# Chapter 8

# Cambodia

September 2019

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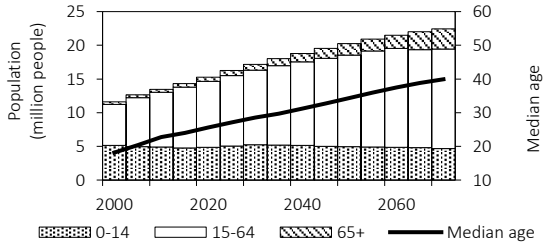
# Chapter 8
# Cambodia

## 1. Social and Economic Conditions

### Population and Per Capita GDP

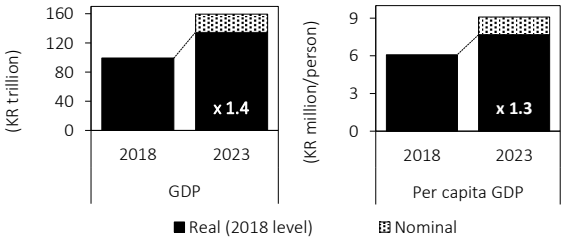
The population of Cambodia, 16 million people in 2018, accounts for 2% of the total population of the ASEAN region, placing it seventh amongst the ASEAN countries. It is expected to reach 22 million by 2050 (Figure 8.1). The working-age people, those between 15 and 65, are the majority of the country's population, and their numbers are expected to increase steadily until around 2055. This trend may imply long-term economic growth. In spite of the strong prospect of long-term population and economic growth, the small size of the population implies only a limited potential for the domestic consumption market. Foreign markets, especially in the ASEAN countries, where the regional integration is in progress, will likely become more important as consumption markets for agri-food products from Cambodia.

**Figure 8.1. Population by Age Group, 2000–2060**




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

**Figure 8.2. Changes in GDP and Per Capita, GDP, 2018 and 2023**

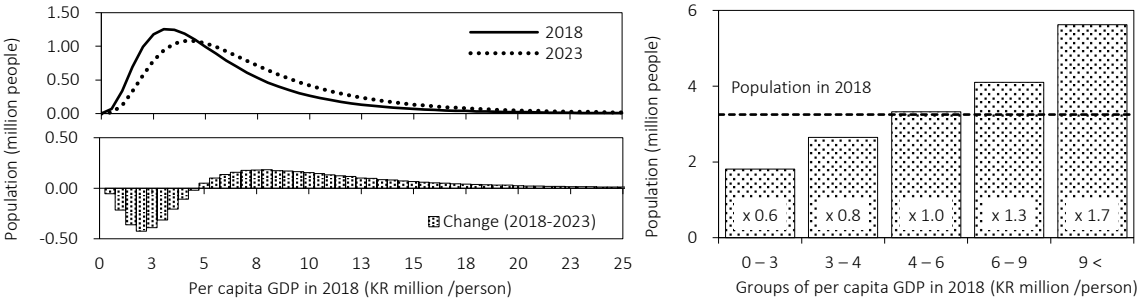



KR = riels (Cambodian currency).
GDP = gross domestic product.
Source: Estimates based on data from the International Monetary Fund (IMF, 2018).

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 8.2). According to a projection of the population based on the level of per capita GDP (Figure 8.3; Appendix 3.1), as per capital GDP approaches about KR5 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 KR5 million will increase across a wide range of the distribution. In particular, the population with personal incomes above KR9 million (i.e. the 80th percentile) will expand by 1.7 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 8.3. Estimated Population of Cambodia by Per Capita GDP, 2018 and 2023**

A. Distribution of Population Changes B. Population Divided into Five GDP Groups



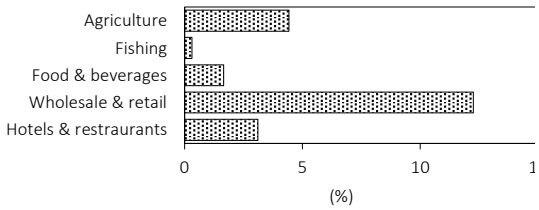

KR = riels (Cambodian currency).
GDP = gross domestic product.
Note: The per capita GDP is based on constant 2018 prices. The bars in Figure B show the estimated populations of the GDP groups in 2023. The numbers in the bars show the changes in these populations from 2018 to 2023.
Source: Appendix 3.1.

**The VA of FVC-related Industries**

The VA of the wholesale and retail trade sectors has been a major component of Cambodia's GDP; for instance, it accounted for about 12% of GDP in 2015 (Figure 8.4). Meanwhile, the VA of the other FVC-related industries, including agriculture, was comparatively small.

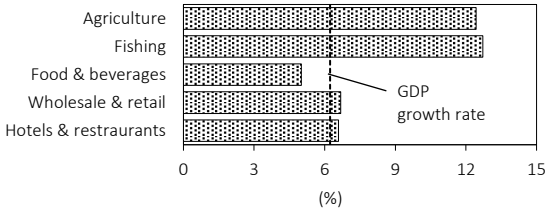
The annual growth rates of real VA in the fishing and agriculture industries averaged as high as 12%–13%, followed by those for the wholesale/retail trade and hotel-and-restaurant industries. The average growth rates of the FVC-related industries were higher than the average GDP growth rate, except for the food-and-beverage industries, which averaged 5% (Figure 8.5). While the proportion of GDP due to the VA of the food and beverage industries shrank, the proportions due to the VA of most FVC-related industries, especially fishing and agriculture, expanded.

**Figure 8.4. The Proportion of VA in GDP, 2015**




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

**Figure 8.5. Average Annual Change in Real VA, 2000–2015**



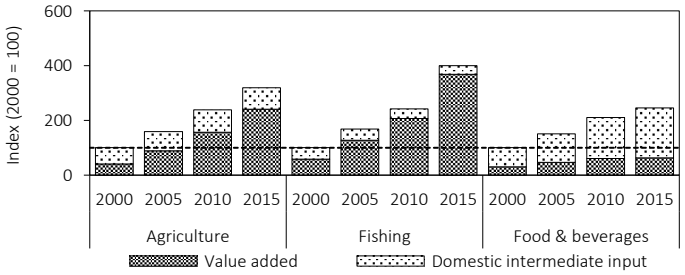

GDP = gross domestic product, VA = value added.
Sources: Estimates based on data from Eora (2018) and the International Monetary Fund (IMF, 2018).

The production values of agriculture tripled, those of fishing quadrupled, and those of the food-and-beverage industries doubled from 2000 to 2015 (Figure 8.6). The part of production value due to the VA (i.e. the VA rate) was large in the fishing industry during that period, reaching almost 100% by 2015, followed by the VA rate in agriculture, which reached 76% (Figure 8.7). The VA rate of the food and beverage sector stayed at around 26% during the entire period, far lower than the rates for the

other two industries. 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.

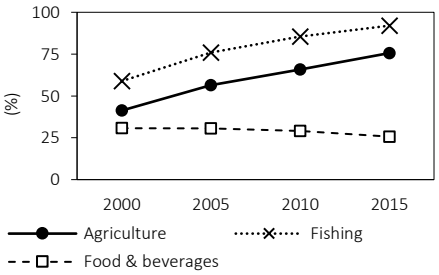
Rapid rises in the VA rates for agriculture and fishing suggest a decrease in their use of intermediate inputs. This change may have been caused by an increase in the number of products with lower cost of sales to revenue ratios, an improvement in the efficiency of the product mix, and/or technical progress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

**Figure 8.6. 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 8.7. VA Rates, 2000–2015**




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

**Intermediate Inputs in Agri-food Industries**

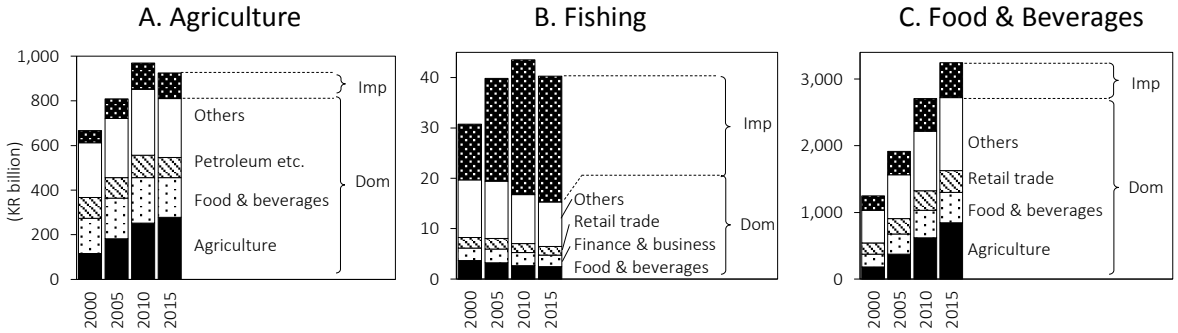
Figure 8.8 shows which industries contributed to the growth of the agriculture, fishing, and food-and-beverage industries from 2000 to 2015. Intermediate inputs into agriculture and the food and beverage industries came mainly from domestic sources, whilst inputs into fishing came mainly from foreign sources. Inputs in agriculture and fishing stagnated after 2010, but inputs in the food and beverage industries steadily increased after 2000.

Agriculture was the largest source of intermediate inputs into agriculture, followed by the food-and-beverage and petroleum, chemical, and non-metallic mineral product ('petroleum etc.') industries.[1] The largest domestic source of inputs into the fishing industry was the food and beverage sector, and the largest domestic source of inputs into the food and beverage sector was agriculture.

The agriculture and food-and-beverage industries were comparatively large sources of intermediate inputs into the food and beverage industries. This implies that growth in the food and beverage industries was largely driven by the supply of raw agricultural products and processed foods. The growth of the food and beverage industries in Cambodia induced a certain degree of development in agriculture through their demand for intermediate inputs.

[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.

**Figure 8.8. Sources of Intermediate Inputs, 2000–2015**




KR = riels (Cambodian currency).

Dom = domestic supply, Imp = imports.

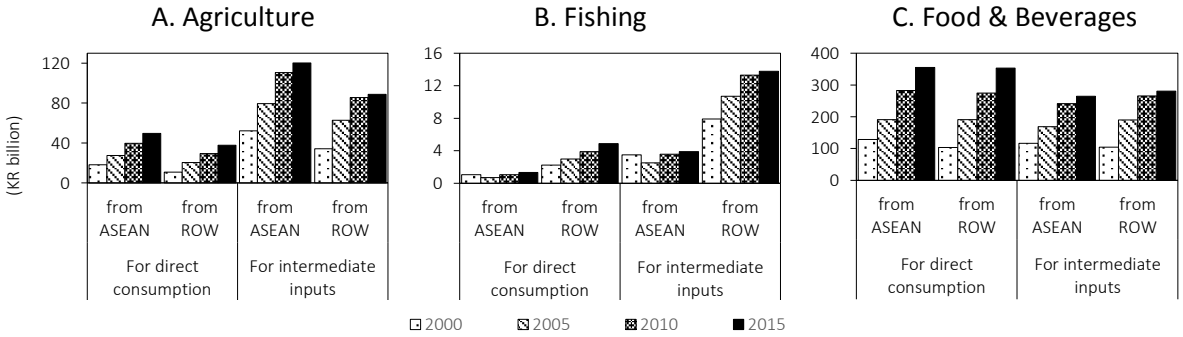
Notes: The values in these graphs are based on constant 2015 prices. 'Petroleum etc.' refers to the petroleum, chemical, and non-metallic mineral product industries.

Sources: Estimates using data from Eora (2018) and the International Monetary Fund (IMF, 2018).

The value of imports from foreign agricultural, fishing, and food-and-beverage sectors steadily increased between 2000 and 2015, reaching levels comparable to that of domestic production (Figure 8.9). The value of imported agricultural and fishery products for use as intermediate inputs was larger than that destined for direct consumption. By contrast, the food and beverage imports were evenly divided between direct consumption and use as intermediate inputs. Put briefly, Cambodia imported agricultural and fishery products mainly for processing, and food-and-beverage products both for processing and direct consumption.

Imports from the fishing industries of other ASEAN countries were smaller than those from the ROW. Meanwhile, imports from the agriculture and food-and-beverage industries of other ASEAN countries exceeded those from the ROW. We can conclude that, as an importer, Cambodia was gradually strengthening its linkages with both the ROW and the rest of the ASEAN region.

**Figure 8.9. Values of Imports, by Purpose, 2000–2015**




KR = riels (Cambodian currency).

ASEAN = Association of Southeast Asian Nations, ROW = rest of the world.

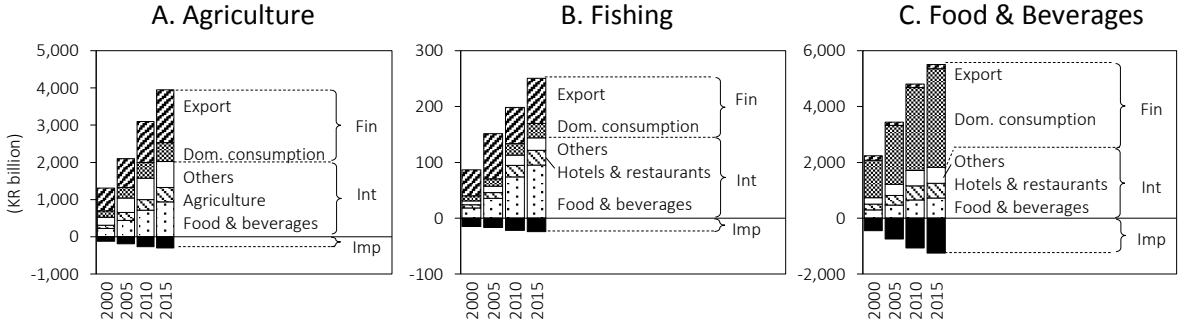
Notes: The values of imports shown in these graphs are based on constant 2015 prices. They include imports from foreign agricultural, fishing, and food-and-beverage sectors destined for domestic final consumption and for use as intermediate inputs in all domestic industries.

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 gently increased during 2000–2015 (Figure 8.10). 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. Intra-industry transactions within agriculture and within the food and beverage industries are observable, as well. The FVC grew steadily in Cambodia with regard to both interindustry and intra-industry transactions.

**Figure 8.10. Destinations of Domestically Produced and Imported Goods, 2000–2015**

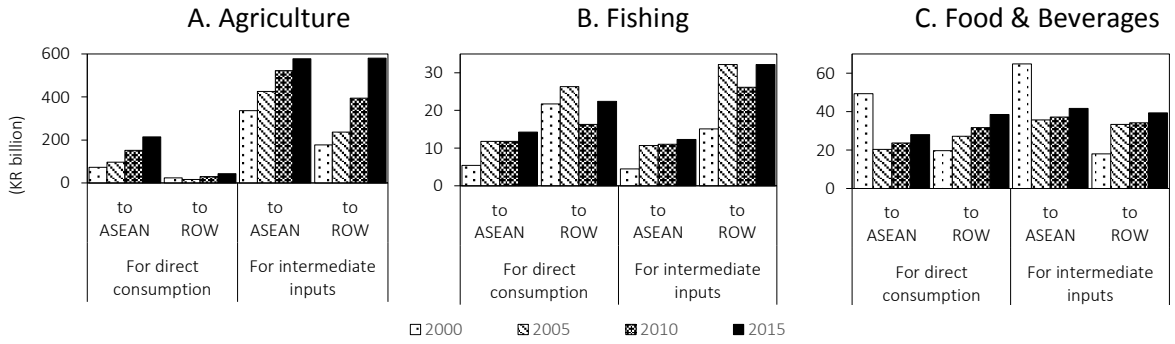



KR = riels (Cambodian currency).
Dom. = domestic.
Notes: The values in these graphs are based on constant 2015 prices. 'Fin' = final demand for domestic and imported goods, 'Int' = intermediate demand for domestic and imported goods, and 'Imp' = the imports of final and intermediate goods. Total demand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

Final demand grew steadily in the agriculture, fishing, and food-and-beverage industries during 2000–2015. Exports dominated final demand for agriculture and fishing, and rapidly increased for agriculture. By contrast, exports from the food and beverage industries were very limited, compared with domestic consumption, and they experienced slower growth after 2005. Figure 8.11 shows that a large part of agricultural exports from Cambodia was consumed as intermediate goods. Meanwhile, the destinations of the exports from the fishing and food-and-beverage industries were almost evenly divided between direct consumption and use as intermediate inputs.

Cambodia exported similar values of goods from the three industries to the other ASEAN countries and to the ROW. During this period, Cambodia deepened its linkages with the rest of the ASEAN region (as an exporter), while also strengthening its linkages with the ROW.

**Figure 8.11. Values of Exports, by Purpose, 2000–2015**




KR = riels (Cambodian 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 8.1 shows the composition of final demand during 2000–2015. Final demand was strongest in the retail trade industry, followed by the hotel and restaurant industries, wholesale trade industry, and the food and beverage industries. The average annual growth of final demand in the retail industry, KR204 billion, outstripped the average values for the other FVC-related industries. Growth in final demand in the retail trade industry was driven by household consumption. Similarly, there was a rapid increase of household consumption of products and services from the hotel-and-restaurant industries, wholesale trade industry, and food-and-beverage industries. It is notable that exports to both the ROW and the rest of the ASEAN region accounted for a large part of final demand, and that they increased dramatically for agriculture.

**Table 8.1. Final Demand for Products/Services of FVC-related Industries, 2000–2015**

(KR billion)

| | Domestic production of | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Agriculture | | Fishing | | Food & beverages | | Wholesale trade | | Retail trade | | Hotels & restraurants | |
| Final demand as | Value | Change | Value | Change | Value | Change | Value | Change | Value | Change | Value | Change |
| **Domestic consupmtion** | | | | | | | | | | | | |
| Household consumption | 445 | 20 | 21 | 1 | 2,834 | 117 | 2,235 | 89 | 4,743 | 189 | 3,470 | 139 |
| Other consumption | 6 | 0 | 0 | 0 | 54 | 2 | 55 | 2 | 116 | 5 | 62 | 3 |
| Capital formation | -28 | -1 | -2 | 0 | -62 | -3 | 459 | 20 | 133 | 6 | 0 | 0 |
| **Export** | | | | | | | | | | | | |
| Export to ASEAN | 792 | 26 | 27 | 1 | 70 | -3 | 186 | 10 | 5 | 0 | 35 | 2 |
| Export to ROW | 623 | 29 | 55 | 1 | 78 | 3 | 175 | 8 | 76 | 4 | 296 | 13 |
| **Total** | 1,838 | 74 | 101 | 3 | 2,973 | 117 | 3,110 | 129 | 5,074 | 204 | 3,863 | 157 |
| Annual change rate (%) | | 6.2 | | 3.7 | | 5.9 | | 6.6 | | 6.2 | | 6.3 |

KR = riels (Cambodian 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. Negative values in capital formation reflect changes in inventories.
Source: Appendix 3.2.

**Production and VA Induced by Final Demand**

Table 8.2 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 Cambodia. The table indicates that 10% of intermediate inputs into the hotel and restaurant industries came from the domestic food and beverage sector, and that 20% 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 hotel-and-restaurant and food-and-beverage industries in Cambodia used a large value of inputs from foreign sources, unlike the same industries in most other ASEAN countries covered in this report.

The small increments of annual change in the shares of inputs shown in Table 8.2 indicate a stable input–output structure in Cambodia during 2000–2015, except for the linkage between the food and beverage industries and agriculture. The food and beverage sector sharply increased the amount of intermediate inputs drawn from domestic agriculture, a trend that implies a strengthening of inter-sector linkages. If this structural change continues, the growth of final demand in the food and beverage sector will further drive the development of agriculture.

**Table 8.2. Sources of Intermediate Inputs in Major FVC-related Industries, 2000–2015**

| | | Domestic production of | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Agriculture | | Fishing | | Food & beverages | | Wholesale trade | | Retail trade | | Hotels & restraurants | |
| Input from | | Share (%) | Change | Share (%) | Change | Share (%) | Change | Share (%) | Change | Share (%) | Change | Share (%) | Change |
| Agriculture | Domestic | 8 | -0.17 | 0 | 0.00 | 20 | 0.61 | 0 | 0.00 | 0 | 0.01 | 2 | 0.07 |
| | ASEAN | 0 | -0.01 | 0 | 0.00 | 2 | -0.01 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| | ROW | 0 | -0.01 | 0 | -0.02 | 1 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| Fishing | Domestic | 0 | 0.00 | 1 | -0.02 | 2 | 0.09 | 0 | 0.00 | 0 | 0.00 | 1 | 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 | -0.01 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| Food & beverages | Domestic | 2 | -0.21 | 1 | -0.12 | 11 | -0.02 | 0 | 0.00 | 1 | 0.01 | 10 | 0.05 |
| | ASEAN | 0 | -0.01 | 0 | -0.02 | 3 | -0.02 | 0 | 0.00 | 0 | 0.00 | 2 | -0.01 |
| | ROW | 0 | 0.00 | 1 | -0.03 | 3 | 0.01 | 0 | 0.00 | 0 | 0.00 | 2 | 0.01 |
| Wholesale trade | Domestic | 2 | -0.19 | 1 | -0.18 | 6 | -0.04 | 2 | -0.01 | 1 | -0.01 | 4 | -0.03 |
| | ASEAN | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 3 | 0.01 | 0 | 0.00 | 0 | 0.00 |
| | ROW | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 3 | 0.07 | 0 | 0.00 | 0 | 0.00 |
| Retail trade | Domestic | 0 | -0.02 | 0 | -0.03 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 1 | -0.01 |
| | ASEAN | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 1 | 0.02 | 0 | 0.00 | 0 | 0.00 |
| | ROW | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 1 | 0.03 | 0 | 0.00 | 0 | 0.00 |
| Hotels & restraurants | Domestic | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 1 | 0.00 |
| | ASEAN | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| | ROW | 0 | 0.00 | 0 | -0.01 | 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 8.3 shows the VA directly and indirectly boosted by a 1% increase over the 2015 value of 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 KR5.5 billion increase in the VA of agriculture, as well as a KR7.6 billion increase in the VA of the food-and-beverage sector itself.

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

The food and beverage 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 (KR0.59 billion) was large compared with that driven by the final demand in the fishing sector itself (KR0.82 billion). Increasing

final demand in the food and beverage industries could thus be an effective way to promote the development of the fishing sector.

The inducement effect of final demand in the wholesale and retail trade sectors on the other four sectors was very small, as is shown in Table 8.3. Meanwhile, Table 8.2 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 8.3. VA Induced by a 1% Increase in Final Demand, 2015**

(KR billion)

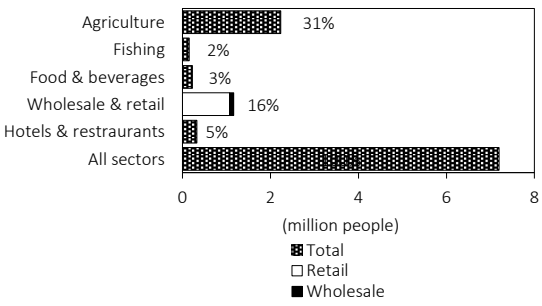
| | 1% increase in final demand for | | | | | |
|---|---|---|---|---|---|---|
| Induced value added in | Agriculture | Fishing | Food & beverages | Wholesale trade | Retail trade | Hotels & restraurants |
| Agriculture | 14.72 | 0.00 | 5.45 | 0.06 | 0.23 | 1.31 |
| Fishing | 0.01 | 0.82 | 0.59 | 0.00 | 0.04 | 0.26 |
| Food & beverages | 0.11 | 0.00 | 7.55 | 0.02 | 0.15 | 0.96 |
| Wholesale trade | 0.27 | 0.01 | 1.54 | 19.14 | 0.73 | 1.37 |
| Retail trade | 0.03 | 0.00 | 0.07 | 0.06 | 30.91 | 0.34 |
| Hotels & restraurants | 0.01 | 0.00 | 0.06 | 0.06 | 0.13 | 17.34 |

KR = riels (Cambodian currency).
VA = value added.
Source: Appendix 3.2.

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

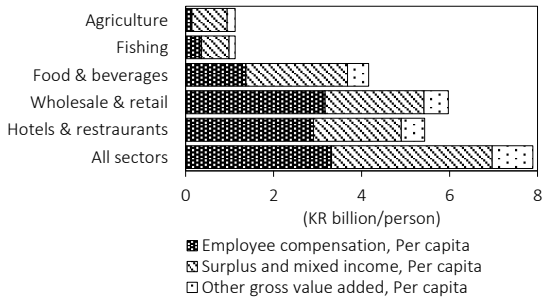
Now let us consider how an increase in production relates to changes in the number of employees and per capita employee compensation in an industry. According to figures 8.12 and 8.13, the agricultural sector in 2015 was characterized by a large number of employees, low labour productivity, and low per capita compensation compared with other FVC-related industries. By contrast, the food and beverage industries had a limited number of employees, but higher labour productivity and per capita compensation than agriculture or fishing.

**Figure 8.12. Number of Employees, by Sector, 2015**




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

**Figure 8.13. Gross VA per Capita, by Sector, 2015**




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

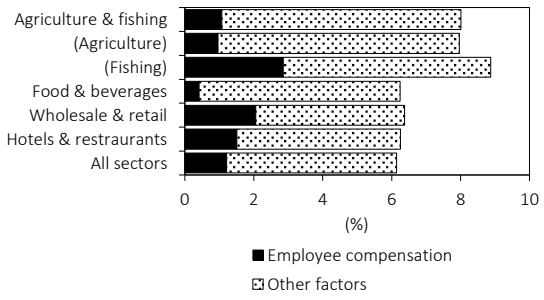
Figure 8.14 illustrates the relationship amongst the number of employees, per capita compensation, and production during 2000–2015. Figure 8.14A depicts the proportion of the average annual rate of change in production in each sector that was attributable to total employee compensation. In agriculture and fishing, production growth, at 8%–9%, was higher than that of the other FVC-related industries, at 6%. The largest contribution of per capita compensation to production growth was in fishing, at 3%, while the smallest was in the food and beverage industries, at 0.5%.

The average annual rates of change in the total value of employee compensation were within the range of 7%–13% in all of the observable FVC-related sectors (Figure 8.14 B). Two factors determine the total value of employee compensation: the number of employees and per capita compensation. In the agricultural sector, the number of employees decreased, while per capita compensation increased. Per capita compensation often grows faster when there is a decrease in the number of employees. Conversely, the fishing industry saw a reduction in per capita compensation and an increase of the number of employees. In other sectors, both per capita compensation and the number of employees steadily increased.

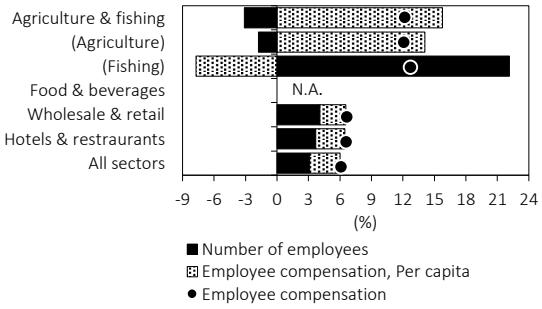
These results suggest the production growth can accompany a rise in per capita compensation in many FVC-related industries, particularly in the agricultural sector. Another notable point is the decline in the number of employees in the agricultural sector. The large number of employees, low-level labour productivity, low per capita compensation, and steep growth in per capita compensation, together with the decrease in the number of employees, suggest the existence of a labour surplus in agriculture. Any interindustry movement of labourers would be deeply connected to the productivity and efficient development of agriculture. The hotel-and-restaurant and wholesale/retail trade industries, which had higher per capita compensation than all the other FVC-related industries, and stable growth in the number of employees, seem to have been attractive sectors in terms of labour absorption.

**Figure 8.14. 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.

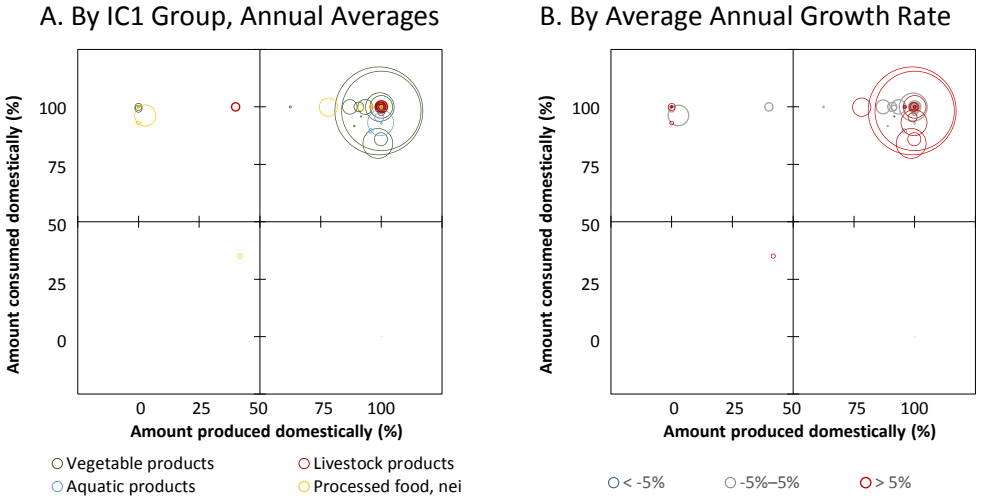
## 3. Supply–Demand Balance of Agri-food Products

### Supply–Demand Structure

Figure 8.15 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 8.15 A and 8.15 B, the circles are scattered mainly 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 8.15 A are colour-coded to indicate the agri-food sector, whilst those in Figure 8.15 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. Most of the agri-food products are concentrated in the first (upper-right) quadrant, representing products that were produced and consumed in the domestic market (i.e. domestic-oriented goods). There are a few small circles in the second (upper-left) quadrant, representing goods that were produced in foreign markets and consumed domestically (i.e. import-oriented goods). We can observe one circle in the third (lower-left) quadrant, denoting goods that were imported re-exportation (i.e. trade-oriented goods), but it is very small. And there are no observable circles in the fourth (lower-right) quadrant, which represents goods that were produced domestically and consumed in foreign markets (i.e. export-oriented goods). Briefly said, the agri-food industries in Cambodia, like those in Lao PDR, were more domestic-oriented than the same industries in the other ASEAN countries covered in this report.

**Figure 8.15. 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 8.4 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 relatively large amount of sugar (41) was imported, followed by cereals and alcoholic beverages (44). Cereal exports exceeded those of the other IC2 products. The second- and third-largest export goods were vegetables and freshwater fishes (31), respectively.

Annual change data indicates soaring production and domestic supplies of vegetables and cereals. Both the production and domestic supplies of oil and sugar crops (12), freshwater fishes, and alcoholic beverages also grew comparatively large. Increases in the cereal exports and imports, and in the exports of vegetables, were also notable characteristics of the supply–demand balance of agri-food products in Cambodia during this period. Changes in other items and IC2 groups were relatively small.

**Table 8.4. 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 | 5,541 | 5,430 | 137 | 179 | 437 | 432 | 12 | 35 |
| | 12 Oil and sugar crops | 600 | 568 | 1 | 18 | 54 | 66 | 0 | -2 |
| | 13 Vegetables | 4,714 | 4,647 | 6 | 70 | 955 | 934 | 1 | 24 |
| | 14 Fruits and nuts | 364 | 408 | 44 | 0 | 7 | 8 | 0 | 0 |
| | 15 Stimulants and spices | 13 | 18 | 4 | 0 | 0 | 0 | 0 | 0 |
| 2 Livestock products | 21 Meat | 236 | 237 | 0 | 0 | -3 | -1 | 0 | 0 |
| | 22 Milk | 23 | 57 | 35 | 0 | 0 | -2 | -3 | 0 |
| | 23 Eggs | 20 | 20 | 0 | 0 | 1 | 1 | 0 | 0 |
| 3 Aquatic products | 31 Freshwater fishes | 445 | 416 | 1 | 31 | 29 | 30 | 0 | -1 |
| | 32 Marine fishes | 59 | 59 | 3 | 3 | 7 | 7 | 0 | 0 |
| | 33 Crustaceans | 16 | 15 | 1 | 2 | -1 | 0 | 0 | -1 |
| | 34 Molluscs | 9 | 9 | 0 | 0 | 1 | 1 | 0 | 0 |
| | 35 Aquatic animals, nei | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 36 Aquatic plants | 4 | 4 | 0 | 0 | -2 | -2 | 0 | 0 |
| 4 Processed food, nei | 41 Sugar | 9 | 302 | 326 | 12 | 0 | 2 | 6 | 5 |
| | 42 Fat and oils | 45 | 52 | 15 | 11 | 4 | 2 | -1 | 3 |
| | 43 Food, nei | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| | 44 Alcoholic beverages | 204 | 257 | 54 | 0 | 38 | 41 | 3 | 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 8.5 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 8.15. The products existing in large quantities, such as rice and cassava, are concentrated in the column for domestic-oriented products. Most products are in the cells representing stable or expanding markets for domestic- or import-oriented products; but several products, such as pelagic fish and tea, are in the cell representing shrinking markets for import-oriented products.

Rice and cassava are identifiable as domestic-oriented products by their large quantities of supply undergoing rapid growth. Maize and products, freshwater fish, and sugar cane are also notable for their accelerated growth. Barley and products are examples of rapidly increasing import-oriented items. Although their markets were comparatively stable, the import-oriented items sugar, milk, and wheat and products are conspicuous in Table 8.5 for their large quantities of supply. Another feature of the supply–demand balance in Cambodia during this period was the steep growth in palm oil, which is in the trade-oriented category.

**Table 8.5. 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 (%) | Expanding r > 5 | 1 | 11 | Rice (milled equivalent) | 4,947 | | | | 11 | Barley and products | 38 | 42 | Palm oil | 16 |
| | | 2 | 13 | Cassava and products | 4,037 | | | | 41 | Sweeteners, other | 13 | | | |
| | | 3 | 11 | Maize and products | 585 | | | | 42 | Oilcrops oil, other | 7 | | | |
| | | 4 | 31 | Freshwater fish | 446 | | | | 15 | Coffee and products | 3 | | | |
| | | 5 | 12 | Sugar cane | 342 | | | | 14 | Grapes and products (excl wine) | 2 | | | |
| | Stable -5 < r < 5 | 1 | 13 | Vegetables, other | 538 | 42 | Palmkernel oil | 0.7 | 41 | Sugar (raw equivalent) | 301 | | | |
| | | 2 | 14 | Bananas | 155 | | | | 22 | Milk - excluding butter | 57 | | | |
| | | 3 | 14 | Fruits, other | 147 | | | | 11 | Wheat and products | 38 | | | |
| | | 4 | 21 | Pigmeat | 116 | | | | 14 | Apples and products | 3 | | | |
| | | 5 | 21 | Bovine meat | 71 | | | | 43 | Infant food | 1 | | | |
| | Shrinking r < -5 | 1 | 33 | Crustaceans | 16 | | | | 32 | Pelagic fish | 2 | | | |
| | | 2 | 36 | Aquatic plants | 4 | | | | 15 | Tea (including mate) | 2 | | | |
| | | 3 | | | | | | | 11 | Cereals, other | 1 | | | |
| | | 4 | | | | | | | 44 | Wine | 1 | | | |
| | | 5 | | | | | | | 13 | Peas | 0.5 | | | |

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 raw stimulants and spices (15) were unexpectedly high, but still limited, during 2014–2016 (Table 8.6). The exports of relatively high-priced products in the IC2 groups did not have a high total value. The import prices of raw and processed crustaceans (33), raw aquatic plants (36), raw sugar (41), and food, nei (43), exceeded those of many other products. The import values of most of these high-priced products were quite small, however, with the exception of food, nei. We can conclude that those items classified as processed food, nei, that were imported in large quantities had high enough values to induce active trade. Overall, the export and import prices of processed products tended to be higher than those of primary products, except for some items, including several vegetable products exported in small amounts and imported sugar.

**Table 8.6. 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 | 0.4 | 0.6 | 0.3 | 0.6 | 0.4 | 269 | 9 | 86 |
| | | 12 Oil and sugar crops | 0.7 | 0.4 | 0.1 | 0.7 | 1 | 0.1 | 0.2 | 1 |
| | | 13 Vegetables | 0.2 | 0.4 | 0.4 | 0.9 | 20 | 0.1 | 3 | 3 |
| | | 14 Fruits and nuts | 1.2 | 1.2 | 0.5 | 0.7 | 1.0 | 0.1 | 10 | 6 |
| | | 15 Stimulants and spices | 6.4 | 0.7 | 1.1 | 3.9 | 4 | 0.4 | 2 | 10 |
| 2 | Livestock products | 21 Meat | — | 4.3 | — | 2.9 | 0.0 | 0.2 | 0.0 | 5 |
| | | 22 Milk | — | — | 1.1 | 1.6 | 0.0 | 0.0 | 12 | 8 |
| | | 23 Eggs | — | — | 2.1 | — | 0.0 | 0.0 | 0.0 | 0.0 |
| 3 | Aquatic products | 31 Freshwater fishes | — | — | 0.5 | 3.5 | 0.0 | 0.0 | 0.9 | 0.2 |
| | | 32 Marine fishes | 1.6 | — | 1.5 | 1.5 | 0.0 | 0.0 | 0.1 | 3 |
| | | 33 Crustaceans | 3.4 | — | 7.5 | 7.4 | 0.6 | 0.0 | 0.1 | 0.9 |
| | | 34 Molluscs | — | — | 3.0 | — | 0.0 | 0.0 | 0.0 | 0.0 |
| | | 35 Aquatic animals, nei | — | — | — | 1.2 | 0.0 | 0.0 | 0.0 | 14 |
| | | 36 Aquatic plants | — | — | 4.7 | — | 0.0 | 0.0 | 0.3 | 0.0 |
| | | 38 Fishes, nei | 0.3 | 1.0 | 0.5 | 2.2 | 0.0 | 0.0 | 1.0 | 0.6 |
| 4 | Processed food, nei | 41 Sugar | — | 0.3 | 4.4 | 0.5 | 0.0 | 43 | 0.1 | 93 |
| | | 42 Fat and oils | — | 0.6 | — | 0.8 | 0.0 | 15 | 0.0 | 10 |
| | | 43 Food, nei | — | 1.4 | — | 4.0 | 0.0 | 0.9 | 0.0 | 59 |
| | | 44 Alcoholic beverages | — | 2.0 | — | 0.8 | 0.0 | 6 | 0.0 | 42 |

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 8.7 and 8.8 provide information about the agri-food products imported by ASEAN countries from Cambodia in 2014–2016. These products varied in price, depending on the IC2 group. Most of the vegetable, livestock, and aquatic products were low-priced compared with similar products from other ASEAN+6 countries (Table 8.7). However, a few products in the processed food, nei, category—such as sugar (41); food, nei (43); and alcoholic beverages (44)—were in the mid-price or high-price ranges. Cambodia's exports to Viet Nam were notably high in total value compared with those to other ASEAN countries, with the next-largest volumes of exports going to Thailand and Malaysia (Table 8.8). The total import values of Cambodian products in the other ASEAN countries were minimal.

As shown in Table 8.7, 10% of Cambodia's oil and sugar crops (12) in the low-price range were imported by other ASEAN countries, a significantly larger amount than had been estimated based on approximate lines. Meanwhile, most products were imported by other ASEAN countries in smaller quantities than estimated, including stimulants and spices (15) in the low-price range and fruits and nuts (14) in low- and mid-price ranges.[2]

**Table 8.7. 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 (%) Imported larger | | | Imported smaller | | | Obs. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Price ranges | | | Price ranges | | | Price ranges | | | |
| | | | | Low | Mid | High | Low | Mid | High | Low | Mid | High | |
| 1 Vegetable products | 11 Cereals | 1.0 | 46 | 68 | 21 | 11 | 0 | 0 | 0 | 5 | 0 | 0 | 19 |
| | 12 Oil and sugar crops | 0.8 | 34 | 70 | 10 | 20 | 10 | 0 | 0 | 0 | 0 | 10 | 10 |
| | 13 Vegetables | 0.5 | 368 | 81 | 13 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| | 14 Fruits and nuts | 1.3 | 101 | 95 | 5 | 0 | 0 | 0 | 0 | 14 | 5 | 0 | 21 |
| | 15 Stimulants and spices | 8.4 | 5 | 46 | 31 | 23 | 0 | 0 | 0 | 15 | 0 | 0 | 13 |
| 2 Livestock products | 21 Meat | 2.2 | 0.0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| | 22 Milk | 5.5 | 0.0 | — | — | — | — | — | — | — | — | — | 0 |
| | 23 Eggs | — | — | — | — | — | — | — | — | — | — | — | 0 |
| 3 Aquatic products | 31 Freshwater fishes | 1.4 | 0.7 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| | 32 Marine fishes | 1.2 | 0.9 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| | 33 Crustaceans | 1.4 | 0.7 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| | 34 Molluscs | 1.1 | 0.9 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| | 35 Aquatic animals, nei | 0.2 | 0.1 | 67 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 33 | 3 |
| | 36 Aquatic plants | 22.7 | 0.0 | — | — | — | — | — | — | — | — | — | 0 |
| | 38 Fishes, nei | 1.1 | 2 | 86 | 14 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 7 |
| 4 Processed food, nei | 41 Sugar | 1.5 | 10 | 50 | 0 | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| | 42 Fat and oils | 0.7 | 8 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| | 43 Food, nei | 8.5 | 0.0 | 0 | 67 | 33 | 0 | 0 | 0 | 0 | 33 | 0 | 3 |
| | 44 Alcoholic beverages | 1.6 | 0.6 | 40 | 40 | 20 | 0 | 0 | 0 | 0 | 20 | 0 | 5 |

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.

[2] Although aquatic animals, nei (35), food, nei (43), and alcoholic beverages (44) show large values, the number of observed data is limited.

**Table 8.8. 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 | 4.4 | 4 | 55 | 15 | 30 | 0 | 0 | 0 | 10 | 0 | 10 | 20 |
| Brunei | 2.7 | 5 | 56 | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| Malaysia | 1.4 | 44 | 65 | 26 | 9 | 0 | 0 | 0 | 0 | 9 | 4 | 23 |
| Thailand | 0.9 | 187 | 91 | 4 | 4 | 1 | 0 | 0 | 0 | 6 | 1 | 70 |
| Indonesia | 0.6 | 0.2 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Philippines | — | 0.0 | — | — | — | — | — | — | — | — | — | 0 |
| Viet Nam | 1.5 | 336 | 86 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| Lao PDR | — | 0.0 | — | — | — | — | — | — | — | — | — | 0 |
| Camboodia | 0.7 | 0.2 | 50 | 0 | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Myanmar | 1.4 | 0.0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |

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

Soybeans imported by Thailand and Viet Nam were the only Cambodian product imported in significantly larger quantities in 2014–2016 than had been estimated based on their import prices (Table 8.9). 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 Cambodia 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, for instance: tea, beef and veal sausages, fresh whole cow's milk, buttermilk/curdled milk/acidified milk, skimmed dried milk, short margarine, and refined sugar from Thailand; maize flour from Viet Nam; and single strength orange juice, natural honey, distilled alcoholic beverages, and beer of barley from Singapore.[3]

There are also many products for which import quantities were significantly smaller during 2014–2016, considering their prices, such as vegetable products in the low- and mid-price ranges; aquatic products in the low-price range; and processed food, nei, 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.

[3] For reference, see tables 2.9 to 9.9. See also Table A4.2 on major exports from the +6 countries.

**Table 8.9. 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 | 12 | 111 | Soybeans | 0.4 | 8 | 0.09 | | | | | | | | | | | | | | |
| | 2 | VNM | 12 | 111 | Soybeans | 0.6 | 20 | 0.16 | | | | | | | | | | | | | | |
| | 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 | MYS | 14 | 122 | Nuts, prepared (exc. groundnuts) | 0.8 | 0.003 | 0.02 | SGP | 14 | 122 | Fruits, nuts, peel, sugar preserved | 7.0 | 0.000 | 0.02 | | SGP | 12 | 122 | Soya paste | 18.5 | 0.000 | 0.05 |
| | 2 | THA | 15 | 122 | Coffee, roasted | 8.3 | 0.000 | 0.03 | VNM | 11 | 122 | Rice, milled/husked | 1.5 | 0.000 | 0.15 | | | | | | | | |
| | 3 | THA | 15 | 112 | Tea | 18.3 | 0.000 | 0.04 | MYS | 11 | 122 | Bread | 2.6 | 0.019 | 0.17 | | | | | | | | |
| | 4 | MYS | 11 | 122 | Pastry | 2.8 | 0.020 | 0.05 | SGP | 12 | 122 | Peanut butter | 5.6 | 0.004 | 0.18 | | | | | | | | |
| | 5 | THA | 14 | 112 | Fruit, stone nes | 0.6 | 0.000 | 0.06 | | | | | | | | | | | | | | | |
| 2 Livestock products | 1 | | | | | | | | | | | | | | | | | | | | | | |
| | 2 | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | | | | | | | | | | | | | | | | | | | | | | |
| | 4 | | | | | | | | | | | | | | | | | | | | | | |
| | 5 | | | | | | | | | | | | | | | | | | | | | | |
| 3 Aquatic products | 1 | THA | 38 | 122 | Fish and fish products, nei | 0.9 | 0.097 | 0.12 | MYS | 38 | 122 | Fish and fish products, nei | 4.8 | 0.001 | 0.07 | | SGP | 35 | 122 | Miscellaneous aquatic products, food | 18.5 | 0.000 | 0.06 |
| | 2 | THA | 32 | 112 | Tunas, bonitos, billfishes | 0.3 | 0.002 | 0.12 | | | | | | | | | | | | | | | |
| | 3 | MYS | 38 | 112 | Fish and fish products, nei | 4.7 | 0.000 | 0.12 | | | | | | | | | | | | | | | |
| | 4 | | | | | | | | | | | | | | | | | | | | | | |
| | 5 | | | | | | | | | | | | | | | | | | | | | | |
| 4 Processed food, nei | 1 | SGP | 41 | 122 | Beverages, non alcoholic | 0.6 | 0.012 | 0.14 | SGP | 44 | 122 | Beverages, distilled alcoholic | 31.1 | 0.007 | 0.05 | | SGP | 44 | 122 | Wine | 21.1 | 0.000 | 0.13 |
| | 2 | SGP | 44 | 122 | Beverages, fermented rice | 2.7 | 0.000 | 0.16 | THA | 43 | 122 | Food preparations, nes | 5.4 | 0.000 | 0.06 | | THA | 41 | 122 | Beverages, non alcoholic | 5.6 | 0.000 | 0.15 |
| | 3 | SGP | 42 | 121 | Oil, coconut (copra) | 6.2 | 0.000 | 0.18 | MYS | 43 | 122 | Infant food | 11.7 | 0.000 | 0.10 | | | | | | | | |
| | 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, nei = not elsewhere included, nes = not elsewhere specified, SGP = Singapore, THA = Thailand, VNM = Viet Nam.

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 stimulants and spices (15) were the highest, followed by that of fruits and nuts (14), in 2011–2015 (Table 8.10). The ratios of the yield, an indicator of comparative advantage in the ASEAN region, were roughly the same for all IC2 groups in the category of vegetables.

**Table 8.10. Median Levels of Productivity and Resource Allocation in Each IC2 Group**

| IC1 | IC2 | Land productivity (KR million/ha) | Chg (%) | Ratio of the yield Index (Yi/Yi') | Chg (%) | Area harvested (1,000 ha) | Chg (%) | Obs. |
|---|---|---|---|---|---|---|---|---|
| 1 Vegetable products | 11 Cereals | 5 | 6 | 0.9 | 1 | 1,540 | 0 | 2 |
| | 12 Oil and sugar crops | 8 | 4 | 1.0 | -1 | 14 | 1 | 9 |
| | 13 Vegetables | 14 | 2 | 0.8 | 0 | 66 | 2 | 5 |
| | 14 Fruits and nuts | 17 | 2 | 0.9 | 0 | 5 | 1 | 9 |
| | 15 Stimulants and spices | 23 | 2 | 0.7 | -2 | 0 | 1 | 3 |
| | Total | 13 | 3 | 0.9 | 0 | 12 | 1 | 28 |
| **IC1** | **IC2** | **Feed productivity (KR million/100 PU)** | **Chg (%)** | **Ratio of the yield Index (Yi/Yi')** | **Chg (%)** | **Producing animals (million PU)** | **Chg (%)** | **Obs.** |
| 2 Livestock products | 21 Meat | 5 | — | 0.8 | — | 2 | -1 | 5 |
| | 22 Milk | 4 | — | 1.5 | — | 2 | -1 | 1 |
| | 23 Eggs | 9 | — | 0.7 | — | 1 | 2 | 2 |
| | Total | 6 | — | 0.8 | — | 2 | -1 | 8 |

KR = riels (Cambodian currency).

ha = hectare, IC1 = item category level 1, IC2 = item category level 2, PU = unit of pig feed requirements, Yi = yield in Cambodia, 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 riel 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 stimulants and spices (15), pepper had the highest land productivity and ratio of the yield during the same period (Table 8.11); its productivity increased slightly, while its ratio of the yield declined. Meanwhile, the harvested land area for pepper was quite small, at 0.38 million hectares (ha), and did not expand. Note that high productivity and ratio of the yield can be achieved in a limited land area. In the vegetable products category, the productivity and ratios of the yield of oilseed, nes, or minor oilseeds, and of mangoes/mangosteens/guavas were relatively high.[4] Similarly, pork and buffalo meat had high feed productivity and ratios of the yield, compared with those of other the livestock products. Although the harvested areas or number of producing animals for the products mentioned above were small, and did not necessarily increase, the potential of these items 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 8.11, which lists examples of products imported by other ASEAN countries from Cambodia during 2014–2016 in greater quantities than would be expected based on their prices, it is suggested that only soybeans had non-price competitiveness or were differentiated from the same item produced in other countries. Agri-food products in Cambodia should be actively improved for the sake of developing the FVC in that country.

[4] While the land productivity of sugar cane, as shown in Table 10.11, was quite high in 2011–2015, that value is questionable. The producer price of sugar cane in Cambodia was $3,649 per metric ton in 2015, according to FAOSTAT. Meanwhile, the producer prices in Malaysia and Lao PDR, the second- and third-highest producing countries, were $218/t and $181/t, respectively.

## Table 8.11. Levels of Productivity and Resource Allocation for Individual Items

| No. | IC2 | FCL name | Land or feed productivity (KR million/ha or KR 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 | Maize | 6 | 6 | 1.1 | 0 | 161 | -1 | iii | i | | | | |
| 2 | | Rice, paddy | 4 | 6 | 0.7 | 2 | 2,918 | 2 | iv | iv | | | | |
| 3 | 12 | Sugar cane | 305 | 7 | 0.3 | -2 | 26 | 15 | ii | ii | | | | |
| 4 | | Oilseeds nes | 20 | 3 | 2.2 | -2 | 0 | 1 | i | i | | | | |
| 5 | | Coconuts | 13 | 4 | 1.0 | 2 | 12 | -2 | iii | i | | | Oil, coconut (copra) | SGP |
| 6 | | Groundnuts, with shell | 11 | 5 | 0.9 | 2 | 18 | 1 | iii | ii | | | | |
| 7 | | Seed cotton | 5 | 3 | 0.7 | -8 | 0 | -1 | iv | iv | | | | |
| 8 | | Soybeans | 5 | 4 | 1.1 | 0 | 89 | 4 | iii | iii | Soybeans | THA | Soya paste | SGP |
| 9 | | Sesame seed | 4 | 1 | 1.3 | -1 | 39 | -3 | iii | iii | | | | |
| 10 | | Castor oil seed | 1 | 2 | 1.2 | -2 | 1 | 0 | iii | iii | | | | |
| 11 | | Oil, palm fruit | — | — | 0.6 | 0 | 14 | 1 | — | — | | | | |
| 12 | 13 | Cassava | 18 | -3 | 1.2 | 0 | 347 | 17 | i | i | | | | |
| 13 | | Vegetables, fresh nes | 18 | 2 | 0.5 | -1 | 89 | 2 | ii | ii | | | | |
| 14 | | Roots and tubers, nes | 14 | 1 | 1.6 | 0 | 3 | 4 | i | i | | | | |
| 15 | | Sweet potatoes | 6 | 10 | 0.5 | -5 | 9 | 0 | iv | iv | | | | |
| 16 | | Beans, dry | 6 | 7 | 0.8 | 0 | 66 | 1 | iv | iii | | | | |
| 17 | 14 | Oranges | 53 | 1 | 0.3 | -1 | 11 | 1 | ii | ii | | | | |
| 18 | | Mangoes, mangosteens, guavas | 22 | 3 | 1.6 | 0 | 5 | 2 | i | i | | | Mangoes, mangosteens, guavas | MYS |
| 19 | | Pineapples | 18 | -2 | 0.3 | -2 | 2 | 2 | ii | ii | | | | |
| 20 | | Fruit, fresh nes | 17 | 1 | 0.9 | 2 | 12 | 1 | ii | i | | | | |
| 21 | | Grapefruit (inc. pomelos) | 16 | 3 | 1.0 | 0 | 0 | 0 | i | iii | | | | |
| 22 | | Lemons and limes | 14 | 3 | 1.1 | 2 | 0 | 1 | i | iii | | | | |
| 23 | | Bananas | 8 | 2 | 0.2 | -1 | 32 | 0 | iv | iv | | | | |
| 24 | | Nuts, nes | 2 | 3 | 3.0 | 0 | 2 | 0 | iii | iii | | | Nuts, prepared (exc. groundnuts) | MYS |
| 25 | | Cashew nuts, with shell | — | — | — | — | 5 | 6 | — | — | | | | |
| 26 | 15 | Pepper (piper spp.) | 97 | 2 | 6.1 | -2 | 0 | 0 | i | i | | | | |
| 27 | | Coffee, green | 23 | 2 | 0.7 | -2 | 0 | 1 | ii | i | | | Coffee, roasted | THA |
| 28 | | Chillies and peppers, dry | 3 | 2 | 0.5 | -5 | 13 | 2 | iv | iv | | | | |
| 29 | 21 | Meat, pig | 170 | — | 1.1 | — | 2 | -2 | i | i | | | | |
| 30 | | Meat, buffalo | 18 | — | 0.8 | — | 1 | -2 | i | i | | | | |
| 31 | | Meat, chicken | 5 | — | 0.7 | — | 5 | -1 | iv | ii | | | | |
| 32 | | Meat, cattle | 5 | — | 0.6 | — | 10 | -1 | iv | iv | | | | |
| 33 | | Meat, duck | 5 | — | 0.8 | — | 2 | 2 | iii | iii | | | | |
| 34 | 22 | Milk, whole fresh cow | 4 | — | 1.5 | — | 2 | -1 | iii | i | | | | |
| 35 | 23 | Eggs, other bird, in shell | 11 | — | 0.7 | — | 0 | 2 | ii | ii | | | | |
| 36 | | Eggs, hen, in shell | 7 | — | 0.7 | — | 2 | 2 | ii | iii | | | | |

KR = riels (Cambodian currency).

FCL = FAOSTAT Commodity List, ha = hectare, IC2 = item category level 2, Intpn. = interpretation, MYS = Malaysia, nes = not elsewhere specified, p = p-value, PU = unit of pig feed requirements, SGP = Singapore, THA = Thailand, Yi = yield in Cambodia, 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 riel 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 8.12 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 2011–2015. In other words, the profitability per unit area of FCL items was not necessarily high when they 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 Cambodia were simply not allocated to products characterized by high productivity or competitiveness.

**Table 8.12. Correlation Matrix of Comparative Advantage, Productivity, and Resource Allocation, 2011–2015**

| | Land or feed productivity | | | | | | Ratio of the yield | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IC2 | 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 | — | -0.38 | 0.30 | -0.26 | — | 0.40 | — | — | — | — | — | — |
| Area or producing animals | — | -0.14 | 0.60 | 0.24 | — | -0.60 | — | 0.00 | -0.10 | -0.64 | — | -0.70 |
| Obs. | 2 | 8 | 5 | 8 | 3 | 5 | 2 | 8 | 5 | 8 | 3 | 5 |

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 Cambodia'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 important destinations for Cambodian agri-food products.
- The VA of the wholesale and retail trade industries has been a major component of Cambodia's GDP; for instance, it accounted for about 12% of 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 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 to the hotel-and-restaurant industries. Intra-industry transactions within agriculture and the food-and-beverage sector were observable, as well.

### Linkages amongst FVC-related Industries

- The increase in final demand in the food and beverage industries had some impacts on the VA of upstream sectors, particularly agriculture. This result suggests that interventions into the food and beverage industries do contribute to the development of agriculture.
- Effects of the food and beverage industries on the VA of fishing was notable, as the size of the fishing sector is very limited. It is also suggested 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 wholesale/retail trade and hotel-and-restaurant industries, which had higher per capita compensation than the other FVC-related industries, and a stable growth in the number of employees, seemed to have been attractive sectors in terms of labour absorption.

**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 amount of sugar was imported, followed by cereals and alcoholic beverages. The exports of cereals exceeded those of other IC2 goods. The second- and third-largest export goods were vegetables and freshwater fishes, respectively. Even though cereals were mainly produced/consumed at home, the little that was produced/consumed in foreign markets were in large enough volumes to rank high compared with other exports and imports.
- The export prices of raw stimulants and spices were unexpectedly high, but still limited. None of the exports of relatively high-priced IC2 products had large values. We can conclude that the high-priced processed food, nei, imported in large amounts had high enough values to generate active trade in Cambodia.

**The Competitiveness of Each Product in the ASEAN Region**

- Soybeans imported by Thailand and Viet Nam were the only Cambodian items imported in significantly larger quantities than had been estimated based on their import prices.
- Research on the characteristics of the goods actively exported by other ASEAN countries to Cambodia might trigger a reconsideration of production and marketing strategies for domestic products that could compete with goods produced by other ASEAN states, for instance: tea, beef and veal sausages, fresh whole cow's milk, buttermilk/curdled milk/acidified milk, skimmed dried milk, short margarine, and refined sugar from Thailand; maize flour from Viet Nam; and single-strength orange juice, natural honey, distilled alcoholic beverages, and beer of barley from Singapore.
- Among the stimulants and spices, the land productivity and ratio of the yield of pepper exceeded those values for all the other products in that category. In the vegetable products category, the productivity and the ratios of the yield of oilseed, nes, or minor oilseeds, and of mangoes/mangosteens/guavas were relatively high. Similarly, pork and buffalo meat had high feed productivity and ratios of the yield, compared with those values for the 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.