31.70	100.27	124.26	233.29	128.91
USA	5.30	7.68	6.91	10.24	5.38
Others	89.10	26.48	0.63	2.46	4.44
Total	311.20	324.89	878.01	1124.40	1696.44

Source: Ministry of Industry and Commerce, Laos. ASEAN consists of Singapore, Malaysia, Indonesia, the Philippines, Cambodia, Thailand and Vietnam. East Asia comprises of China, Japan, South Korea, Hong Kong, China and Taiwan, China. Oceania includes Australia and New Zealand. EU (15) includes Austria, Belgium, Denmark, Finland, France, Germany, Netherlands, Ireland, Italy, Portugal, Spain, Sweden, the United Kingdom, Norway and Poland; and America includes the United States of America and Canada

Table 1b: Statistic description of the bilateral exports between Laos and her trading partners

Definition	Variables	Observation	Mean	Standars deviation	Min	Max
Real export ($ Million)	EX	528	336.43	1017.51	0.000	10000.00
Real exporter's income ($ Million)	Y_i	528	2654.25	829.86	1584.37	4308.87
Real importer's income ($ Billion)	Y_j	528	1100.63	2158.67	2.98	13,300.00
Distance (Km)	D	528	6596.53	3736.92	481.94	13,686.19
Real exchange rate (domestic currency/partner currency)	E	528	10228.97	2163.68	3.184.67	17,805.75
Import tariff (%)	T	528	7.224	6.644	0.000	40.082
Free Trade Agreement Dummy	D_FTA	528	0.220	0.414	0	1
Generlized System of Preferences Dummy	D_GSP	528	0.470	0.500	0	1
ASEAN trading partners Dummy	D_ASEAN	528	0.212	0.409	0	1
European trading partners Dummy	D_EU	528	0.515	0.500	0	1
EastASIA trading partners Dummy	D_EASIA	528	0.152	0.359	0	1
America trading partners Dummy	D_America	528	0.061	0.239	0	1
Common border Dummy	D_Border	528	0.121	0.327	0	1
Common language Dummy	D_Lang	528	0.028	0.166	0	1
ASIAN Financial Crisis Dummy	D_Crisis	528	0.188	0.391	0	1

Table 1c: The correlation matrix of the bilateral exports model

Variables	EX	Y_i	Y_j	D	E	T	D_ FTA	D_ GSP	D_ ASEAN	D_EU	D_ EASIA	D_ America	D_ Border	D_ Lang	D_ Crisis
EX	1.000														
Y_i	−0.011	1.000													
Y_j	0.393	0.098	1.000												
D	−0.012	0.000	0.468	1.000											
E	0.031	−0.554	−0.060	−0.041	1.000										
T	0.000	−0.144	−0.080	−0.386	−0.021	1.000									
D_FTA	0.001	0.228	−0.308	−0.688	−0.048	0.239	1.000								
D_GSP	0.042	0.622	0.249	0.310	−0.340	−0.144	−0.114	1.000							
D_ASEAN	−0.076	0.000	−0.519	−0.798	−0.023	0.284	0.788	−0.238	1.000						
D_EU	0.086	0.000	0.084	0.644	−0.013	−0.229	−0.547	0.245	−0.535	1.000					
D_EASIA	−0.042	0.000	0.263	−0.276	0.055	0.164	−0.007	−0.165	−0.219	−0.436	1.000				
D_America	0.091	0.000	0.368	0.274	−0.012	−0.029	−0.135	0.063	−0.132	−0.262	−0.107	1.000			
D_Border	0.252	0.000	−0.320	−0.702	0.047	0.535	0.448	−0.233	0.489	−0.383	0.102	−0.094	1.000		
D_Lang	0.275	−0.020	−0.085	−0.414	0.016	0.275	0.267	0.022	0.330	−0.176	−0.072	−0.043	0.460	1.000	
D_Crisis	0.025	−0.551	−0.059	0.000	0.288	0.104	−0.114	−0.452	0.000	0.000	0.000	0.000	0.000	0.006	1.000