Chapter 7

Lao PDR

September 2019

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Chapter 7

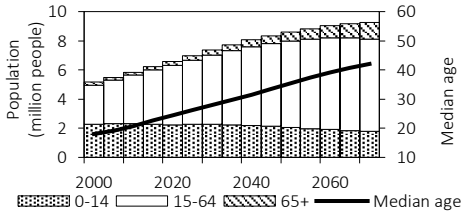
Lao PDR

1. Social and Economic Conditions

Population and Per Capita GDP

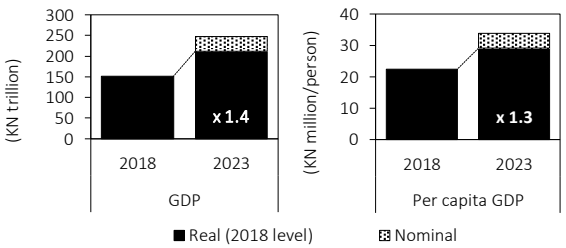
The population of Lao PDR, 7 million people in 2018, accounts for 1% of the total population of the ASEAN region, placing it eighth amongst the ASEAN countries. It is expected to reach 9 million by 2050 (Figure 7.1). The working-age people, those between 15 and 65, are the majority of the country's population, and their numbers are expected to increase steadily until around 2050. This trend may imply long-term economic growth. Despite the strong prospect of long-term population and economic growth, however, the small size of the population suggests that Lao PDR has only a limited potential as a domestic consumption market for agri-food products. Foreign markets, especially the ASEAN countries, where regional integration is in progress, will likely become more important as consumption markets for Laotian agri-food exports.

Figure 7.1. Population by Age Group, GDP, 2000–2060



Source: United Nations Department of Economic and Social Affairs (UN DESA, 2017).

Figure 7.2. Changes in GDP and Per Capita 2018 and 2023

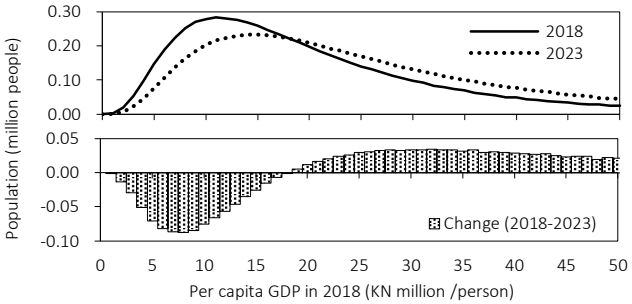


KN = kip (Laotian currency).
GDP = gross domestic product.
Source: Estimates based on data from the International Monetary Fund (IMF, 2018).

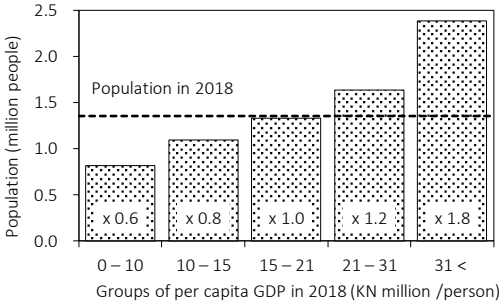
Real GDP and per capita real GDP are expected to increase by 1.4 times and 1.3 times, respectively, from 2018 to 2023 (Figure 7.2). According to a projection of Lao PDR's population based on the level of per capita GDP (Figure 7.3, Appendix 3.1), as per capita GDP approaches KN18 million, a boundary is crossed whereby the number of people whose annual contributions to GDP are below that value will decrease. By contrast, the number of people with per capita GDP above KN18 million will increase across a wide range of the distribution. In particular, the population with personal incomes above KN31 million (i.e. the 80th percentile) will expand by 1.8 times by 2023. This projection implies a rapid increase in the number of high-income people. It will thus be necessary to establish a system for supplying agri-food products to match the demand from this rapidly growing upper-income bracket.

Figure 7.3. Estimated Population of Lao PDR by Per Capita GDP, 2018 and 2023

A. Distribution of Population Changes



B. Population Divided into Five GDP Groups



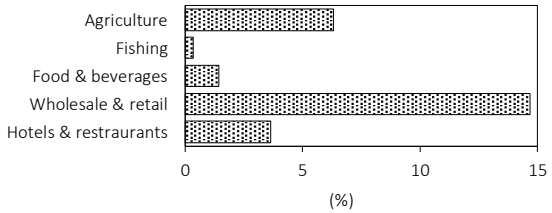
KN = kip (Laotian currency).
GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic.
Note: The per capita GDP is based on constant 2018 prices. The bars in Figure B show the estimated populations of the GDP groups in 2023. The numbers in the bars show the changes in these populations from 2018 to 2023.
Source: Appendix 3.1.

The VA of FVC-related Industries

The VA of the wholesale and retail trade sectors has been a major component of the GDP of Lao PDR; for instance, it accounted for about 15% of GDP in 2015 (Figure 7.4). Meanwhile, the VA of the other FVC-related industries, including agriculture, was comparatively small.

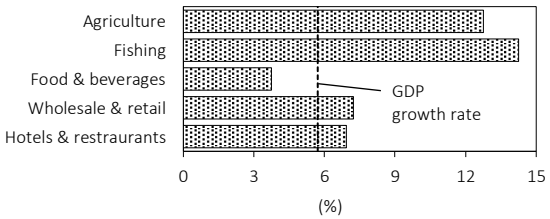
The annual growth rates of real VA in the fishing and agriculture industries averaged as high as 13%–14% during 2000–2015, followed by those of the wholesale/retail trade and the hotel-and-restaurant industries. The average growth rates for the FVC-related industries were higher than the average GDP growth rate (just under 6%), except for the food and beverage industries, which averaged 4% (Figure 7.5). While the proportion of GDP due to the VA of the food and beverage industries shrank, that of most FVC-related industries, especially fishing and agriculture, expanded.

Figure 7.4. The Proportion of VA in GDP, 2015



GDP = gross domestic product, VA = value added.
Sources: Estimates based on data from Eora (2018).

Figure 7.5. Average Annual Change in Real VA, 2000–2015



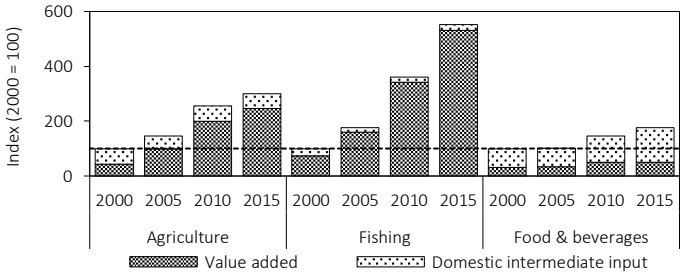
GDP = gross domestic product, VA = value added.
Sources: Estimates based on data from Eora (2018) and the Internatioanl Monetary Fund (IMF, 2018).

The production values of agriculture tripled, those of fishing quintupled, and those of the food and beverage industries doubled from 2000 to 2015 (Figure 7.6). The part of production value due to the

VA (i.e. the VA rate) was large in the fishing industry, reaching almost 100% in 2015, followed by that of agriculture, which reached 82% that year (Figure 7.7). The VA rate of the food and beverage sector was 29% that year, far below that of fishing or agriculture. The food and beverage sector depended on intermediate inputs from within this sector and from other, related sectors; and production in the food and beverage sector would generally induce more production within that sector, and in related sectors, than it would in agriculture and fishing.

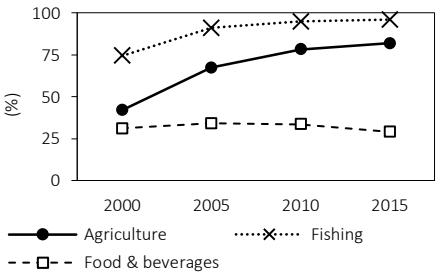
The growth trends in the VA rates of agriculture and fishing suggest a decrease in their use of intermediate inputs. Such a change may have been caused by an increase in the number of products with lower cost of sales to revenue ratios, an improvement in the efficiency of the product mix, and/or technical progress that resulted in savings on inputs. The trend toward lower VA rates in the food and beverage industries may suggest a gradual change in the production structures that included the further use of intermediate inputs or a strengthening of ties with other industries.

Figure 7.6. Values of Domestic Production, 2000–2015



Note: The results in the figure are based on real values.
Sources: Estimates based on Eora (2018) and the International Monetary Fund (IMF, 2018).

Figure 7.7. VA Rates, 2000–2015



VA = value added.
Sources: Estimates based on data from Eora (2018).

Intermediate Inputs in Agri-food Industries

Figure 7.8 shows which industries contributed to the growth of the agriculture, fishing, and food-and-beverage industries from 2000 to 2015. Intermediate inputs into the agriculture and food-and-beverage industries came mainly from domestic sources, whilst inputs into the fishing industry were mostly imported. Inputs into agriculture and fishing stagnated after around 2000, while inputs into the food and beverage industries rapidly increased after 2005.

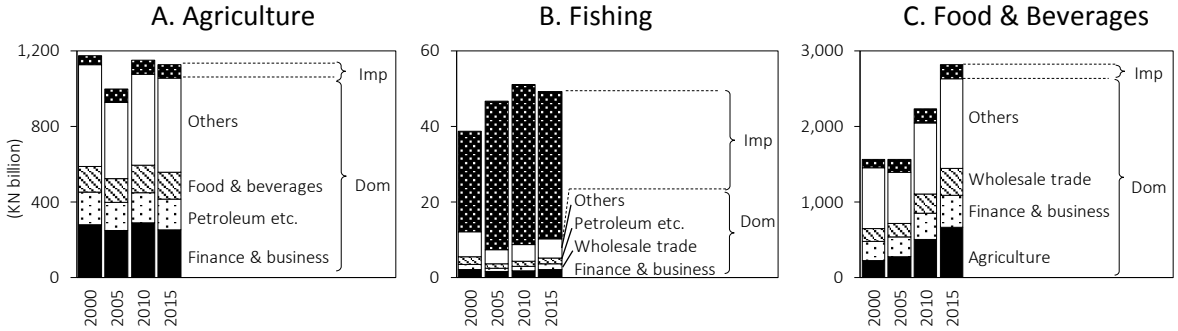
Intermediate inputs from the finance and business industries accounted for the largest portion of inputs into agriculture, followed by inputs from petroleum, chemical, and non-metallic mineral product ('petroleum etc.') and food-and-beverage industries.[1] The largest domestic sources of inputs for the fishing industry were the finance and business industries, and the largest domestic source of inputs for the food and beverage industries was agriculture.

The food and beverage industries in Lao PDR used few inputs from sources within these same industries, which was not the case for the food and beverage industries in most of the other ASEAN

[1] Table A2.1, in Appendix 2, shows the industry classifications mentioned in this section, including 'petroleum etc.' One major input from the petroleum etc. industry was fuel oil, which was needed for agriculture and for the production of chemical fertilizers.

countries. This situation suggests that the development of the food and beverage industry in Lao PDR was driven largely by the supply of raw agricultural products, rather than processed food. The growth of the food and beverage industries induced a certain degree of development in agriculture through the industries' demand for intermediate inputs.

Figure 7.8. Sources of Intermediate Inputs, 2000–2015

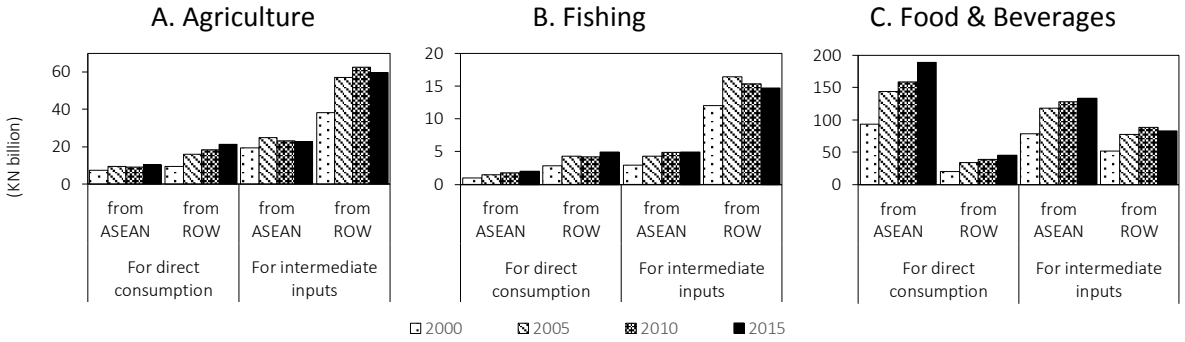


KN = kip (Laotian currency).
Dom = domestic supply, Imp = imports.
Notes: The values in these graphs are based on constant 2015 prices. 'Petroleum etc.' refers to the petroleum, chemical, and non-metallic mineral product industries.
Sources: Estimates using data from Eora (2018) and the International Monetary Fund (IMF, 2018).

The value of imports from foreign fishing and food-and-beverage sectors were relatively high between 2000 and 2015, compared with the value of domestic production. Imports of food and beverage products gradually increased, while agricultural and fishing imports stagnated from 2005 to 2015 (Figure 7.9). More agricultural and fishery products were imported for use as intermediate inputs than for direct consumption. By contrast, the imported food and beverage products were equally divided between direct consumption and use as intermediate inputs. Put briefly, Lao PDR imported agricultural and fishery products mainly for processing, and food and beverage products both for processing and direct consumption.

Lao PDR imported less from the agriculture and fishing industries of other ASEAN countries than from agriculture and fishing industries in the ROW, but it consistently imported more from the food and beverage industries of other ASEAN countries than from food and beverage industries in the ROW. We can conclude that, as an importer, Lao PDR gradually strengthened its linkages with both other ASEAN countries and the ROW.

Figure 7.9. Values of Imports, by Purpose, 2000–2015

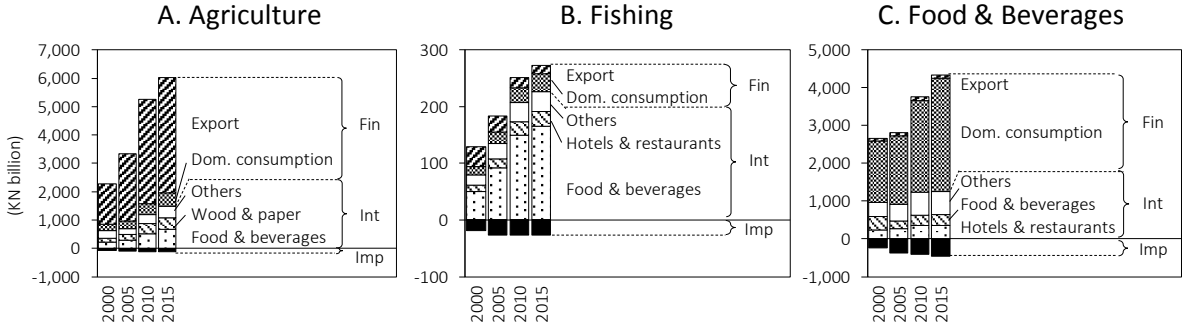


KN = kip (Laotian currency).
ASEAN = Association of Southeast Asian Nations, ROW = rest of the world.
Notes: The values of imports shown in these graphs are based on constant 2015 prices. They include imports from foreign agricultural, fishing, and food-and-beverage sectors destined for domestic final consumption and for use as intermediate inputs in all domestic industries.
Sources: Estimates based on data from Eora (2018) and the International Fund (IMF, 2018).

Destinations of Products of Agri-food Industries

Interindustry transactions involving flows of products from agriculture and fishing to the food and beverage industries increased gently during 2000–2015 (Figure 7.10). The flows from fishing to the hotel and restaurant industries, and from the food-and-beverage industries to the hotel-and-restaurant industries, also gradually increased. By contrast, intra-industry transactions within agriculture (which were observable in many other ASEAN countries) and fishing are not shown in Table 7.10. Intra-industry transactions within the food and beverage sector stayed at the same level from 2000 to 2015. Overall, interindustry transactions along the FVC grew steadily in Lao PDR, while intra-industry transactions stagnated.

Figure 7.10. Destinations of Domestically Produced and Imported Goods, 2000–2015

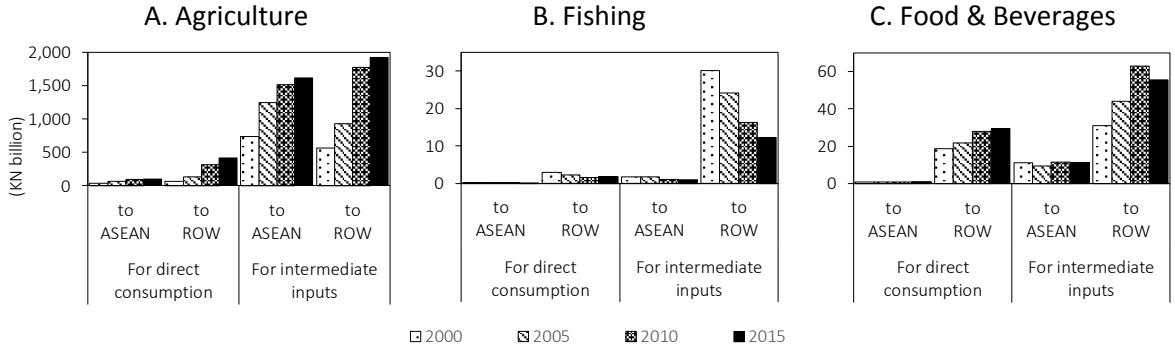


KN = kip (Laotian currency).
Dom. = domestic.
Notes: The values in these graphs are based on constant 2015 prices. 'Fin' = final demand for domestic and imported goods, 'Int' = intermediate demand for domestic and imported goods, and 'Imp' = the imports of final and intermediate goods. Total demand = Fin + Int. Domestic production = Fin + Int - Imp.
Sources: Estimates based on data from Eora (2018) and the International Monetary Fund (IMF, 2018).

Both final and intermediate demand grew in the agriculture and food-and-beverage industries during 2000–2015, but they levelled off in the fishing industry over the same period. Exports dominated the final demand for agriculture, having increased rapidly. By contrast, fishery exports dramatically decreased. Exports from the food and beverage industry were very limited compared with domestic consumption, and they stagnated from 2010 to 2015. Figure 7.11 shows that a large portion of the exported goods from the agriculture, fishing, and food-and-beverage industries in Lao PDR were consumed as intermediate inputs. However, a relatively large quantity of exported goods from the food and beverage industries was directly consumed.

The primary destination of exports from the fishing and food-and-beverage sectors was the ROW. Regarding these two sectors, Lao PDR deepened its linkages more with the ROW (as an exporter) than with the rest of the ASEAN region. It is clear that Lao PDR's agricultural exports to the other ASEAN countries, especially goods used as intermediate inputs, increased rapidly; in fact, they were approaching the level of the country's exports to the ROW.

Figure 7.11. Values of Exports, by Purpose, 2000–2015



KN = kip (Laotian currency).
ASEAN = Association of Southeast Asian Nations, ROW = rest of the world.
Note: The values in these graphs are based on constant 2015 prices.
Sources: Estimates based on data from Eora (2018) and the International Monetary Fund (IMF, 2018).

2. Linkages amongst FVC-related Industries

Final Demand in FVC-related Industries

First, let us see how final demand for domestic FVC-related industries induces the use of intermediate inputs and affects production and VA in each industry.

Table 7.1 shows the composition of final demand during 2000–2015. Final demand was strongest in the retail trade industry, although the levels of final demand in other industries—such as agriculture, wholesale trade, and hotels and restaurants—were close. The average annual growth of final demand in agriculture, KN202 billion, outstripped the average values for the other FVC-related industries. In agriculture, exports to both the ASEAN region and the ROW accounted for large shares of final demand, having increased dramatically. Meanwhile, the other FVC-related industries were mainly driven by household consumption.

Table 7.1. Final Demand for Products/Services of FVC-related Industries, 2000–2015

(KN billion)

Final demand as	Domestic production of: Agriculture Value	Agriculture Change	Fishing Value	Fishing Change	Food & beverages Value	Food & beverages Change	Wholesale trade Value	Wholesale trade Change	Retail trade Value	Retail trade Change	Hotels & restraurants Value	Hotels & restraurants Change
Domestic consupmtion												
Household consumption	414	15	23	1	2,691	84	2,160	66	5,075	164	3,473	109
Other consumption	5	0	1	0	38	1	63	2	93	3	46	1
Capital formation	21	1	1	0	24	0	805	33	236	10	0	0
Export												
Export to ASEAN	1,723	63	1	0	12	0	998	43	11	0	229	11
Export to ROW	2,344	123	14	-1	85	3	172	6	123	6	219	7
Total	4,506	202	40	0	2,850	88	4,199	151	5,537	184	3,967	129
Annual change rate (%)		7.3		- 1.1		4.2		5.2		4.7		4.5

KN = kip (Laotian currency).

ASEAN = Association of Southeast Asian Nations, FVC = food value chain, ROW = rest of the world.

Notes: The values in this table are in constant 2015 prices. 'Change' refers to the average annual changes as estimated based on data for 2000–2015.

Source: Appendix 3.2.

Production and VA Induced by Final Demand

Table 7.2 shows sources of intermediate inputs during 2000–2015 that came from domestic and foreign industries, and were destined for use in production by major FVC-related industries in Lao PDR. The table indicates that 7% of intermediate inputs into the hotel-and-restaurant sector came from the domestic food-and-beverage sector, and that 17% of inputs into the food-and-beverage sector came from domestic agriculture. This suggests that the hotel-and-restaurant and food-and-beverage sectors can sequentially induce some agricultural production. The table also shows that the FVC-related industries in Lao PDR rarely used inputs from foreign countries, compared with their use of domestic products and services.

The values shown in Table 7.2 suggest that several linkages in the input–output structure in Lao PDR gradually changed during 2000–2015. The food and beverage industries decreased the value of intermediate inputs sourced from within those same industries by 0.5% per year, while increasing the inputs from agriculture by the same percentage. Agriculture reduced the inputs from within that sector by 0.4% per year. If these structural changes continue, the development of the food and beverages industries will play a smaller role in driving the growth of that sector, though it will play a larger role in spurring the growth of agriculture. Similarly, progress in the development of agriculture will not drive increases in its production.

Table 7.2. Sources of Intermediate Inputs in Major FVC-related Industries, 2000–2015

Input from		Domestic production of: Agriculture Share (%)	Agriculture Change	Fishing Share (%)	Fishing Change	Food & beverages Share (%)	Food & beverages Change	Wholesale trade Share (%)	Wholesale trade Change	Retail trade Share (%)	Retail trade Change	Hotels & restraurants Share (%)	Hotels & restraurants Change
Agriculture	Domestic	2	-0.43	0	0.00	17	0.49	0	0.00	0	0.00	1	0.02
	ASEAN	0	0.00	0	-0.01	0	-0.01	0	0.00	0	0.00	0	0.00
	ROW	0	0.00	1	-0.08	0	0.00	0	0.00	0	0.00	0	0.00
Fishing	Domestic	0	0.00	0	-0.05	4	0.13	0	0.00	0	0.00	1	0.01
	ASEAN	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	ROW	0	0.00	0	-0.03	0	0.00	0	0.00	0	0.00	0	0.00
Food & beverages	Domestic	2	-0.30	0	-0.06	6	-0.49	0	0.00	1	-0.02	7	-0.18
	ASEAN	0	0.00	0	-0.03	2	-0.01	0	0.00	0	0.00	1	-0.02
	ROW	0	0.00	1	-0.10	0	0.00	0	0.00	0	0.00	0	0.00
Wholesale trade	Domestic	2	-0.19	1	-0.09	9	0.10	1	-0.09	1	-0.03	3	-0.08
	ASEAN	0	0.00	0	0.00	0	0.00	2	-0.09	0	0.00	0	0.00
	ROW	0	0.00	0	-0.03	0	0.00	0	0.00	0	0.00	0	0.00
Retail trade	Domestic	0	-0.02	0	-0.02	0	0.01	0	0.00	0	0.00	2	-0.01
	ASEAN	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	ROW	0	0.00	0	-0.03	0	0.00	0	0.00	0	0.00	0	0.00
Hotels & restraurants	Domestic	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	-0.03
	ASEAN	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	ROW	0	0.00	0	-0.03	0	0.00	0	0.00	0	0.00	0	0.00

ASEAN = Association of Southeast Asian Nations, FVC = food value chain, ROW = rest of the world.
Notes: 'Share' refers to the intermediate inputs as a percentage of total inputs in 2015. 'Change' refers to the average annual changes in the shares as estimated based on data for 2000–2015.
Source: Appendix 3.2.

Table 7.3 shows the VA directly and indirectly boosted by a 1% increase over the 2015 value in final demand for domestic products and services through an increase in domestic production and intermediate inputs. For example, a 1% increase in final demand in the food and beverage sector generated a KN4.3 billion increase in the VA of agriculture, as well as a KN8.4 billion increase in the VA of the food-and-beverage sector itself.

Increases in final demand in the food and beverage industries had some impact on the VA of upstream sectors, particularly agriculture. This result suggests that interventions in the food and beverage industries do contribute to the development of agriculture.

Final demand in downstream industries had a notable effect on the VA of fishing, as the size of the fishing market is very limited. For instance, the amount of VA in the fishing sector induced by a 1% increase in final demand over the 2015 value in the food and beverage industries (KN1.07 billion) exceeded VA driven by the final demand in the fishing sector itself (KN0.34 billion). Similarly, the hotel and restaurant industries can also have a measurable effect on fishing. Increasing final demand in these downstream sectors can thus be an effective way to develop the fishing sector.

The inducement effect of final demand in the whole and retail trade sectors on the other four industries discussed above was very small, as is shown in Table 7.3. Meanwhile, Table 7.2 indicates that FVC-related industries, especially the food and beverage industries, did depend on inputs from the wholesale trade industry during 2000–2015. It is suggested that the services provided by the wholesale/retail trade sectors are necessary, but alone not sufficient, to automatically drive the development of the FVC-related industries.

Table 7.3. VA Induced by a 1% Increase in Final Demand, 2015

(KN billion)

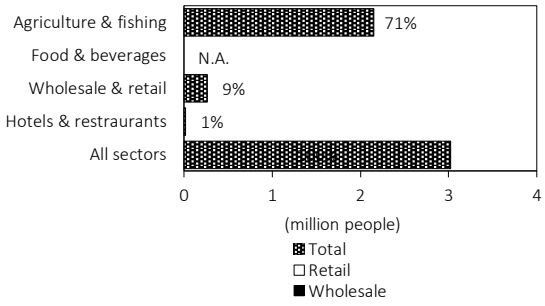
Induced value added in	1% increase in final demand for					
	Agriculture	Fishing	Food & beverages	Wholesale trade	Retail trade	Hotels & restraurants
Agriculture	37.47	0.00	4.32	0.05	0.12	0.74
Fishing	0.05	0.34	1.07	0.00	0.05	0.27
Food & beverages	0.33	0.00	8.39	0.02	0.11	0.79
Wholesale trade	0.92	0.00	2.54	31.52	0.71	1.47
Retail trade	0.16	0.00	0.17	0.15	41.62	0.55
Hotels & restraurants	0.05	0.00	0.13	0.12	0.17	23.59

KN = kip (Laotian currency).
VA = value added.
Source: Appendix 3.2.

The Relationship amongst the Number of Employees, Per Capita Compensation, and Production

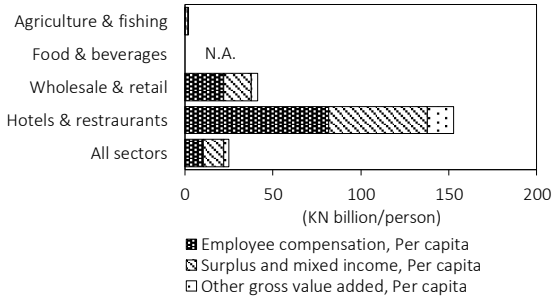
Now let us consider how an increase in production relates to changes in the number of employees and per capita employee compensation in an industry. According to figures 7.12 and 7.13, the agricultural and fishing sectors in 2015 were characterized by a considerably large number of employees, low labour productivity, and low per capita compensation compared with other FVC-related industries. By contrast, data from the hotel and restaurant industries shows the opposite characteristics to those of the agricultural and fishing sectors.

Figure 7.12. Number of Employees, by Sector, 2015



Sources: International Labour Organization (ILO, 2019); Appendix 3.3.

Figure 7.13. Gross VA per Capita, by Sector, 2015



KN = kip (Laotian currency).
VA = value added.
Sources: Estimates based on data from Eora (2018) and the International Labour Organization (ILO, 2019); Appendix 3.3.

Figure 7.14 illustrates the relationship amongst the number of employees, per capita compensation, and production during 2000–2015. Figure 7.14A depicts the proportion of the average annual rate of change in production in each sector that was attributable to total employee compensation. The results shown in the figure differ by industry. For instance, there was rapid growth in fishing (10%) along with high per capita employee compensation; and the slowest change in production, in the food and beverage industries (4%), occurred with a stagnation in per capita employee compensation.

The average annual rates of change in the total value of employee compensation were within the range of 7%–13% in all the observable FVC-related sectors (Figure 7.14 B). The changes occurred in

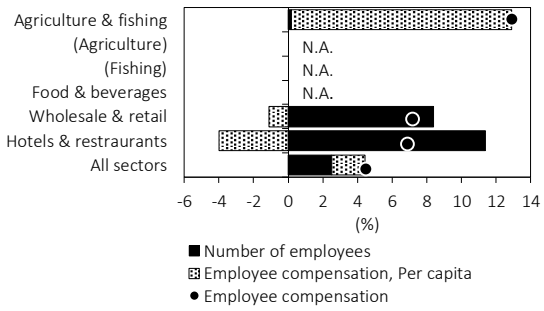
the number of employees and in per capita compensation, which together determine the growth of total compensation. In the agricultural and fishing sectors, the number of employees stagnated, while per capita compensation soared. Conversely, in the wholesale/retail trade and hotel-and-restaurant industries, a reduction in per capita compensation was accompanied by a strong growth in the number of employees.

These results suggest that production growth can accompany a rise in per capita compensation in many FVC-related industries, particularly in the agricultural sector. Another notable point is the decline in the number of employees in the agricultural sector. A large workforce, low-level labour productivity, low per capita compensation, and a steep growth in per capita compensation, together with a decrease in the number of employees, all imply that there was a labour surplus in the agricultural sector. Any interindustry movement of labourers would be deeply connected to the productivity and efficient development of agriculture. The hotel and restaurant sector, which had a remarkably high per capita compensation and a sharp increase in the number of employees, seems to have been an attractive sector in terms of labour absorption, although the number of employees was actually very limited.

Figure 7.14. Changes in Production and Employee Compensation, 2000–2015

A. Breakdown of the Average Annual Rates of Change in Production

B. Breakdown of the Average Annual Rates of Change in Employee Compensation



Notes: Other factors include changes in the value added (VA), other than from employee compensation, and changes in intermediate inputs. The data is from selected years during 2000–2015.
Source: Appendix 3.3.

3. Supply–Demand Balance of Agri-food Products

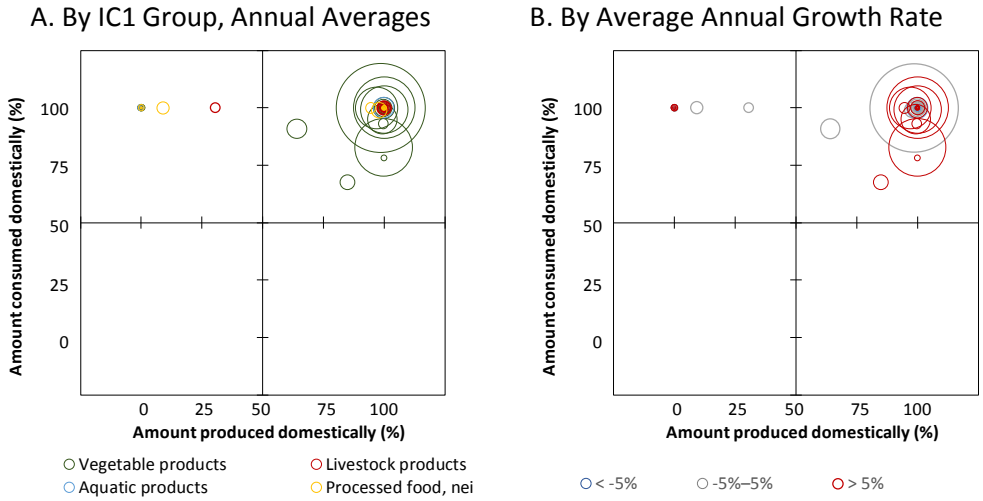
Supply–Demand Structure

Figure 7.15 shows the structure of domestic commerce and foreign trade in 2004–2013. There are two graphs, each of which is divided into four quadrants defined by two criteria: whether agri-food goods were *produced* domestically or in foreign markets and whether they were *consumed* in domestically or in foreign markets. In 7.15 A and 7.15 B, the circles are scattered across the top two quadrants. The circles vary in size according to the volumes produced of the goods they represent. The pattern of circles is the same in both graphs, but the circles in Figure 7.15 A are colour-coded to indicate the agri-food sector, whilst those in Figure 7.15 B are colour-coded to reflect growth rates.

The top side of each graph represents goods that were mostly or completely consumed domestically, and the right side represents goods that were mostly or completely produced domestically. The

majority of the agri-food products are concentrated in the first (upper-right) quadrant, which represents goods that were produced and consumed in the domestic market (i.e. domestic-oriented goods). There is a small number of circles in the second (upper-left) quadrant, representing goods that were produced in foreign markets and consumed in the domestic market (i.e. import-oriented goods). There are no observable circles in the third (lower-left) quadrant, representing goods that were imported for re-exportation (i.e. trade-oriented goods); nor are there any circles in the fourth (lower-right) quadrant, representing goods that were produced in the domestic market and consumed in foreign markets (i.e. export-oriented goods). Briefly said, the agri-food industries in Lao PDR, as well as in Cambodia, were more domestic-oriented than they were in the other ASEAN countries covered in this report.

Figure 7.15. Classification of Agri-food Products by Supply–Demand Balance, 2004–2013



IC1 = item category level 1, nei = not elsewhere included.
Notes: Each circle represents a Food Balance Sheet (FBS) item as designated by FAOSTAT. The sizes of the circles express the quantity of total supply, with the proportions estimated based on quantitative data. 'IC1' comprises the author's classifications of broad agri-food product categories (see Appendix 2.2). In these graphs, the percentage of goods not produced/consumed domestically are produced/consumed in foreign markets. Data classification: FBS items.
Sources: FAO (2019); Appendix 3.4.

Table 7.4 shows that, during 2004–2013, most agri-food products, particularly cereals (11) and vegetables (13), were produced and consumed mainly in the domestic market. A comparatively large quantity of cereals (11) were imported, followed by sugar (41) and fruits and nuts (14). Cereal exports (11) exceeded the exports of other IC2 groups. The second largest exports were fruits and nuts (14), and the third largest were stimulants and spices (15).

Annual change data indicates rapid growth in the domestic production and supply of vegetables, cereals, and oil and sugar crops (12). Both the production and domestic supply of fruits and nuts also saw relatively large increases. The growing exports, and slightly decreasing imports, of cereals are also notable characteristics of the supply–demand balance of agri-food products in Lao PDR. Changes in the production, imports, and exports of other items in the IC2 groups were relatively small.

Table 7.4. Supply–Demand Balance of Agri-food Products, 2004–2013

(1,000 metric tons)

IC1	IC2	2004–2013 average				Average annual change, 2004–2013			
		Production	Domestic supply	Import	Export	Production	Domestic supply	Import	Export
1 Vegetable products	11 Cereals	2,818	2,727	54	145	184	160	-2	24
	12 Oil and sugar crops	630	620	0	8	116	112	0	2
	13 Vegetables	1,578	1,575	14	0	198	200	0	0
	14 Fruits and nuts	417	434	38	20	28	23	-4	2
	15 Stimulants and spices	62	52	8	18	8	8	1	2
2 Livestock products	21 Meat	129	129	0	0	6	6	0	0
	22 Milk	7	24	16	0	0	0	0	0
	23 Eggs	15	15	0	0	0	0	0	0
3 Aquatic products	31 Freshwater fishes	106	106	0	0	5	5	0	0
	32 Marine fishes	0	12	12	0	0	2	2	0
	33 Crustaceans	0	0	0	0	0	0	0	0
	34 Molluscs	0	0	0	0	0	0	0	0
	35 Aquatic animals, nei	0	0	0	0	0	0	0	0
	36 Aquatic plants	0	0	0	0	0	0	0	0
4 Processed food, nei	41 Sugar	4	48	49	0	1	3	1	0
	42 Fat and oils	17	17	0	0	1	1	0	0
	43 Food, nei	0	1	1	0	0	0	0	0
	44 Alcoholic beverages	89	93	4	1	-2	1	0	0

IC1 = item category level 1, IC2 = item category level 2, nei = not elsewhere included.

Note: 'IC1' and 'IC2' comprise the author's classifications of broader product categories and more specific groups, respectively (Appendix 2.2). This table is based on an aggregation of all the data available from FAOSTAT's Food Balance Sheet (FBS). Data classification: FBS items.

Sources: FAO (2019); Appendix 3.4.

Table 7.5 shows FBS items (as designated by FAOSTAT) listed in descending order of total supply quantity within each category in 2004–2013, corresponding to the quadrants in Figure 7.15. The products existing in large quantities, such as rice, other vegetables, and maize, are concentrated in the column for the domestic-oriented products. Most products are in the cells representing stable or expanding markets for domestic- or import-oriented products. There are no items in the column for export-oriented goods.

Other vegetables—mainly leaf fruit vegetables (other than tomatoes), onions, pulses, and starchy roots—are identifiable as domestic-oriented products by their large quantities of supply undergoing rapid growth. Maize and its products, sugar cane, cassava and products, and bananas are notable for their accelerated rates of growth. Pelagic fish and sweeteners other than sugar are examples of rapidly increasing import-oriented products.

Table 7.5. Total Quantities of Supply for Product Categories, in Descending Order, 2004–2013

(1,000 metric tons)

Category		Domestic-oriented			Export-oriented			Import-oriented			Trade-oriented		
Provided by		Domestic market						Foreign market					
Consumed in		Domestic market			Foreign market			Domestic market			Foreign market		
Change	Rank	IC2	FBS items	Quantity	IC2	FBS items	Quantity	IC2	FBS items	Quantity	IC2	FBS items	Quantity
Annual change rate, 2004–2013 (%) r > 5 Expanding	1	13	Vegetables, other	963				32	Pelagic fish	11			
	2	11	Maize and products	842				41	Sweeteners, other	10			
	3	12	Sugar cane	577				11	Cereals, other	3			
	4	13	Cassava and products	446				44	Wine	1			
	5	14	Bananas	218									
-5 < r < 5 Stable	1	11	Rice (milled equivalent)	2,004				41	Sugar (raw equivalent)	38			
	2	14	Fruits, other	98				22	Milk - excluding butter	24			
	3	14	Oranges, mandarines	76				11	Wheat and products	11			
	4	44	Beer	63				32	Marine fish, other	2			
	5	21	Bovine meat	44				43	Infant food	0.6			
r < -5 Shrinking	1	13	Sweet potatoes	113				11	Barley and products	11			
	2	14	Lemons, limes and products	11				14	Apples and products	1			
	3												
	4												
	5												

FBS = Food Balance Sheet (FAOSTAT), IC2 = item category level 2, r = average annual change rate.
Notes: The values in this table represent the averages for 2004–2013. Data classification: FBS items.
Sources: FAO (2019); Appendix 3.4.

Trade Prices and Volumes

The export prices of processed stimulants and spices (15) were remarkably high during 2014–2016 (Table 7.6). Whilst the export values of processed goods were generally limited, those for higher-priced raw stimulants and spices were considerable. We can conclude from these results that raw stimulants and spices exported in large quantities had high enough values to induce active trade.

The import prices of processed crustaceans (33) and both raw and processed stimulants and spices exceeded those of many other products. The import values of these high-priced products were, however, quite small. Overall, export and import prices of processed products tended to be higher than those of primary products, except for some items, such as sugar.

Table 7.6. Prices and Values of Exported/Imported Agri-food Products, 2014–2016

		Price ($/kg)				Value ($ million)			
		Export		Import		Export		Import	
IC1	IC2	Primary products	Processed products	Primary products	Processed products	Primary products	Processed products	Primary products	Processed products
1 Vegetable products	11 Cereals	0.6	0.8	0.3	0.8	5	29	8	33
	12 Oil and sugar crops	1.5	—	0.9	1.9	9	0.0	0.3	0.4
	13 Vegetables	0.9	2.4	0.8	3.2	49	6	2	1
	14 Fruits and nuts	0.8	2.2	2.0	1.6	112	2	3	2
	15 Stimulants and spices	3.2	10.7	7.3	6.6	67	7	0.2	2
2 Livestock products	21 Meat	—	3.8	—	3.3	0.0	1.0	0.0	5
	22 Milk	1.8	3.2	1.5	2.7	0.4	1	2	4
	23 Eggs	—	—	—	—	0.0	0.0	0.0	0.0
3 Aquatic products	31 Freshwater fishes	—	—	—	—	0.0	0.0	0.0	0.0
	32 Marine fishes	—	2.4	—	3.8	0.0	0.1	0.1	1
	33 Crustaceans	—	—	—	12.1	0.0	0.0	0.0	0.2
	34 Molluscs	—	—	6.0	—	0.0	0.0	0.1	0.0
	35 Aquatic animals, nei	—	—	—	3.2	0.0	0.0	0.0	2
	36 Aquatic plants	—	—	—	—	0.0	0.0	0.0	0.0
	38 Fishes, nei	—	—	—	4.0	0.0	0.0	0.0	0.1
4 Processed food, nei	41 Sugar	4.0	0.7	—	0.9	0.1	152	0.0	64
	42 Fat and oils	—	—	—	1.3	0.0	0.0	0.0	3
	43 Food, nei	—	3.3	—	2.3	0.0	0.1	0.0	5
	44 Alcoholic beverages	—	1.3	—	1.3	0.0	20	0.0	6

IC1 = item category level 1, IC2 = item category level 2, kg = kilogram, nei = not elsewhere included.
Notes: This table shows the averages for 2014–2016. The values indicated for exports are based on 'free on board' (FOB) prices, and those for imports are based on 'cost, insurance, and freight' (CIF) prices. Data category: IC2 groups based on the Broad Economic Categories (BEC) classifications of primary products (11) and processed products (12).
Sources: UNSD (2017); Appendix 3.6.

4. The Competitiveness of Each Product in the ASEAN Region

Commodities Imported by ASEAN Countries

Tables 7.7 and 7.8 provide information about the agri-food products imported by ASEAN countries from Lao PDR in 2014–2016. ASEAN countries imported many of these products from Lao PDR more cheaply than they did from other ASEAN+6 countries (Table 7.7). Roughly 75%–100% of items in the IC2 groups were imported as low-priced products. Lao PDR exported notably more to Thailand than to the other ASEAN countries; its exports to Viet Nam were the second largest in volume (Table 7.8). The import values of the goods from Lao PDR were minimal in the other ASEAN countries.

In Table 7.7, we cannot observe any Laotian products imported by other ASEAN countries in significantly larger quantities than had been estimated based on approximate lines. Meanwhile, there was a conspicuously large number of products that were imported in smaller quantities than estimated, including cereals (11) and stimulants and spices (15) in the low-priced range, and fruits and nuts (14) in all price ranges.

Table 7.7. Prices and Values of Products Imported by ASEAN Countries, by IC2 Group, 2014–2016

IC1	IC2	Price ($/kg)	Value ($ million)	Number of imported products by price ranges (%)			Number of products deviated from approx. lines (%)						Obs.
							Imported larger			Imported smaller			
				Price ranges			Price ranges			Price ranges			
				Low	Mid	High	Low	Mid	High	Low	Mid	High	
1 Vegetable products	11 Cereals	0.4	10	90	10	0	0	0	0	10	0	0	10
	12 Oil and sugar crops	1.4	6	75	25	0	0	0	0	0	0	0	4
	13 Vegetables	0.5	67	94	6	0	0	0	0	0	0	0	18
	14 Fruits and nuts	1.3	10	73	7	20	0	0	0	7	7	7	15
	15 Stimulants and spices	4.1	39	85	0	15	0	0	0	5	0	0	20
2 Livestock products	21 Meat	4.1	0.0	—	—	—	—	—	—	—	—	—	0
	22 Milk	4.6	0.0	0	100	0	0	0	0	0	0	0	1
	23 Eggs	—	—	—	—	—	—	—	—	—	—	—	0
3 Aquatic products	31 Freshwater fishes	—	—	—	—	—	—	—	—	—	—	—	0
	32 Marine fishes	—	—	—	—	—	—	—	—	—	—	—	0
	33 Crustaceans	13.5	0.0	0	100	0	0	0	0	0	0	0	1
	34 Molluscs	—	—	—	—	—	—	—	—	—	—	—	0
	35 Aquatic animals, nei	0.2	0.0	100	0	0	0	0	0	0	0	0	1
	36 Aquatic plants	—	—	—	—	—	—	—	—	—	—	—	0
	38 Fishes, nei	1.8	0.0	100	0	0	0	0	0	0	0	0	1
4 Processed food, nei	41 Sugar	0.7	15	100	0	0	0	0	0	0	0	0	6
	42 Fat and oils	—	—	—	—	—	—	—	—	—	—	—	0
	43 Food, nei	3.1	0.0	100	0	0	0	0	0	0	0	0	2
	44 Alcoholic beverages	1.0	7	100	0	0	0	0	0	0	0	0	2

ASEAN = Association of Southeast Asian Nations, IC1 = item category level 1, IC2 = item category level 2, kg = kilogram, nei = not elsewhere included.

Notes: The prices and values represent the averages for 2014–2016. 'Price' refers to the import price, including cost, insurance, and freight (CIF) added to the tariff established by the ASEAN *Trade* in Goods Agreement (ATIGA). 'Value' refers to the imported value (CIF) without the tariff. See Appendix 3.6 for price ranges and approximate lines. The products for which the externally studentized residual was significantly large or small at the 10% level were counted. 'Obs.' refers to the number of detailed commodities classified according to the Broad Economic Categories (BEC) three-digit category numbers and used for applying approximation lines. Data category: FAOSTAT Commodity List (FCL) and adjusted groups under the International Standard Statistical Classification of Aquatic Animals and Plants (ISSCAAP), classified under BEC 111, 112, 121, and 122.

Sources: UNSD (2017); Appendix 3.6.

Table 7.8. Prices and Values of Products Imported into the ASEAN Region, by Country, 2014–2016

Importer	Price ($/kg)	Value ($ million)	Number of imported products by price ranges (%) Price ranges Low	Mid	High	Number of products deviated from approx. lines (%) Imported larger Price ranges Low	Mid	High	Imported smaller Price ranges Low	Mid	High	Obs.
Singapore	5.7	0.1	50	13	38	0	0	0	13	25	0	8
Brunei	—	0.0	—	—	—	—	—	—	—	—	—	0
Malaysia	13.2	0.0	0	0	100	0	0	0	0	0	0	1
Thailand	0.6	92	92	6	2	0	0	0	0	2	2	53
Indonesia	4.2	0.2	100	0	0	0	0	0	0	0	0	1
Philippines	5.7	0.1	100	0	0	0	0	0	0	0	0	1
Viet Nam	1.4	54	73	18	9	0	0	0	0	0	0	11
Lao PDR	—	0.0	—	—	—	—	—	—	—	—	—	0
Camboodia	1.6	7	100	0	0	0	0	0	0	0	0	6
Myanmar	—	0.0	—	—	—	—	—	—	—	—	—	0

ASEAN = Association of Southeast Asian Nations, kg = kilogram, nei = not elsewhere included.
Notes: The prices and values represent the averages for 2014–2016. 'Price' refers to the import price, including cost, insurance, and freight (CIF) added to the tariff established by the ASEAN *Trade* in Goods Agreement (ATIGA). 'Value' refers to the imported value (CIF) without the tariff. See Appendix 3.6 for price ranges and approximate lines. The products for which the externally studentized residual was significantly large or small at the 10% level were counted. 'Obs.' refers to the number of detailed commodities classified according to the Broad Economic Categories (BEC) three-digit category numbers and used for applying approximation lines. Data category: FAOSTAT Commodity List (FCL) and adjusted groups under the International Standard Statistical Classification of Aquatic Animals and Plants (ISSCAAP), classified under BEC 111, 112, 121, and 122.
Sources: UNSD (2017); Appendix 3.6.

Goods Imported in Smaller/Larger Quantities than Estimated Based on Prices: Non-price Competitiveness in the ASEAN Region

Pearled barley imported into Thailand was the only Laotian product imported in significantly larger quantities in 2014–2016 than had been estimated based on its import price (Table 7.9). It might be beneficial to seek opportunities to develop further export markets for this product. Moreover, research on the causes of this one case of active import demand, including production and sales methods, would help identify pathways toward increasing the sales of other items.

Research on the characteristics of the goods actively exported by other countries to Lao PDR might also trigger a reconsideration of production and marketing strategies for domestic products that could compete with goods produced by other states in the ASEAN region, such as boneless cattle meat from Malaysia.[2] Tables 2.9 to 9.9, and Table A3.2, do not show that the volume of imports of wine from Singapore and of fermented rice beverages from the Republic of Korea (henceforth, 'Korea') were greater than had been estimated.[3]

There are also many products for which the import quantities were significantly smaller during 2014–2016, considering their prices, such as vegetable products in all price ranges. Although these products were certainly exported to other ASEAN countries, they might not have been as competitive as the same products from other ASEAN and +6 countries. If these items are to be promoted as export goods destined for other ASEAN countries, active and intensive product differentiation will be necessary.

[2] For reference, see tables 2.9 to 9.9. See also Table A4.2 on major exports from the +6 countries.
[3] The p-values, import prices, and import values were as follows: wine from Singapore (p=0.19, $3.25/kg, $18,300) and fermented rice beverages from Korea (p=0.22, $1.48/kg, $20,000).

Table 7.9. Goods Imported by ASEAN Countries in Smaller/Larger Quantities than Estimated Based on Prices, in Ascending Order of P-values, 2014–2016

A. Larger Quantities of Imports than Estimated Based on Prices

IC1	Rank	Price ranges																	
		Low							Mid							High						
		Importer	IC2	BEC	Detailed commodity name	Price ($/kg)	Value ($ million)	p-value	Importer	IC2	BEC	Detailed commodity name	Price ($/kg)	Value ($ million)	p-value	Importer	IC2	BEC	Detailed commodity name	Price ($/kg)	Value ($ million)	p-value
1 Vegetable products	1	THA	11	122	Barley, pearled	0.8	3	0.10														
	2																					
	3																					
	4																					
	5																					
2 Livestock products	1																					
	2																					
	3																					
	4																					
	5																					
3 Aquatic products	1																					
	2																					
	3																					
	4																					
	5																					
4 Processed food, nei	1																					
	2																					
	3																					
	4																					
	5																					

B. Smaller Quantities of Imports than Estimated Based on Prices

IC1	Rank	Price ranges																	
		Low							Mid							High						
		Importer	IC2	BEC	Detailed commodity name	Price ($/kg)	Value ($ million)	p-value	Importer	IC2	BEC	Detailed commodity name	Price ($/kg)	Value ($ million)	p-value	Importer	IC2	BEC	Detailed commodity name	Price ($/kg)	Value ($ million)	p-value
1 Vegetable products	1	SGP	15	112	Tea	20.1	0.001	0.04	THA	14	122	Nuts, prepared (exc. groundnuts)	6.1	0.000	0.01	SGP	14	122	Nuts, prepared (exc. groundnuts)	22.5	0.000	0.07
	2	SGP	14	112	Bananas	0.5	0.000	0.05	THA	11	122	Cereals, breakfast	3.5	0.000	0.11	MYS	15	122	Coffee, roasted	13.2	0.005	0.15
	3	THA	11	111	Millet	0.3	0.000	0.08														
	4	THA	13	112	Carrots and turnips	1.4	0.000	0.14														
	5	THA	11	122	Macaroni	0.3	0.001	0.20														
2 Livestock products	1																					
	2																					
	3																					
	4																					
	5																					
3 Aquatic products	1																					
	2																					
	3																					
	4																					
	5																					
4 Processed food, nei	1	PHL	43	122	Food preparations, nes	5.7	0.021	0.16														
	2																					
	3																					
	4																					
	5																					

BEC = Broad Economic Categories, United Nations Statistics Division (UNSD), IC1 = item category level 1, IC2 = item category level 2, kg = kilogram, MYS = Malaysia, nes = not elsewhere specified, PHL = Philippines, SGP = Singapore, THA = Thailand.

Notes: The values listed in this table represent the averages for 2014–2016. The top five agri-food products within each IC1 grouping are listed in ascending order of p-value < 0.2, under the BEC as follows: primary products mainly for industry (111), primary products mainly for household consumption (112), processed products mainly for industry (121), and processed products mainly for household consumption (122). 'Price' refers to the CIF (cost, insurance, and freight) import price added to the tariff set by the ASEAN *Trade* in Goods Agreement (ATIGA). 'Value' refers to the imported value (CIF) without the tariff. The expression 'p-value' refers to the p-value of the t-stat against the externally studentized residual. See Appendix 3.6. Data category: FAOSTAT Commodity List and the adjusted groups under the International Standard Statistical Classification of Aquatic Animals and Plants (ISSCAAP) classified under BEC 111, 112, 121, and 122.

Sources: UNSD (2017); Appendix 3.6.

Inter-commodity and Inter-country Comparisons of Land/Feed Productivity

The median land productivity of fruits and nuts (14) was the highest, followed by that of vegetables (13), in 2011–2015 (Table 7.10). The ratios of the yield, an indicator of comparative advantage in the ASEAN region, were slightly higher for stimulants and spices (15) than for other IC2 groups in the category of vegetable products.

Table 7.10. Median Levels of Productivity and Resource Allocation in Each IC2 Group

IC1	IC2	Land productivity (KN million/ha)	Chg (%)	Ratio of the yield Index (Yi/Yi')	Chg (%)	Area harvested (1,000 ha)	Chg (%)	Obs.
1 Vegetable products	11 Cereals	9	3	1.2	1	568	5	2
	12 Oil and sugar crops	14	7	1.1	5	12	2	5
	13 Vegetables	40	3	1.0	2	9	3	7
	14 Fruits and nuts	67	2	0.9	1	4	2	10
	15 Stimulants and spices	20	8	1.6	8	6	4	4
	Total	36	3	1.0	2	8	3	28
IC1	**IC2**	**Feed productivity (KN million/100 PU)**	**Chg (%)**	**Ratio of the yield Index (Yi/Yi')**	**Chg (%)**	**Producing animals (million PU)**	**Chg (%)**	**Obs.**
2 Livestock products	21 Meat	26	—	0.6	—	2	4	7
	22 Milk	107	—	1.3	—	1	2	1
	23 Eggs	34	—	0.8	—	1	2	2
	Total	29	—	0.7	—	1	2	10

KN = kip (Laotian currency).
ha = hectare, IC1 = item category level 1, IC2 = item category level 2, PU = unit of pig feed requirements, Yi = yield in Lao PDR, Yi' = average yield in other ASEAN countries.
Notes: Land/feed productivity, ratio of the yield, and area harvested/producing animals represent the average values for 2011–2015. 'Chg' refers to the average annual rates of change during 2006–2015 (%). 'Obs.' refers to the number of items in the FAOSTAT Commodity List (FCL). The data on land productivity was deflated to constant 2015 kip prices. The figures are estimates based on all the FAOSTAT data under the 'Production' rubric. Data category: FCL.
Sources: FAO (2019); Appendix 3.7.

In the category of fruits and nuts, the land productivity and ratios of the yield of tangerines/mandarins/clementines/satsumas exceeded those values for the other products during the same period (Table 7.11). The values for other fruits—such as lemons/limes, watermelons, and bananas—were also relatively high. The land productivity and ratio of the yield of tangerines etc. and bananas gradually increased, and their harvested land area expanded during that period. In the vegetable products category, the productivity and the ratios of the yield of dried chilies/peppers and root vegetables (such as potatoes, sweet potatoes, and cassava) outstripped those of the other products. Similarly, fresh whole cow's milk and goose/guinea fowl meat had high feed productivity and ratios of the yield compared with those values for other livestock products. Although the harvested areas or numbers of producing animals for the products mentioned above were small (except for cassava) and were not necessarily increasing, the potential of these products as exports to other ASEAN countries could be high if they became competitive with the same products from those other countries by means of greater physical productivity.

As indicated in the second column from the right in Table 7.11, which lists examples of products imported by other ASEAN countries from Lao PDR during 2014–2016 in greater quantities than would be expected based on their prices, apparently none of these products had non-price competitiveness or were differentiated from the same items produced in the other ASEAN countries. Agri-food products in Lao PDR should be actively improved for the sake of developing the FVC in that country.

Table 7.11. Levels of Productivity and Resource Allocation for Individual Items

No.	IC2	FCL name	Land or feed productivity (KN million/ha or KN million/100 PU)	Chg (%)	Ratio of the yield Index (Yi/Yi')	Chg (%)	Area or producing animals (1,000 ha or million PU)	Chg (%)	Intpn. A	Intpn. B	Items imported larger or smaller compared with the price (p<0.2) Imported larger	in	Imported smaller	in
1	11	Rice, paddy	10	2	0.9	0	913	3	iv	ii				
2		Maize	8	4	1.4	1	224	6	iii	iii				
3	12	Sugar cane	74	7	0.8	5	26	19	ii	ii				
4		Groundnuts, with shell	22	12	1.4	7	25	4	iii	i				
5		Sesame seed	14	19	2.2	6	12	2	iii	i				
6		Soybeans	12	2	1.1	2	9	1	iii	iii				
7		Seed cotton	5	-16	1.0	-18	2	-5	iii	iv				
8	13	Potatoes	144	5	1.5	2	1	-6	i	i				
9		Vegetables, fresh nes	61	-3	0.8	2	148	9	ii	ii				
10		Sweet potatoes	51	16	1.4	2	7	-9	i	i				
11		Cassava	40	3	1.3	7	51	24	i	i				
12		Beans, dry	11	12	0.9	-2	3	2	iv	iv				
13		Chillies and peppers, green	8	-9	0.2	-6	9	3	iv	iv				
14		Pulses, nes	5	2	1.0	-1	18	3	iii	iii				
15	14	Tangerines, mandarins, clementines, satsumas	129	3	1.1	9	4	3	i	i				
16		Oranges	119	3	0.4	1	5	-1	ii	ii				
17		Lemons and limes	82	7	0.9	6	1	-18	ii	i				
18		Watermelons	80	7	1.0	-2	8	7	ii	i				
19		Bananas	78	3	1.0	6	21	11	ii	i			Bananas	SGP
20		Melons, other (inc.cantaloupes)	57	-3	0.9	-2	1	18	ii	iv				
21		Pineapples	55	1	0.4	2	4	0	ii	iv				
22		Grapefruit (inc. pomelos)	49	2	0.5	-1	1	0	ii	iv				
23		Mangoes, mangosteens, guavas	32	-3	1.0	-1	1	4	iii	iii				
24		Fruit, fresh nes	26	-5	0.9	1	7	-1	iv	iv				
25	15	Chillies and peppers, dry	101	3	2.1	-4	3	2	i	i				
26		Tea	31	30	0.9	24	3	25	iv	ii				
27		Nutmeg, mace and cardamoms	9	5	1.8	5	9	1	iii	iii				
28		Coffee, green	7	11	1.4	11	63	6	iii	iv				
29	21	Meat, pig	112	—	0.6	—	2	5	ii	ii				
30		Meat, goose and guinea fowl	47	—	1.2	—	0	1	i	i				
31		Meat, cattle	31	—	0.6	—	5	4	ii	i				
32		Meat, buffalo	26	—	0.5	—	4	1	iv	ii				
33		Meat, goat	22	—	1.1	—	0	11	iii	iii				
34		Meat, duck	17	—	0.8	—	1	1	iii	iii				
35		Meat, chicken	10	—	0.5	—	9	6	iv	iv				
36	22	Milk, whole fresh cow	107	—	1.3	—	1	2	i	i				
37	23	Eggs, hen, in shell	51	—	1.1	—	1	3	i	i				
38		Eggs, other bird, in shell	17	—	0.5	—	0	2	iv	iv				

KN = kip (Laotian currency).

FCL = FAOSTAT Commodity List, ha = hectare, IC2 = item category level 2, Intpn. = interpretation, nes = not elsewhere specified, p = p-value, PU = unit of pig feed requirements, SGP = Singapore, Yi = yield in Lao PDR, Yi' = average yield in other ASEAN countries.

Notes: Area' refers to the total harvested area, and 'producing animals' refers to the number of producing animals. Land/feed productivity, ratio of the yield, and area harvested/producing animals represent the average values for 2011–2015. 'Chg' refers to the average annual rates of change during 2006–2015 (%). The data on land productivity was deflated to constant 2015 kip prices. The figures are estimates based on all the FAOSTAT data provided under the 'Production' rubric. In the 'Intpn' column, the codes are as follows: i = both productivity and ratio of the yield are high; ii = productivity is high, but the ratio of the yield is low; iii = productivity is low, but the ratio of the yield is high; and iv = both productivity and ratio of the yield are low. The codes under 'A' reflect the median of the broader product categories in IC1 (item category level 1), and those under 'B' reflect the median of the specific products in IC2 included here. Regarding the items imported in larger or smaller quantities compared with their prices (p<0.2), the names of the FCL items (classified according to the Broad Economic Categories) listed in the table are those with the smallest p-value < 0.2 estimated based on data during 2014–2016. Data category: FCL.

Source: Appendix 3.7.

Table 7.12 shows weak or non-existent correlations between the land/feed productivity and ratios of the yield of the FCL items in each IC2 group during 2011–2105. In other words, the profitability per unit area of FCL items was not necessarily high when those items had a comparative advantage in terms of physical productivity within the ASEAN region.

Negative or non-existent correlations are observed between land/feed productivity or ratio of the yield and the extent of harvested areas or number of producing animals for all IC2 product groups. Such results show that most of the land and producing animals in Lao PDR were simply not allocated to products characterized by high productivity or competitiveness.

Table 7.12. Correlation Matrix of Comparative Advantage, Productivity, and Resource Allocation, 2011–2015

IC2	Land or feed productivity						Ratio of the yield					
	11 Cereals	12 Oil and sugar crops	13 Vegetables	14 Fruits and nuts	15 Stimulants and spices	21 Meat	11 Cereals	12 Oil and sugar crops	13 Vegetables	14 Fruits and nuts	15 Stimulants and spices	21 Meat
Ratio of the yield	—	-0.10	0.50	0.22	0.40	0.18	—	—	—	—	—	—
Area or producing animals	—	1.00	-0.18	0.39	-1.00	-0.32	—	-0.10	-0.46	-0.02	-0.40	-0.82
Obs.	2	5	7	10	4	7	2	5	7	10	4	7

IC2 = item category level 2.

Notes: Area' refers to the total harvested area, and 'producing animals' refers to the number of producing animals. This table uses Spearman's rank correlation coefficient of average values during 2011–2015. The values were estimated based on the data for items on the FAOSTAT Commodities List (FCL) relating to land/feed productivity, the ratio of the yield, and the number of producing animals and the land area they used. FCL items with correlation coefficients less than 4 were omitted. 'Obs.' refers to the number of FCL items. Data category: FCL.

Source: Author's calculations, see Appendix 3.7.

5. Summary

Social and Economic Conditions

- In spite of Lao PDR's strong prospect of long-term population and economic growth, the small size of its population implies only a limited potential for the country's domestic consumption market. Foreign markets, especially in the ASEAN area, where regional integration is in progress, will likely become more important as consumption markets for agri-food exports from Lao PDR.
- The VA of the wholesale and retail trade sectors has been a major component of GDP in Lao PDR; for instance, it accounted for about 15% of the country's GDP in 2015. While the proportion of GDP due to the VA of the food and beverage sector shrank, that due to the VA of most of the FVC-related industries, particularly fishing and agriculture, expanded.
- Interindustry transactions involving product flows from agriculture and fishing to the food and beverage industries increased gently. Transactions from fishing to the hotel and restaurant industries also gradually increased, as did transactions from the food-and-beverage industries to the hotel-and-restaurant industries. By contrast, intra-industry transactions within agriculture, which were observable in many other ASEAN countries, were not observed in Lao PDR; nor were any transactions observed within the fishing industry. Intra-industry transactions within the food and beverage sector remained at the same level after 2000.

Linkages amongst FVC-related Industries

- An increase in final demand in the food and beverage industries had some positive impacts on the VA of upstream sectors, particularly agriculture. This result suggests that interventions in the food and beverage industries do contribute to the development of agriculture.
- The effects of downstream industries on the VA of fishing was notable, given the limited size of the fishing market. It is also suggested that the services provided by the wholesale/retail trade sectors are necessary, but alone not sufficient, to automatically drive the development of the FVC-related industries.

- Production growth can accompany a rise in per capita employee compensation in many FVC-related industries, particularly agriculture.
- The hotel and restaurant industries, which had a remarkably high per capita compensation and a sharp increase in the number of employees, seems to have been an attractive sector in terms of labour absorption, although the number of employees was actually very limited.

Supply–Demand Balance of Agri-food Products

- Most agri-food products, particularly cereals and vegetables, were produced and consumed mainly in the domestic market. A comparatively large quantity of cereals was imported, followed by sugar and fruits and nuts. The exports of cereals exceeded those of the other IC2 groups. The second- and third-largest export goods were fruits and nuts and stimulants and spices, respectively. Even though cereals are mainly produced/consumed at home, the little that's produced/consumed in foreign markets are in large enough volumes to rank high compared with other exports and imports.
- The export prices of processed stimulants and spices were remarkably high. While the export values of processed products were limited, those of high-priced raw stimulants and spices were considerable. We can conclude that raw stimulants and spices exported in large amounts had values that were high enough to induce active trade in Lao PDR.

The Competitiveness of Each Product in the ASEAN Region

- The pearled barley exported by Lao PDR to Thailand was the only item whose quantities were significantly larger than prior estimates based on their import prices in the destination market.
- Research on the characteristics of the goods actively exported by other countries to Lao PDR might trigger a reconsideration of production and marketing strategies for domestic products that could compete with goods produced by other ASEAN states, such as boneless cattle meat from Malaysia. The volume of wine imports from Singapore and of fermented rice beverages from Korea were also larger than prior estimates.
- In the category of fruits and nuts, the land productivity and ratios of the yield of tangerines/mandarins/clementines/satsumas exceeded those values for the other products. Those values for other fruits, such as lemons/limes, watermelons, and bananas, were also relatively high. In the vegetable products category, the productivity and ratios of the yield of dried chilies/peppers and for root vegetables (such as potatoes, sweet potatoes, and cassava) outstripped those values for other products. Similarly, fresh whole cow's milk and goose/guinea fowl meat had high feed productivity and ratios of the yield compared with those values for other livestock products. The potential of these products as exports to other ASEAN countries could be high if they became competitive with the same products from those other countries by means of greater physical productivity.