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Agricultural Export Diversification in Lao PDR

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Abstract

Despite the impressive growth of export sector, there is substantial concern about sustainability due to Lao trade has lacked diversification and concentrated on low value-added export products and raw materials such as copper ore. Nevertheless, there are more business opportunities to export agricultural products because there is high market demand for crops, fruits, and live animals in Yunnan province, China. Therefore, the paper examines the factors constraining agricultural export diversification in Lao PDR, focusing on the aggregated level of agricultural export diversification. It applies both descriptive and qualitative approaches. The descriptive statistic method applies by utilizing the latest trade data such as trade flow in volume and value and by-products and countries. It also uses the HHI as an indicator of export diversification and concentration. In addition, key informant interviews were also conducted at both the central and provincial levels to confirm and verify the preliminary results of this study. The study results suggest that the agricultural export basket of Laos has continued to remain relatively under-diversified, and the country has not been able to translate its comparative advantage into competitiveness advantage. The study also finds that Laos continues a high level of commodity concentration suggested by the recent HHI index; this means that the country suffers from highly concentrated on a few products for the bulk of its export earnings as compared to its peer countries. Main factors that result in less diversification of agricultural exports in Laos. 1) the process industry in Laos is in the early stages of development. 2) agricultural export products to foreign markets face difficulty because there are many requirements and measures. 3) the costs related to export are relatively high.

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1. Introduction

1.1 Background

Since the introduction of the New Economic Mechanism (NEM) in 1986, Lao PDR has witnessed significant structural changes in its economy, moving from a centrally-planned economy towards a market-oriented economy. Thanks to such changes over the last two decades, the country has experienced a high level of economic growth around 6.9 percent per annual, and the size of its gross domestic product (GDP) has increased six-fold. Poverty has declined impressively with a gross national income per capita of \$2,577 in 2018. Lao PDR's economic growth has been driven by foreign direct investment (FDI), which heavily into the natural resource exploitation sector. It was the sole source of national income over the last decade. In tandem with other sectors of the economy, the agriculture sector also plays a crucial role in the Lao economy. Thanks to its geographical location, the Lao PDR has excellent agricultural potential with abundant water resources, extensive land area relative to its rural population, and proximity to the growing food market. In 2019, the sector contributed to an estimated 15.3 percent of GDP and absorbed an estimated 65 percent of the total workforce. Likewise, agriculture production has been significantly increasing across the country from 1,486,930 hectares in 2010 to 1,723,510 hectares in 2019. As a result, agriculture products have become the 3rd major export of Lao PDR, following mining and electricity (Table 1). In recent years, a short cycle production has become a popular agricultural product for farmers in the northern region of the country after mineral for export to China. For example, the export of agricultural commodities has significantly increased from 108 million USD in 2010 to over 747 million in 2019 and nearly 50 percent of agricultural exports are for its neighboring Chinses market (Table 3).

Table 1: Lao PDR's major exports (% of total exports)

Export Items	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Mineral products	35.09	56.70	41.67	40.21	39.27	36.08	29.49	28.91	27.64	25.88
Electricity	6.35	14.94	22.10	25.85	17.41	14.20	24.54	26.33	24.73	22.85
Agricultural products	9.48	6.95	9.72	10.47	5.14	7.49	12.35	10.76	9.13	10.96
Garments	9.60	10.04	8.09	6.85	11.94	9.67	5.88	3.67	3.58	3.78
Coffee (manufactured)	1.46	3.10	5.06	4.02	2.14	1.61	1.58	2.01	1.83	4.81
Wood productions	4.12	3.73	5.77	6.29	4.17	3.05	0.86	1.02	1.50	6.76
Others	33.90	4.54	7.59	6.31	19.93	27.90	25.29	27.30	31.59	21.95
Total:	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Bank of Lao PDR, 2019

Despite the impressive growth of export sector, there is substantial concern about sustainability due to Lao trade has lacked diversification and concentrated on low value-added export products and raw materials such as copper ore. According to ADB (2017), Lao export performance has lacked diversification and remained concentrated on low value-added products. Laos's main trading partners, namely Thailand, China, and Vietnam, collectively covered around 75% of total Lao export, and such coverage has not changed over time. This implies that the demand for Lao

export mostly depends on the economic development of these three economies. Lack of export diversification and dependency on a few markets and products has made the economy and income extremely vulnerable to external shocks resulting from changes in global demand or prices (term of trade). For the agriculture sector, lack of diversification has been an issue. The production is also limited by low productivity, and the agro-processing industry remains small. Agricultural product export has been concentrated only on a few commodities (Table 2). These commodities are usually exported through the border trade channel to its neighboring countries, particularly China (Table 3).

Table 2: The main agricultural product exports of Lao PDR (% of total agricultural export)

#	Commodities	2011	2012	2013	2014	2015	2016	2017	2018
1	Fruit and nuts	5.62	7.14	15.96	11.52	16.75	30.35	23.98	19.53
2	Coffee	24.16	22.51	15.66	15.51	11.32	9.46	10.99	11.60
3	Cereals	12.32	18.49	17.44	12.89	14.63	8.12	8.55	7.48
4	Rubber and articles	1.87	3.47	8.07	10.61	12.16	10.57	16.95	19.73
5	Wood and articles	28.31	19.69	22.76	29.52	17.53	3.34	4.01	4.63
6	Vegetables	5.36	4.64	4.25	6.31	8.42	14.79	12.86	13.33

Source: ASEAN Trade Statistic.

Table 3: Export of agricultural commodities from Lao PDR (unit: USD)

Year	Total export of agricultural products	Share of agricultural products to total exports	Export of agricultural products to China	Share of agricultural products exports to China
2010	108,195,372	7.9	63,015,383	58.2
2011	112,812,088	8.2	12,568,951	11.1
2012	111,783,344	8.2	15,947,693	14.3
2013	185,360,555	13.5	72,463,149	39.1
2014	157,937,884	11.5	46,739,743	29.6
2015	229,744,584	16.8	77,360,713	22.7
2016	463,170,551	33.8	201,842,234	43.6
2017	477,189,093	14.7	183,942,594	38.5
2018	477,685,587	11.2	135,760,636	28.4
2019	747,073,291	16.8	272,433,288	36.5

Source: Estimates based on data from United Nations Comtrade Database.

<https://comtrade.un.org/> (accessed 20 June 2020).

Under Lao-China Economic Corridor (LCEC) framework, the railway is under construction and it is expected to complete by the end of 2021 to promote various sectors development, including agriculture production and export. Thus, there is a window of opportunity for Laos to maximize the benefits from this railway infrastructure. According to Insisienmay et al., (2019), there is more room for Lao trade, including agricultural trade, to be enhanced in the medium to long term. Nevertheless, there are more business opportunities to export agricultural products because there is high market demand for crops, fruits, and live animals in Yunnan

province, China. Therefore, it is necessary to diversify Lao agricultural production and export to respond to market opportunities attributed by the LCEC initiative to make significant progress in stabilizing export earnings, especially in the context of Laos-China trade structure. Therefore, this study aims to overview the status and typology of export diversification in Lao PDR; to identify the rising agricultural export and its diversification issues from a macro perspective; to assess the factors constraining and promoting agricultural export diversification in Lao PDR, and to provide recommendations for the formation of practical strategies and policies that can enhance agricultural export growth and diversification.

This paper's structure is as follows: Section 2 highlights the scope and methodology of the study. Section 3 discusses the relevant existing literature, particularly export diversification, the various approaches of export diversification, and the correlation between export diversification and economic performance. Section 4 shows the relevant trade policies of export diversification. Section 5 introduces the current trend of export diversification, including agricultural diversification. Section 6 illustrates the analytical results, including fields survey, and section 7 concludes and puts policy implications forwards.

1.2 Scope of study and methodology

The study generally covers a macro level on agricultural export diversification in Lao PDR from (2000-2019). It collects data from both central and subnational levels in the northern provinces of the country, especially those bordering China.

This paper primarily employs both descriptive and qualitative approaches. The descriptive statistic method applies by using secondary data and information obtained from various sources. For example, the study utilizes the latest trade data such as trade flow in volume and value and by-products and countries, from the Department of Import and Export, Ministry of Industry and Commerce (MOIC). The relevant trade policies and strategies will be collected from the Department of Foreign Trade Policy and Department of Trade Promotion (MOIC), Department of Planning and Cooperation (MAF), Department of Agriculture (MAF), and Department of Technical Extension and Agro-Processing (MAF). In addition, related researches and reports from domestic research institutes and international organizations such as United Nations Conference on Trade and Development (UNCTAD), Asian Development Bank (ADB), and World Bank (WB) also use for the analysis and identification of the trend of agricultural export and its diversification.

Besides, to confirm and verify this study's preliminary results, key informant interviews with stakeholders (government officers and some representative business entrepreneurs) are conducted at both the central and provincial levels. The central level includes the Department of Import and Export, Department of Foreign Trade Policy, and Department of Trade Promotion; Department of Technical Extension and Agro-processing, Department of Planning and Cooperation. There are three selected provinces at the provincial level, such as Luang Namtha, Oudomxay, and

Luangprabang provinces. The reason for these provinces is that they are the main hosts for exporters of agricultural products to China. The key informants include fifteen exporting agro-business companies to understand the evolution of their export product diversification and markets.

1.3 Literature review

Export diversification is differently defined as the change in the composition of a country's existing export products mix or export destination (Ali et al., 1991), or a process of economic performance through a structural transformation from producing traditional products to manufacturing products (Hausmann and Hwang, 2006). For many developing countries, export diversification is considered as the progression from traditional to non-traditional exports. Furthermore, export diversification can expand export revenues, upgrade value-added, and enhance growth through various channels. For example, enhancing technological capabilities via wide-ranging scientific and technical training as well as learning by doing; facilitating of forward and backward linkages within the output of some activities which then become the input of some other activities; improving the sophistication of markets, scale-up economies, and substitution of goods with positive price trends for those with decreasing price trends. Thus, export diversification has long been debated on how developing countries can improve economic performance and achieve higher income. The evidence suggests that the extremely high levels of export concentration could find in most developing countries. Many countries with commodity dependence or a narrow export basket frequently suffer from export instability that arose due to the inelastic and unstable demand from external markets. As a result, the export diversification phenomenon through changing export structure is one way to reduce this vulnerability of global economic shocks (Hausmann and Hwang, 2006).

Over the last decades, research on export diversification has appeared in the literature of many developing countries. To examine export diversification, the common and widely used measures including the Herfindahl-Herschman Index, the Concentration Ratio⁵, Absolute Deviation⁶, the Commodity-Specific Tradition Index. Scholars applied these measures to estimate the share of manufacturing, primary goods, and agricultural export in the country's total export and to identify how the different factors are inducing export diversification and recommend policies to diversify its exports aim at achieving economic growth (Salomon, 2010).

Export diversification can be in different forms and dimensions; then, its analysis can be measured at different levels. Commonly, export diversification can be categorized into two types, namely horizontal and vertical diversification. **Horizontal diversification** takes place within the same sector (primary, secondary or tertiary). It

⁵ Several measures have been developed to estimate concentration ratios. There include: the Hirschman Index, the Ogive Index, the Herfindahl Index, and the Aggregate Specification Index. These measures are conceptually quite similar and their approached.

⁶ The Absolute deviation of the country commodity shares, which is widely applied by UNCTAD measures the extent of the difference between the structures of trade of a particular country and the world average.

involves an adjustment in the country's export mix by adding new products on existing export baskets among the same sector, with the hope to mitigate adverse economic (to counter global price instability or decrease), and political risks (Cramer, 1999). Whereas **vertical diversification** into processing of domestic manufactured commodities involves a shift from the primary to the secondary or tertiary sector. It involves contriving further uses for existing products by means of increased value-added activities such as processing, marketing, or other services. Vertical diversification can expand market opportunities for raw materials and improve growth and stability since processed goods normally have greater price stability than raw commodities. Both types of diversification are targeted to achieve three interrelated objectives such as stabilizing earnings, expanding export revenues, and upgrading value-added and are expected to positively induce economic growth (Hirschman, 1958; Keji & Mengistu, 2009).

Yokoyama and Alemu (2009) studied export diversification's impact on economic growth in East Asia and Sub-Saharan Africa (SSA). The results showed that export diversification is an important factor to enhance economic growth, this success was extremely qualified by its massive investment in human capital over education and the abundant rate of physical capital accretion determined by foreign direct investment (FDI). The empirical result also showed that vertical export diversification is more important than horizontal export diversification in East Asia. Vertical export diversification is high, whereas SSA focused more on horizontal export diversification by exporting primary export products because SSA does not have enough physical and human capital for vertical export diversification. Good governance and political stability are required for vertical export diversification in SSA.

According to Noureen & Mahmood (2014), many developing countries focus not only on trade liberalization but also on the importance of export diversification for economic growth. The exports diversification could enhance economic development for developing countries through different ways: (i) reducing the export vitality by declining the reliance on a small number of products that are subject to volumes and prices fluctuations; (ii) enriching knowledge through technological spillover effect; (iii) making countries less vulnerable to external shocks and increasing productivity growth; (iv) increasing markets for exports by replacing their exported products with positive price trends in the world market; and (v) enhancing technological capabilities (Do gruel & Tekee, 2011).

Hausmann and Rodrik (2003) developed a theoretical framework to analyze the relationship between the overall exports for economic growth and export diversification advantages. The author examined the effect by conducting a factor endowments model to predict the structure of comparative advantage for different Latin American and Asian member countries during 1960 to 2000 for economic growth and share of 25 items of the manufacturing sector in the total export and then compared them with tabulation and graphically techniques using 6 digit HS code (UN Comtrade) data. The results concluded that instead of comparative advantage, developing countries increase their economic growth through countries' diversification of their investments innovative new activities.

Hausmann et al., (2007) developed a factor of the level of productivity which is related to a country's exports that explains the higher productivity levels than others (primary goods) through traded some goods (service products, manufactured goods). The authors applied data from 1975 to 2005 for 55 developing countries. Using fixed-effect techniques, including GDP per capita, human and physical capital, investment, and share of manufacturing and agriculture sectors, to total export. The study concluded that the countries with more diversified and higher productivity grow more than the countries with more specialized and lower productivity; the share of the manufacturing sector in export was higher in the countries with higher diversification; the investment and GDP per capita also positively related to those countries.

Pineros and Ferrantino (1997) explored how the export diversification from conventional to non-conventional exports is significant for economic development in Chile. The objective of this study was to identify the impact of diversification on the structural changes in exports of the Chilean from the last 30 years. The authors found that since the mid-1970s, Chilean growth was high with a large degree of export diversification. The policy of diversification in the recessionary period and in the periods of internal crisis and external shock was reliable for Chile as the recessionary period is associated with the global collapse and real exchange rate depreciation. Although in the boom period of Chile's economy, this policy of export diversification was not reliable because in the boom period real exchange rate of Chile was appreciated.

Kim (2012) estimated the effect of export diversification in Korea's economy. Developing a theoretical framework, the author found that Korea has made a large economic growth due to trade openness and export diversification from the last five decades. The author argued that policymakers in Korea believed that export diversification is an important factor for economic development in two ways. One way is by increasing the variety of exporting goods and expanding foreign markets in Korea; the other way is export diversification which helps in lowering dependency and it leads to economic stability in Korea. The author also argued that the long-run pattern of Korean export looks to be stable with the former preferences for the producing of exporting goods.

Brenton et al., (2009) stated that increasing export growth at the intensive margin that is, of existing products to old markets usually requires some mixture of productivity improvements to lower costs relative to competitors and quality improvements to differentiate products from those of competitors. Improving the quality of existing products is an important route to higher value-added and higher productivity that avoids the costs and constraints that face the development of entirely new products. Much of the argument concerning export diversification in developing countries centers on increasing exports of differentiated products, especially manufacturers, and reducing the importance of apparently homogenous products, particularly commodities. In addition, movement up the ladder of higher-quality, agricultural produce typically entails a structure of incentives that inspires farmers to produce better-quality goods. In other words, farmers must reap some of the rewards from the higher-quality produce. Furthermore, higher quality will often require larger inputs of services than traditional production, such as access to water, electricity,

improved transport and communications, and access to finance. In addition, to ensure an appropriate structure of incentives and to address infrastructure constraints and weaknesses in the provision of backbone services, there may also be a role for government in assisting producers in overcoming market failures that limit their ability to export the higher-quality produce, for instance, by providing information that allows for the effective matching with buyers in overseas.

Export-promotion agencies can perform a key role in reducing search costs for exporters and in linking with domestic-standards organizations to increase the supply capabilities of domestic firms to meet the requirements of foreign markets in terms of design, quality, packaging, and marketing. However, there appears to be little analysis of how export-promotion agencies can best provide such services in developing countries. Evidence from developed countries such as the United Kingdom suggests that export promotion should include an element of targeting, specifically on the smaller firms with some experiences of exporting. This examination differentiates three types of export promotion activity: (i) the provision of market information, (ii) advisory services that help inexperienced exporters estimate the costs and risks of exporting, and (iii) in-country support, such as external trade missions. It concludes that the impact of in-country support in generating additional exports can be much lower than the other two forms of assistance. It is significant to measure whether such conclusions also affect export-promotion agencies in developing countries.

Export diversification in Lao PDR has been the subject of quite a few studies. Vixaythep (2011) carried out a study on the structure of Lao PDR's external trade, a transition economy in Southeast Asia, by analyzing the Revealed Comparative Advantage (RCA) for 1985-2005. The results found that export concentrated in some agricultural products and crude natural resources; exports' structure did not change over time significantly; trade diversification in Lao PDR was low; and within an industry specification trended to occur in the simple product lines. These findings suggest that Lao PDR largely follows the neoclassical path of industrialization, and appropriate industrial and trade policies are critical for diversifying exports and developing higher value-added commodities. However, the study could not show the trend and factors constraining export diversification in Lao PDR.

The literature review demonstrates that many studies had already been done on export diversification and economic growth as well as obstacles and opportunities to diversification. However, as it is presented in these studies that there is a great need for developing countries to raise their degree of integration with other countries and increase diversification in their exports of both traditional (primary products) and non-traditional (manufacturing products) for reducing the vulnerability of external shocks and boosting economic growth. From the literature, it is also found that low-income countries' GDP per capita is positively related to export diversification, but more growth in income would be the cause of export specialization. In the case of Lao PDR, there is a limited study on the impact of export diversification on economic development both empirically and theoretically, especially at the sector level. Thus, the trend of agricultural export diversification and which factors are constraining and promoting agricultural export diversification in Lao PDR needs an in-depth study. To our

knowledge, we have not found this in the literature, which has motivated us to study on agricultural export diversification in Lao PDR.

1.4 Trade Policies related to export diversification

After the introduction of New Economic Mechanism (NEM) in 1986, major reforms were taken including the trade reform in order to liberalize internal and external trade. The trade reform began in 1993 by reducing tariff rates, eliminating various forms of non-tariff barriers⁷ that acted as significant restrictions to international trade in Laos, simplifying and liberalizing trade licensing system⁸, which used since the 1980s to control the quality of imports and exports. To do so, the government has made efforts to introduce or amend regulations related to trade such as custom law (revised in 2020), the degree on the Rule of Origin (2010), the decree⁹ on Import and Export of Goods no. 114/GOV, dated 11 April 2011 and the decree on import permission license (no.180/PM in 2010).

In 2011 the government had issued a Trade Facilitation Road Map of Lao PDR in 2017-2022. The Road Map aims to simplify trade procedures, lower the cost and facilitate the traders to boost trade. It is also focusing on improving the trade competitiveness of the country by significantly decreasing the time by “50%” and cost by “30% at least” of trade to bring them at par with leading economies in the neighborhood and to allow unified integration of the Lao economy with the region.

In parallel to internal reform, the government has made progress on trade integration through bilateral, regional and multilateral trade cooperation. These included progressively promoted regional economic integration and joint ASEAN in 1997 and WTO in 2013. Under the bilateral and multilateral framework, the government devoted continues efforts to ensuring preferential and favorable tariff arrangement, including free trade agreements (FTAs) with Thailand (1991), ASEAN-China (2004), ASEAN-Korea (2007), ASEAN-Japan (2008), ASEAN-Australia-New Zealand (2010), ASEAN-India (2010), Laos’ accession to the WTO in 2013 and several generalized system of preferences (GSPs).

In addition, custom administration also had been reformed aim to effective implementation of trade policy. The introduction of a “single administrative document” (SAD) instead of the 16 different forms required in the past has simplified and clarified declaration processes. The ASEAN 8-digit classification system has been applied since 2002. However, there are still a lot that needs to be done in order to harmonize the Lao customs with other ASEAN members and with international practices (Thuy and Vena, 2006). To facilitate the trade process, a number of measures has been introduced, including the customs clearance for import (ASYCUDA) was introduced since 2010 and currently operated at 27 Lao international border checkpoints, Lao

⁷ Including quantitative restrictions, domestic regulations, geographical barriers, and others.

⁸ However, import and export licenses were still necessary for some strategic (controlled or prohibited) goods, more detail in the Notification No, 0076/MOIC. DIMEX; see more detail:

<https://www.laotradeportal.net/index.php?r=site/display&id=73>

⁹ See more on <https://www.laotradeportal.net/index.php?r=site/display&id=2>

Trade Portal was introduced in 2012 as a single stop point for all information relating to import and export in Laos.

The Lao government has played attention on trade promotion. Trade Promotion Department under the Ministry of Industry and Commerce was established in 2016 aiming to (i) support entrepreneurs promoting and developing products, (ii) provide products information required for entrepreneurs and buyers, (iii) facilitate entrepreneurs producing and developing products in compliance with the various needs of the domestic and international market.

Laos has high agricultural growth potential and demand from neighboring countries. As a result, the government has played attention to the agriculture sector aim at reducing poverty and stimulating economic growth. The government has implemented number of policies and measures to develop this sector, such as allocating a substantial budget for agriculture development, providing financial supports, offering investment incentive policies, and facilitating export-import procedures.

To promote agriculture export, the government has improved the sanitary and phytosanitary (SPS) legislation to comply with trading partners as well as WTO principles. For example, in 2012, Laos and China officially signed protocols on sanitary and phytosanitary (SPS) requirements, including Memorandum of Understanding (MOU) on requirements to have pest inspection before exporting China. Later, the protocol of phytosanitary requirements for exporting “Dried Cassava Root” was signed on 13 September 2013. While “Watermelon” was signed on 11 June 2019, the protocol on plant inspection and quarantine requirements for exporting rice of Lao PDR to China was signed on 5 January 2015.

In addition, to enhance the safety and facilitate the export of Lao agricultural products such as rice, animals, watermelon, banana, and cassava to China, the Ministry of Agriculture and Forestry of Lao PDR and The General Administration of Quality Supervision, Inspection and Quarantine of the People’s Republic of China (AQSIQ)¹⁰ as well as General Administration of Customs of the China (GACC) have exchanged views and have reached a consensus on Phytosanitary requirements for the export of watermelon from Laos to China¹¹. To make it easy for the exporter, Ministry of Agriculture and Forestry of Lao PDR has issued guidelines on how to

¹⁰ AQSIQ is a “ministerial administrative organ directly under the State Council of the People’s Republic of China in charge of national quality, metrology, entry-exit commodity inspection, entry-exit health quarantine, entry-exit animal and plant quarantine, import-export food safety, certification and accreditation, standardization, as well as administrative law-enforcement.”

¹¹ The detail of consensus: (1) the pest risk analysis shall comply with the relevant Phytosanitary laws and regulations of China and Lao PDR. (2) The export watermelon shall be free of quarantinable pests of concern to China, residues of agrochemical and other toxic substances within the watermelon shall not exceed the legal maximum residue levels stipulated by China law, and it should also be free of branches, foliage and soil when exporting through the designated ports in China. (3) To export watermelon from Laos to China, the exporter has to apply for a phytosanitary certificate from Ministry of Agriculture and Forestry or Provincial Agriculture and Forestry Department.

ensure the agriculture and animals for export is enabled to meet the certain requirement imposed by importing countries in a timely manner, in particular those neighboring countries such as China, Vietnam, and Thailand.

However, existing agricultural promotion policies and strategies focus mainly on promoting agricultural production to meet domestic demand, especially in terms of food security and poverty reduction. Meanwhile, export-oriented agricultural production remains unclear. There are, as yet, no comprehensive plans on land use, no system for determining key products and standards, and no concrete marketing strategies (Leebouapao & Voladeth, 2011). As a result, agriculture export in terms of value and products remains limited.

Although, many trade facilities have been made as mentioned above, in practice, export agriculture products to foreign markets still face difficulty. For example, some producers and exporters were not able to comply with requirements and measures due to lack of dissemination, technical staff, technology, and equipment on the plantation, harvest, feeding, quarantine, storage, transport and production from the first process to the final process. For those who can produce and export are the sub-companies or branches of the head office in China, which have more capabilities to produce and export (Lao Trade Portal, 2019). In addition, there are some fees related to export are still collected such as sanitary and phytosanitary certificate, quality inspection certificate, roadside check, transport, border compliance fee (X-ray, ASYCUDA,). These fees are considered a very high cost for agriculture export which is totally about 1.9 million kip per time (Lao Trade Portal, 2019). These limitations could be one factor to limit the export diversification in Laos, which this paper will investigate further.

2. Findings and Analysis

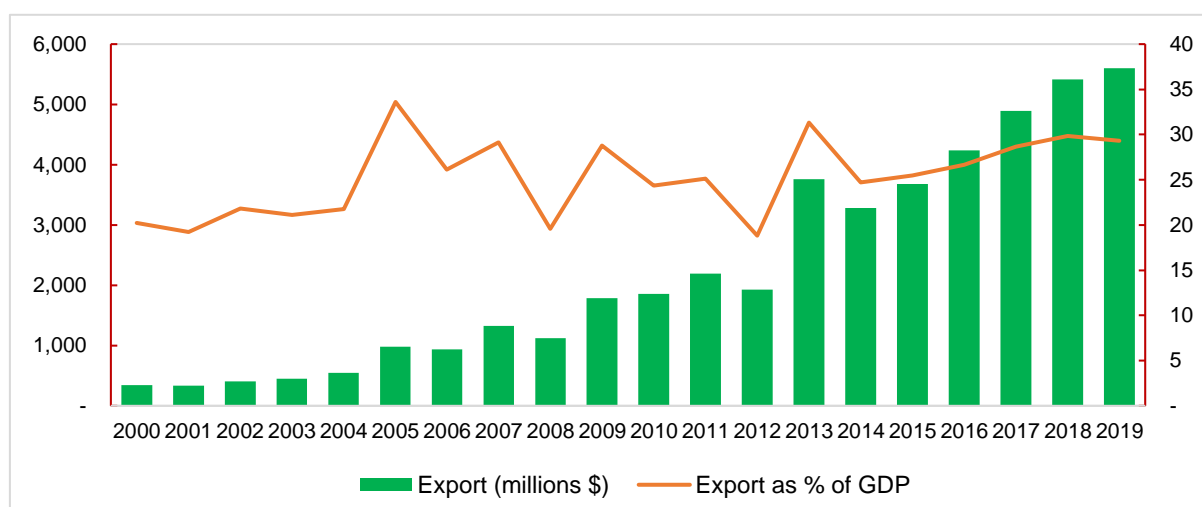
2.1 The current trend of export diversification

1) Trends in exports

Lao PDR's trading volume has been influenced by two main sources, namely the implementation of the open economy approach under the NEM in 1986 and regional trade integration (UNDP, 2006). Under the implementation of the NEM, it abolished not only price controls, but also provided opportunities for further reforms in the trading system. Regional trade integration, on the other hand, Lao PDR's trade has been influenced by membership of ASEAN Free Trade Agreement (AFTA) and WTO. As a result, the exports progressively increased from only \$340 million in 2000 to \$5.6 billion by 2019. Besides, in terms of percentage to GDP, exports rose from 19.2% during 2000 to 29.3% by 2019 (Figure 1). Even though, total exports between 2000 and 2019 increased on average by 11% per year, exports' composition did not change much and mainly concentrated on resourced-based products. Correspondingly, the Lao PDR's top trading partners have not significantly changed over time. The main export destinations in 2019 were Thailand, China, and Vietnam, which collectively captured nearly 88% of the Lao PDR's total exports. Thailand shared in the Lao PDR's export in 2019 stood at 38.7%, followed by China at 30.5%, and

Vietnam at 18.5 %. These imply that demand for Lao PDR's exports depends largely on these three countries' prospectus and economic development. Lack of export diversification and high dependency in a few markets has made the country vulnerable to external demand shocks.

Figure 1: Trends in Lao PDR's exports (2000-2019)



Source: author estimates based on the trade data from MoIC.

Table 4 illustrates the structure of exports from 1991-2019, along with the percentage share by products. The combined share of electricity, industrial goods, and woods were almost 72% of total export value during the period 1995-2000. The share of electricity exports shows a gradual rising trend from 17% during 1995-2000 to 23% for the period 2016-2019. Mineral exports sharply rose from less than 1% to 30%. In addition, agriculture goods export significantly jumped more than two times during 2006-2010 to 2016-2019 from 4.8% to 12%. The main reason why the share of these commodity categories increased is that the percentage share of wood and articles of wood export decreased more than fifth times in the period of 2011-2015 and dropped to 1.2% in the current period 2016-2019. As a result of government policy on banning timber exports by issuing the PM's Order No. 15, dated 13 May 2016 which resulted the export value (2016-2019) of wood and wood products decreased almost a half (35%). The reason is that the Order No. 15 had banned the export of raw timber originate from natural forest, unless it has been processed as semi or finished wood product. Meanwhile, the share of industrial goods exports slightly declined. Therefore, it can be observed that the export of Lao PDR by commodity group is not diversified during the study period. The exports are highly concentrated in some products and the structure has changed very little.

Table 4: Value of exports of Lao PDR by commodities group

Categories	1995-2000	2001-2005	2006-2010	2011-2015	2016-2019
In Million USD					
Wood and articles of wood	286.4	366.5	311.6	438.5	283.6
Agriculture products and animals	225.2	123.1	293.1	1,031.9	2,844.3
Electricity	253.6	462.3	834.0	1,630.7	5,375.7

Industrial products*	511.2	557.2	1,015.8	2,605.4	7,532.3
Non-timber products	15.8	35.8	18.7	9.8	12.0
Ores slag and ash	8.2	251.1	3,377.8	4,268.3	3,475.4
Copper	-	-	-	1,536.8	3,609.0
Others	169.0	272.0	301.7	966.8	148.3
All commodities	1,469.36	2,067.93	6,152.79	12,488.27	23,280.54
Percentage of Total Export					
Wood and articles of wood	19.5	17.7	5.1	3.5	1.2
Agriculture products and animals	15.3	6.0	4.8	8.3	12.2
Electricity	17.3	22.4	13.6	13.1	23.1
Industrial products*	34.8	26.9	16.5	20.9	32.4
Non-timber products	1.1	1.7	0.3	0.1	0.1
Ores slag and ash	0.6	12.1	54.9	34.2	14.9
Copper	-	-	-	12.3	15.5
Others	11.5	13.2	4.9	7.7	0.6
All commodities	100	100	100	100	100

Source: authors estimated based on trade data from MoIC.

* Mainly from garment manufacture.

According to UNCTAD 2017, the degree of diversification can be considered a function of commodities in a country's export mix and the distribution of their shares. Conventional measures of export concentration include concentration ratios and Herfindahl-Hirschman index (HHI). It measures product diversification by using a normalized Herfindahl-Hirschman index (HHI), which is a measure of degree of product concentration. The concentration ratio¹² sums the squared shares of each commodity in total domestic exports and the normalized HHI is applied in order to obtain values between 0 and 1. An index value closer to 1 indicates a country's exports are highly concentrated on a few products. On the other hand, values closer to 0 reflect exports are more homogeneously distributed among a series of products.

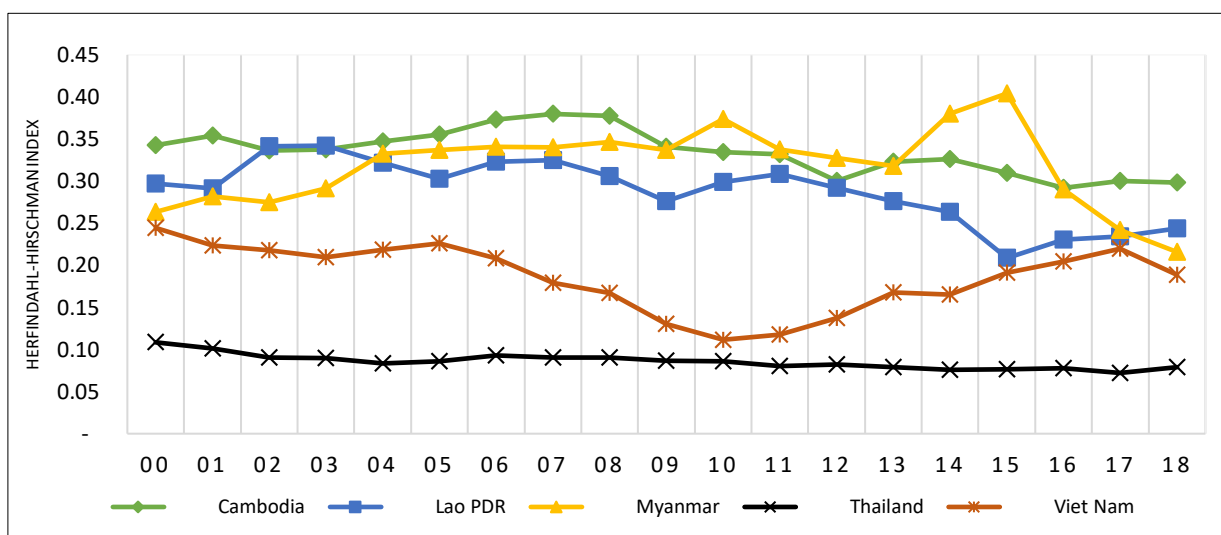
The HHI of the Lao PDR's export products has consistently been higher than 0.25, classified according to the Harmonized System (HS) 2-digit product aggregation level 3¹³, throughout the period ranging from 2000 to 2018 (Figure 2). Notwithstanding, the country's continued high level of commodity concentration suggested by the recent HHI, it can be found within the expected range for a low-income economy. This indicates that Lao PDR suffers from highly concentrated on a few products for the bulk of its export earnings as compared to its neighboring countries. With regards to export diversification, it can be observed that Thailand has progressively shown their diversifies export products overtime. A study by ADB (2017), applying the product space analysis between 1980 and 2014 for the Lao PDR, has found a similar result. Lao PDR exported almost the same number of products with comparative advantage

¹² $HHI = \sum_{i=1}^N \left(\frac{X_i}{X}\right)^2$, where X_i is the nominal domestic export value of commodity i ; X is the country's total nominal domestic exports; and N is the total number of export products.

¹³ Level 1: diversified (unconcentrated) exports; level 2: moderately concentrated Exports; and level 3: Highly concentrated exports.

(RCA>1) and most of its exports were found on the margin and in isolated parts of the product space. The analysis also pointed out that Lao PDR has not succeeded in expanding its productive knowledge, which is essential to produce diversified and high value-added products. Therefore, it is stuck in producing low value-added products. As a result, the majority of the labor force has remained engaged in low productivity activities.

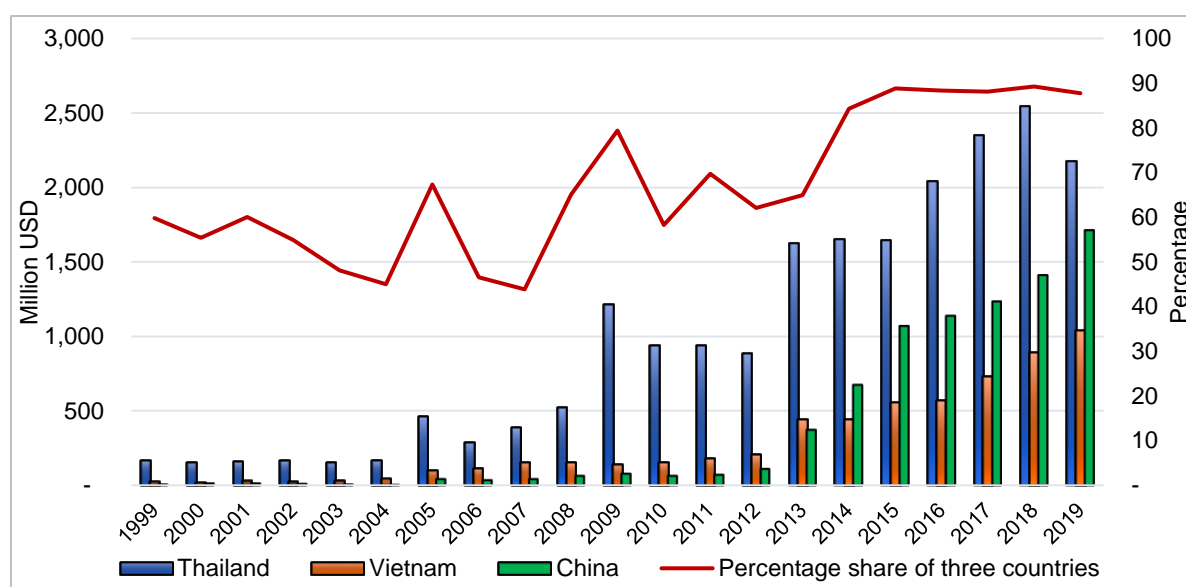
Figure 2: Comparison of product concentration index with its neighboring countries (2000-2018)



Source: United Nation Conference on Trade and Development (UNCTAD).

Furthermore, Lao PDR's ties with global economy have significantly increased since 1986. The implementation of the structural change reform and the positive situation in the global economy contributed to its trade structure. In recent years, Lao PDR has trade relations with more than 50 countries around the world, but most of its exports go to neighboring countries such as Thailand, Vietnam, and China (Figure 3). The total export share of these three countries accounted for around 60% in 1999, and it steadily increased to about 88% in 2019. Thailand has the biggest share of Lao exports, the value of its exports to Thailand increases more than tenfold from \$163 million in 1999 to \$2.1 billion in 2019, which captures approximately 40% of the Lao PDR's total exports in 2019. Such the geographical location and cultural and traditional similarities, Thailand has long been considering one of the most trading partners of Lao PDR followed by Vietnam and China. Exports to Vietnam were relatively stable from 1999 to 2005, but there was a rapid increase in export during 2006-2019, which rose from \$112 million to \$1 billion. The total exports to China, considered as a high-potential market, are worth more than exports to Vietnam after 2014, and the value of its exports significantly increases to \$1.7 billion in 2019. Meanwhile, among Lao PDR's trading partners other than its neighboring nations, Japan, South Korea, India, and Hongkong, are respectively the top destination markets of Lao products, accounting for about 10 percent of total exports for the current year. In addition, the share of total exports to the other regions, for instance, the European Union (EU), United State of America, Latin America, and Africa, is less than 10 percent, but they remain important trading partners of Lao PDR (Figure 4).

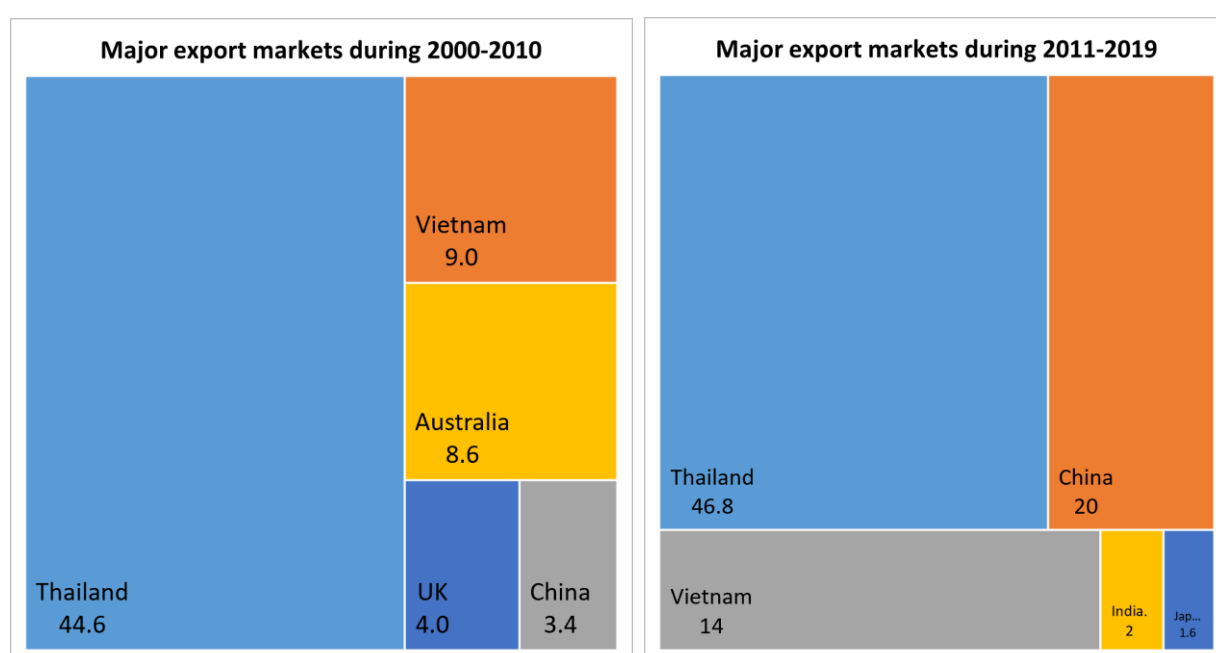
Figure 3: Lao PDR's major trading partners



Source: authors estimated based on trade data from MoIC

Therefore, it can be argued that Lao PDR has a highly concentrated of its trading partners, with the majority of its exports going to its neighboring countries. Lord (2011) stated that Lao PDR's much stronger geographic concentration of exports might be in line with ASEAN efforts to redirect ASEAN Free Trade Agreement (FTA), but the present reliance on trade with its neighboring countries can also make the nation highly exposed to external shocks from those economies. This figure has likely grown, especially Lao PDR trading with China as a result of massive Chinese FDI and the current Laos-China Railway project.

Figure 4: Major exports markets (% share of total exports)



Source: authors estimated based on trade data from MoIC

2) Agricultural diversification

Agriculture characterizes as the backbone of Lao PDR's economy. Currently, about 65% of the Lao population lives in rural areas and around 70% of the national labor force work in agriculture. The majority of the country's poor live in small farming households. Agricultural production has increased by an average of 3.3% annually since 2000. However, as other sectors have grown more rapidly, its share of GDP decreased to an estimated merely 15.1% in 2019 (MPI, 2017).

Agricultural production in Lao PDR is mainly based on small-scale and household farming. The number of agricultural food processing industries is limited. In addition, the use of advanced technology, techniques, and know-how remains low level compared to its neighboring countries (UNIDO, 2008). Apart from that, agricultural productivity varies significantly within the country. While average productivity in Lao PDR, defined as gross revenue from agriculture, there is a large difference among the provinces, but productivity in some provinces are considered higher due to contract farming and cross-border exports (World Bank, 2006).

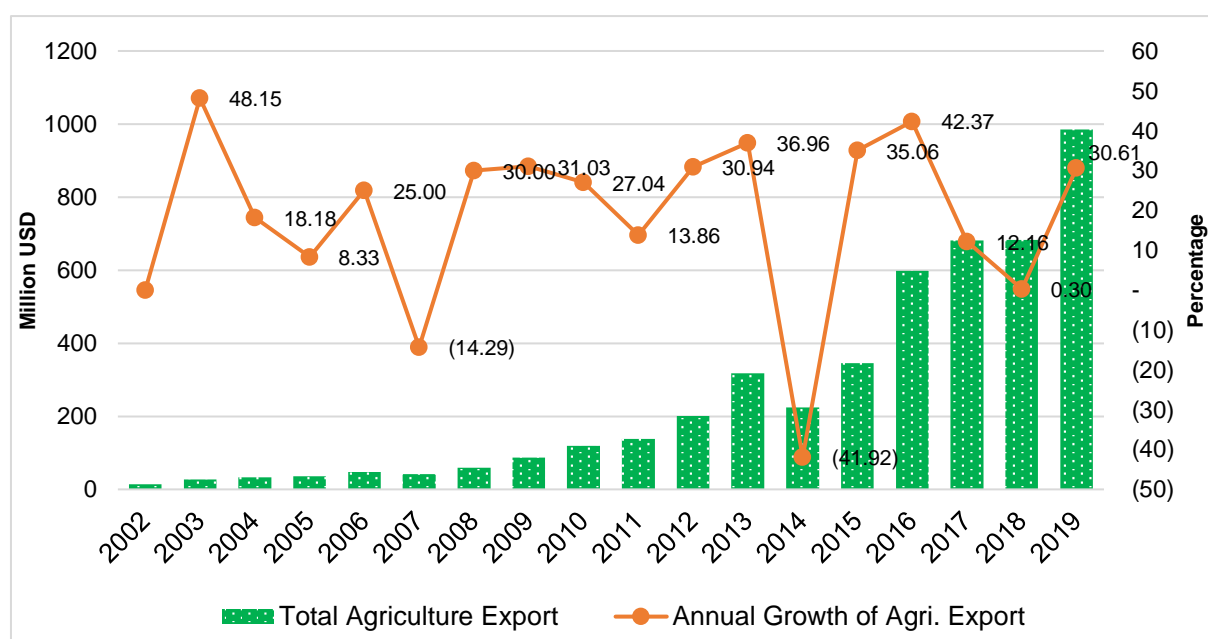
Despite its importance for domestic economy, the share of agriculture in Lao PDR's exports showed 12.2% in 2019. The main export product includes banana, cassava, fruits, animals, and other agricultural products. Furthermore, the export of agricultural products has long been considered important for the livelihood improvement of Lao citizen since the majority of them are highly dependent on it as the main source of income. In addition, the export performance of agricultural products has remarked a progressive improvement over the last decade, the total value of agriculture exports has rapidly increased from 14 million USD in 2002 to over 985 million USD during 2019 (Figure 5). Even though, the annual growth rate of agriculture export was positively growing overtimes, it suddenly decreased to negative points in 2007 and 2014. But it should be emphasized that the value of agriculture export was substantially important; thus, a low percentage growth still represents considerable incremental agriculture export. The growth rate of total export is 30.6% for all agricultural commodities in 2019.

Agricultural export diversification is a strategic and thoughtful policy as a response to the increase in preferential access to the major export market, particularly the Chinese market under the LCEC framework. Agricultural export diversification is also intended to address the issue of instability in export earnings, which is usually associated with lower income firms of inputs, and decreased government revenue, both happening directly from taxes and indirectly from consumption expenditure.

The majority of these commodities are exported to its neighboring countries mainly China, Thailand, and Vietnam; these markets account for more than 90% of total agriculture exports for the period 2015-2019 (Figure 6). Chinese market has the biggest share on the Lao PDR's agricultural export products; it has experienced a rapid increase from 33% of total agricultural exports in 2015 to nearly 45% in 2019; followed by Vietnamese market, it gradually increases from 27% to 35%. Whereas, the share of agriculture exports to Thailand shows a gradual declining trend from about 27% in 2015 to 17% in 2019. This is due to the fact that Thailand's pursuit of import substitution of final products (agro-processing) and demand for a high-quality product

has resulted in a heavily concentrated in a few categories of imports. Meanwhile, there is a high demand for agricultural products from China.

Figure 5: Lao PDR's total agricultural export volume 2010-2019 (in million USD)



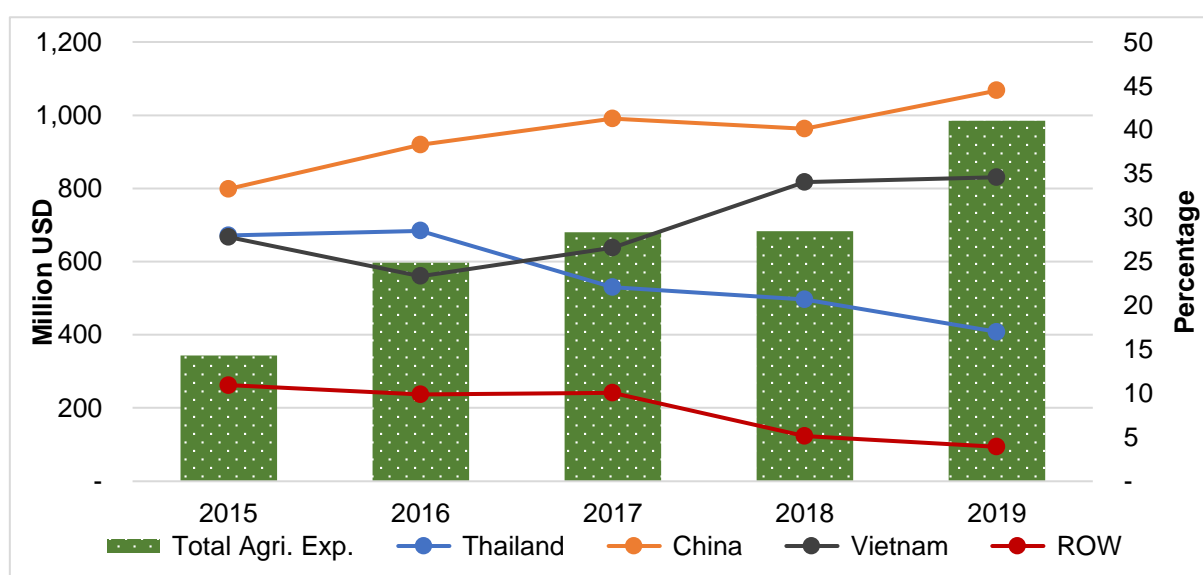
Source: authors estimated based on MoIC's trade data.

The major traditional crops exports from Lao PDR are banana, cassava, fruits, coffee, maize, vegetables, rice, fertilizer, and animals (Table 5). According to official trade data, the combined share of raw coffee and maize was almost 70% of total agriculture export value in 2010 and dropped to roughly 10% by 2019. The share of animals and banana exports accounted for only 3% in 2010, and its share has rapidly jumped to 43% and become the top earners in 2019. Fertilizer and cassava contributed together rose from less than 1% to more than 20%. It is interesting to note that fruits and vegetables exports are progressively growing because there is high and continuously increasing demand for fresh and processed fruits and vegetables in neighboring countries, especially Chinese market. For example, fruits export accounted for only less than 1% in 2010 to nearly 10% in 2019, and vegetable products are consistently stable from about 1.9% to 1.7% during the same period.

Table 5: Value of agriculture exports of Lao PDR by main commodities group

Commodities	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
In Million USD										
Banana	3.18	0.65	4.22	61.57	33.60	46.61	197.81	167.86	112.00	197.84
Fertilizer	-	0.72	6.31	11.02	13.03	23.14	16.11	69.54	118.84	114.88
Cassava	0.80	2.47	15.87	12.47	15.37	31.68	81.22	96.84	85.49	111.49
Fruits	0.81	16.20	18.59	20.57	14.12	36.04	29.50	50.24	55.83	89.94
Coffee	19.86	67.16	73.38	77.79	52.71	54.79	67.00	98.10	96.70	64.32
Maize	73.81	16.40	48.57	75.79	41.83	52.05	29.51	45.59	31.65	42.52
Vegetables	2.31	3.64	3.92	5.12	4.80	7.32	26.84	9.35	14.44	17.09
Rice	5.09	1.90	9.64	12.36	8.74	23.52	33.67	31.17	31.37	24.37
Animals	0.58	1.37	1.65	8.22	11.96	30.05	48.55	41.37	95.01	234.27
Others	12.79	27.92	18.28	33.03	27.88	39.75	68.34	71.39	42.17	88.34
Percentage of total agriculture exports										
Banana	2.67	0.47	2.11	19.37	15.00	13.51	33.05	24.63	16.39	20.08
Fertilizer	-	0.52	3.15	3.46	5.82	6.71	2.69	10.21	17.39	11.66
Cassava	0.67	1.78	7.92	3.92	6.86	9.18	13.57	14.21	12.51	11.32
Fruits	0.68	11.70	9.27	6.47	6.30	10.45	4.93	7.37	8.17	9.13
Coffee	16.65	48.52	36.61	24.47	23.53	15.88	11.19	14.40	14.15	6.53
Maize	61.90	11.85	24.23	23.84	18.67	15.09	4.93	6.69	4.63	4.32
Vegetables	1.94	2.63	1.96	1.61	2.14	2.12	4.48	1.37	2.11	1.73
Rice	4.27	1.37	4.81	3.89	3.90	6.82	5.62	4.57	4.59	2.47
Animals	0.48	0.99	0.82	2.59	5.34	8.71	8.11	6.07	13.90	23.78
Others	10.73	20.17	9.12	10.39	12.45	11.52	11.42	10.48	6.17	8.97

Source: authors estimated based on trade data from MoIC.

Figure 6: Share of agriculture exports by country during 2015-2019

Source: authors estimated based on trade data from MoIC.

*ROW: The rest of the world.

In summary, Lao agricultural products exports are highly concentrated on a few and low value-added products. Its export destinations highly rely on China, Vietnam, and Thailand. As a result, Lao agricultural export is highly vulnerable to external shock. There is a claim on factors that result in less diversification of agricultural exports in

Laos. Firstly, the process industry in Laos is in the early stages of development. Secondly, export agricultural products to foreign markets face difficulty because there are many requirements and measures. Thirdly, the cost related to export is relatively high. Therefore, interviewing the actual producers and exporters could provide a better understanding of this phenomenon and could provide practical recommendations.

2.2 The key bottlenecks of agricultural export diversification

To gain a greater understanding of the emerging bottlenecks in agricultural export diversification, a key informant interview was conducted with the relevant government agencies and some exporting agro-business companies in Luangprabang, Oudomxay, and Luangnamtha provinces. Most of the key emerging bottlenecks are associated with structural issues of the companies which related to the capacity, financial constraint, production costs, and development limitation, and non-structural issues which related to ineffective trade facilitation and infrastructure development as following:

1) High trade cost is considered as a major constraint

Lao PDR has high agricultural growth potential and demand from neighboring countries, particularly non-chemical agricultural products. However, the growth in agricultural trade is constrained by the lack of capacity in both the public and private sectors to meet international standard requirements, especially sanitary and phytosanitary (SPS) requirements on food safety and animal and plant health. Meeting these standards will require more skilled staff and better laboratory equipment, the creation of a database on diseases and pests, and the capacity to monitor avian flu, foot and mouth disease, and agrochemical use. The lack of ability in these areas is already affecting market access for agricultural products, and it adds to the costs and risks for other products that have been drawn to Laos by trade diversification. Similarly, FAO (2013) concluded that Laos has limited capacity to protect itself against pests and diseases, and has difficulty supporting relevant information to neighboring countries to meet the importers' SPS requirements. With growing concerns over food safety and standards globally, this lack of understanding concerning importer requirements could lead to serious problems for high-value agricultural exports, especially as pesticide use tends to be higher for vegetables and fruits than staple products.

As procedures & timelines for various approvals are not well communicated, they lead to delays & uncertainties. Transaction time and costs are also considered as significant challenges to agricultural export, especially clearance of goods that still take a long time and high costs at Lao borders. For instance, according to the field survey, many traders report that the export of rubber, maize, watermelon, and banana can take over LAK 5 million at the Lao border side. Furthermore, waiting time at land border areas at the Lao side is always very high (this includes customs clearance, plant and quarantine clearance, and loading). Generally, infrastructure at the borders is inadequate, and border agencies' services, including security, are not always supportive. Moreover, agricultural exports to China involve several documentations

and actors. The entire trade process has been dealt with manually, and online/electronic submission of export-related documents has not been happening in Laos. Even though the Lao National Single Window (LNSW)¹⁴ has been implementing since 2019, but it applies only import licensing for a few products (namely vehicle and fuel), and one international border checkpoint (FB1). Manual handling of trade documentation becomes a significant disadvantage that making the Lao exports uncompetitive regionally and globally. It is, therefore, a significant barrier to trade when Lao trades with other trading partners.

Infrastructure limitation is one of the binding constraints on export diversification in Laos. The low level of logistics development further exacerbates the effects of poor transport infrastructure (such as roads) to depress domestic prices. The transportation cost was considered the most restrictive trade bottleneck for the country (Lao Trade Portal, 2016). Lao PDR has the lowest ranking among neighboring countries, according to the World Bank's Logistics Performance Index¹⁵ in 2018. Poor logistics means that transaction costs are augmented and further increase differentials between farm gate and export prices. In addition, the inadequate functioning of infrastructure may damage business firms in many ways: by hampering production activities, delaying the movement of goods, and leading to a delay in delivery of products as a result of it adds to business uncertainty and risk and imposes additional costs (UNDP, 2010). On the other hand, sufficient logistic infrastructure is a prerequisite for good export performance. Transport infrastructure that can ensure goods arrives on time, in good condition, and with the least delivery time are a significant element in any successful export diversification framework.

2) The Lao agricultural production remains at the early stage of development and the capacity of Small-Medium Enterprise (SME) to operate high-value-added agricultural products is limited.

The agriculture in Laos is still dominated by subsistence farming and small scale; the agro-processing industry remains limited and in its early development stages. According to the field survey, most agricultural products were produced and exported raw. The raw materials were, then, processed by purchasers in the importing countries, particularly China. This implies that Lao PDR only advantages a small fraction in the value chain of agricultural business. In addition, commercial farming's significant constraints include geographical conditions, low productivity, lack of inputs and skills, and a limited focus on markets. Moreover, the development of backward and forward linkages productions remains weak, leading to higher production costs in the agro-processing sector because many inputs remain depending on imports.

The field survey also found that to involve in high-value-added agricultural products, the agro-processing businesses have lacked adequate techniques and insufficient inputs for processing. This is because the lack of adequate export financial

¹⁴ Lao National Single Window (LNSW)" which has been implementing since May 2019 for the issuance of import license/permit for vehicle that imports through the FB1 International Border Checkpoint. In addition, the issuance of import license for fuel via the LNSW has been implementing since October 2020.

¹⁵ See more details: <https://lpi.worldbank.org/international/global/2018>

supports, especially small and medium exporters, is more severely affected by this limitation. Some businesses stated that they would be unable to move to a bigger space of diversifying their agricultural products and unable to run a marketing or advertising campaign without adequate access to finance. According to the World Bank (2018), access to finance remains a major challenge facing by SMEs in Laos, this could be due to the recent slowdown in credit growth, in addition to other persistent factors such as limited coverage of formal financial services in rural areas, high real interest rates and low financial literacy. In addition, access to appropriate financing is a major issue for many exporters. Interest rates for agricultural loans range from 22-28 percent and require a quicker payback period, thus it is difficult for most commercial agriculture investments. Similarly, as farmers cannot obtain short-term credits to bridge the time until they receive money for their crops, they often become indebted with moneylenders or have to sell their assets, thus decreasing their overall production capacity, especially limiting their capacity to fulfill long-term contracts. Even though the government currently offers financial services with low-interest rate or SMEs fund (through commercial banks) to the agricultural sector, their services, however, still appears to be insufficient and not adequately targeted to the needs of farmers, processors, and traders. In addition, there is also high conditions and requirements to access to the SMEs loan/fund. For instance, SMEs must receive the training/capacity building and hold the account system, etc.

3) *The country remains weak export competitiveness*

There is a trade-off between exporting raw agricultural products and acquiring inputs for processing in the country. Domestic producers have concerned that they face competition for limited raw agricultural products from Chinese companies. Competition from foreign buyers, together with limited access to raw material, can result in high costs. It is observed that the majority of agricultural products are exported in raw form to China, where value is added through grading, sorting, packaging, or processing. Likewise, due to a lack of raw inputs, the few food processing plants in Luangnamtha and Luangprabang operate far below capacity. The reason for the insufficient supply of inputs remains limited volume of production of vegetables and fruits, substantial post-harvest losses, and competition from foreign traders, who often pay higher prices to farmers than local processing businesses.

Furthermore, Lao PDR's export is characterized by its instability to compete in international markets. Export competitiveness exists when a country can supply a commodity of greater quality at the same cost, or the same quality product at lower cost, compared to international competitors. This depends largely on the competitiveness of the domestic businesses and firms producing the commodities. The combined effect of poor quantity and quality of infrastructure, high cost of technology adoption and absorption, weak human capacity, low labor productivity, and poor regulatory oversight induces high costs of doing business and weakens the region's export competitiveness. Laos's weak global competitiveness is reflected in the ranking of Global Competitiveness Index 2019 at 113 out of 141 countries. The poor competitiveness of the country is a manifestation of the weak performance on several indicators that include property and intellectual property rights protection, diversion of public funds, financial system, research and development,

commercialization, innovation capacity, business dynamism, government efficiency, entrepreneurial culture, and market size.

In addition, the study also finds that coordination between government agencies across different sectors, in particular Ministry of Industry and Commerce and Ministry of Agriculture and Forestry and provincial and district levels, especially concerning information sharing, leaves room for improvement. Due to this weak cooperation, there is also poor coordination, and this results in inefficient work and prevents available capacities from being used in the best way.

3. Conclusion and policy recommendations

3.1 Conclusion

The paper examines the factors constraining agricultural export diversification in Lao PDR, focusing on the aggregated level of agricultural export diversification. It applies both descriptive and qualitative approaches. The descriptive statistic method applies by utilizing the latest trade data such as trade flow in volume and value and by-products and countries. It also uses the Herfindahl-Hirschman index (HHI) as an indicator of export diversification and concentration. In addition, key informant interviews were also conducted at both the central and provincial levels to confirm and verify the preliminary results of this study. The study results suggest that the agricultural export basket of Lao PDR has continued to remain relatively under-diversified, and the country has not been able to translate its comparative advantage into competitiveness advantage.

The study also finds that Lao PDR continues a high level of commodity concentration suggested by the recent HHI index; this means that the country suffers from highly concentrated on a few products for the bulk of its export earnings as compared to its peer countries. Similarly, Lao PDR has a highly concentrated of its trading partners, with most of its exports going to its neighboring countries, namely China, Thailand, and Vietnam. As a result, a lack of export diversification and high dependency in a few markets has made the country vulnerable to external demand shocks. Main factors that result in less diversification of agricultural exports in Laos. Firstly, the process industry in Laos is in the early stages of development. Secondly, agricultural export products to foreign markets face difficulty because there are many requirements and measures. Thirdly, the costs related to export are relatively high.

The evidence presented in the paper has significant implications for agricultural export diversification in Lao PDR. It demonstrates that diversifying agricultural products' production structure is crucial for reducing their dependency on a few export goods. Thus, the country should transform its economy to produce high value-added and dynamic agricultural products, for which there is a viable and growing demand. But this transformation cannot happen without adequate infrastructure. In other words, promoting agricultural export diversification requires addressing the challenges posed by the production structure, ineffective trade facilitation, and lack of quality infrastructure.

Notably, the risk associated with the lack of diversification results in exacerbating the country's vulnerability to economic shocks. Agricultural export diversification aims to mitigate these risks, including the volatility and instability in agricultural export earnings, which in turn have adverse macroeconomic impacts on growth, export capacity, realize SME potential, employment, investment planning, foreign exchange reserves, and inflation (Samen, 2010). Nonetheless, Lao PDR has high agricultural growth potential. There are more than 200 million people in China, Vietnam, and Thailand with rapidly growing incomes and demand for products that Laos can produce and export to these neighborhoods. The abundance of good soils and favorable climatic environments in the highlands offers a unique comparative advantage for producing temperate and offseason fruits and vegetables which are in high demand. Several of these production areas have already fairly good transport links with main logistic centers in neighboring countries. There is also growing interest from foreign markets to outsource agricultural produce from Laos for supplying food processing plants in Thailand, Vietnam, and China. The potential buyers for fruits and vegetables are not limited to processing factories, there is a growing demand from fresh markets and supermarkets for fresh products as well.

3.2 Policy Recommendations

To promote agricultural export diversification, a rigorous restructuring in agricultural export promotion and infrastructure development is required. The following recommendations are proposed as the best means for Laos to achieve the objectives stated in this study:

Improved trade facilitation is essential for agricultural export diversification

As defined by WTO, trade facilitation is the simplification and harmonization of international trade procedures, where trade procedures are the activities, practices, and formalities involved in collecting, presenting, communicating, and processing data required for the movement of goods in international trade. Excess trade procedures create additional transaction costs incurred by participants in trade. In addition, trade barriers have been affecting Lao PDR exporters. While non-tariff measures (NTMs) are mainly behind the border barriers, Lao exporters have been facing barriers at the borders. Removal of barriers at borders is found to be important in strengthening a country's economic integration in the neighborhoods. Cutting additional costs and excessive time through improved trade facilitation has helped the country raise trade flows and/or diversify the exports to newer markets—regionally or otherwise. Simplification of trade processes and procedures and harmonizing trade transaction data and documents are thus envisaged key to improving trade competitiveness across most of the ASEAN countries. Certainly, the enabling environment for agricultural growth needs to be established. International trade policy should facilitate, not restrict, access to international markets when there are price windfalls (ADB, 2016).

It is recommended to consider decreasing the cost of imported materials and equipment to serve for agro-processing sectors, this will help to promote a gradual

diversification of the country's export base. Many studies have concluded that facilitating the import of goods, especially the reduction of import duties on semi-finished goods or intermediate goods that come to serve domestic production and processing, will help bring benefits to the importing country by making it possible for domestic producers to have access to a variety of domestic sources. Giving this context, it is significant to conduct a practical assessment the cost-benefit analysis of import duties ("TAX") on material & equipment for agro-processing as well as considering the Tax reduction on this matter. The reduction of import fees on materials and equipment to serve for agro-processing industries as well as other domestic production will be able to maximize the potential benefits to export sector and domestic consumers.

Improving necessary infrastructure is also essential, especially for fresh high-value agricultural products, and reduce transport costs; it is essential to continue constructing all-weather roads, to improve feeder roads, and to ensure road maintenance. Exporting depends very much on the ease and speed with which borders can be crossed, and thus more border crossings should be established and equipped to avoid delays at customs bureaus. Storage and cooling facilities should be developed to allow processing and to obtain higher prices through price hedging. As market information is important for all business decisions and supporting government activities, in particular the outreach of all existing and newly introduced trade-related regulations and policies for traders and producers, coordination mechanism between public-public and public-private sectors, communication via mobile phones and landlines as well as internet access should be enhanced. In particular, all government agencies should have the hard- and software necessary to use these communication instruments to facilitate inter-institutional communication and speed up information flow. Apart from that, improving transport infrastructure significantly increases crops' market and can play a crucial role in agricultural diversification and increased value addition.

Improve production capacity is highly encouraged

The concerned government agencies should play a crucial role in improving and promoting quality standards for agricultural products and processed agricultural products of agri-businesses by providing knowledge on best practices of agricultural production that improve productivity and a specific size to obtain better manufacturing practice, hazard analysis, and critical control points and certifications, thus enabling them to assure importers that they provide the market with security and safety. In addition, The government should also develop regulations on processed agricultural product information (e.g. product name, country of production, producer, contact, raw materials, volume, expiration date, preservation method, nutritional content, and usage instructions); design a product liability system, including the scope of liability, compensation, and insurance; and implement policies and programs to increase the effectiveness of such institutions. Furthermore, given the exporting to key trading partners need to meet certain requirements related to disease control and safety or quality control, it is crucial to invest seriously on technologies or quality control center that provide the service for entrepreneurs as well as farmers to be able to grading, classifying and standardizing their export to meet such quality requirements.

The expansion and restricted financial services are significant to agricultural diversification and better value-added. Agricultural financial services in Laos are limited, and few farmers have access to agricultural credit. The implementation of microfinance structures that offer adequate and tailored financial assistance to farmers and small businesses. As agricultural crops' processing is key for adding value, processing businesses should be granted special supports. For example, credits to buy machines and other inputs. With regard to FDI, appropriate consideration should be given to how proposed activities fit into the overall strategy for agricultural development and high-value exports. For example, if fruits and vegetables are to be produced on large plantations using chemical inputs, precautions have to be taken to ensure that organic production in the nearby area is not affected.

The establishment of agricultural cooperative model for increasing high product quality is also encouraged. Farmers recently are only looking to their self-interests, indicating that this traditional thought has not yet been paved for them to undertake joint activities through an agricultural cooperative. While the government should take the lead in providing agricultural information and arranging joint purchases of agricultural materials, cooperatives should control the diffusion of high-quality plants and recommendable crops, as well as the use of safe agricultural materials. Agricultural cooperative may efficiently and effectively realize stable production and supply, maintain high product quality, improve price competitiveness against other countries, and stabilize trading. They may also anticipate market conditions and directly provide seed supplies and cultivation guidance for varieties meeting seasonal conditions, thus contributing to improving farmers' income. This cooperative may implement these measures in cooperation with the government's technology research institutes and utilize the resources to conduct a wide range of activities. The establishment of agro-processing zones for exports is necessary. This would generate better value-added products and better advantages for Lao PDR as a consequence. Consequently, enabling business environment and credit access is essential to attract investment especially from Small and Medium Enterprises (SMEs).

Additionally, an official agricultural trade statistical system should be strengthened, especially at the subnational level to inform planning policy. Basic agricultural trade statistics at the provincial level would benefit from improvement, so as to gauge the trade performance of the sector with more certainty along with effectiveness of existing policies. At present, trade statistics have limited coverage, as there is no harmonized system that applies the export and import of agricultural production. In addition, official trade statistics also are likely to omit significant informal trade. To make progress toward improved support agricultural export diversification, statistical systems to inform policies and services to farmers and value-chain actors should be a priority.

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