



## **Food and beverage production in Cambodia: The perspective of employment**

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### **Abstract**

This article investigates food and beverage production in Cambodia with the perspective of employment. With an international data source of industrial statistics, this article finds that the employment in food and beverage production in Cambodia expanded significantly between 1993 and 2000, in line with the expansion of employment in the whole manufacturing in Cambodia. It is surprising to notice that although the employment and production of food and beverage industry in Cambodia increased rapidly, the average wage fluctuated sharply. This could be caused by a number of factors such as the relative low-skilled workforce. Some practical implications for industrial policies are generated based on evidence and discussion in this article.

**Keywords:** food and beverage production; Cambodia; industrial statistics; industrial policies

### **1. Introduction**

Cambodia is located on the northeast of Gulf of Thailand, bordered with Thailand, the Laos, and Vietnam from its northwest to the east. Its population increased from around 11.6 million in 1998 to over 16.2 million in 2018 (World Bank, 2019a) <sup>[11]</sup>. The GDP (2010 constant US dollar) increased from around 4.2 billion in 1998 to near 19.6 billion in 2018 (World Bank, 2019b) <sup>[12]</sup>. Such rapid economic growth gained Cambodia the lower-middle income status in 2015.

Cambodia has an agrarian economy for a long history. For example, between 1988 and 1992, agriculture contributed to over half of the country's GDP (Irvin, 1993) <sup>[4]</sup>. The industrialization in Cambodia, which started more than half a century ago, has been disrupted by the long-term unstable political and military status in the country. Since 1993, Cambodia has started a marketized economic transition and industrial development with a heavy reliance on foreign investments and a strong export-orientation (Sothan, 2018) <sup>[8]</sup>. This can be reflected by the gradually increasing share of industry in GDP, from 12.6% in 1993 to about 22.6% in 2011 (Chhair and Ung 2013, p8) <sup>[2]</sup>.

In consideration of the specific country context of Cambodia, the importance of food and beverage production in its industrial development and marketized economic transition cannot be neglected. Because of the strong presence and long history of agriculture, food and beverage can be one of the most important manufacturing economic activities to boost the industrialization in Cambodia. For example, as estimated by Chhair and Ung (2013, p8 and p13) <sup>[2]</sup>, in 2011, more than 41% of manufacturing establishments and over 15% of manufacturing employments in Cambodia are within the production of food and beverage (including tobacco). Also, due to the relatively low level of labor skills and investment required, food and beverage production can be a main source of incomes for rural households, especially in less-industrialized countries with strong presence of agriculture (Huynh *et al*, 2006). This is particularly important for countries at early stages of

industrialization such as Cambodia, which has a large amount of relatively low-skilled labor to be absorbed by industries without strong and high requirements of knowledge and technology. For example, although Cambodia enjoys a significant demographic bonus as near 1/3 of their population is younger than age 14 (World Bank, 2019c) <sup>[13]</sup>, the average length of schooling for its population (age range 22-65) was merely 4.2 years in 2003-04, and only slightly more than 1/3 of the population (age range 22-65) had completed primary education or above (Lall and Sakellariou 2010, p337) <sup>[15]</sup>. The relationship between food production and health in Cambodia is also observed (Olney *et al*, 2009) <sup>[6]</sup>, as this is directly related to the country's industrial productivity, which strongly relies of manual work due to its relatively low-skilled workforce.

Therefore, this article examines the food and beverage production in Cambodia with the perspective of employment via two aspects: (1) the size of labor market and (2) wages. More specifically, this article answers three questions:

- (1) What are the amounts and changes of food and beverage production establishments?
- (2) What are the amounts and changes of employees in the food and beverage production?
- (3) What are the (changes of) wages in the food and beverage production?

### **2. Materials and data**

In order to answer the questions as above, this article uses the United Nations Industrial Development Organization (UNIDO) database named 'Industrial Statistics Database-INDSTAT 2'. At the 2-digit level of International Standard of Industrial Classification (ISIC) of All Economic Activities (Revision 3, United Nations Statistics Division, 2002), INDSTAT 2 contains time series data on the manufacturing sector from 1963. This database contains eight principle indicators of industrial statistics, including manufacturing establishments, employees, value-added, output, and wages, which directly relate to this article.

Nevertheless, not all countries are included in INDSTAT 2. Even for countries included, they may not necessarily have the information of all years possibly due to the differences in practices of national statistics and the availability of data. For Cambodia, INDSTAT 2 has information on its manufacturing development and food and beverage production (tobacco not included) in the years 1989, 1990, 1991, 1993, 1995, and 2000. This article only uses data for years 1993, 1995, and 2000. This is because of a number of reasons. Firstly, data for years 1989-1991 are converted from ISIC Revision 2 into Revision 3, which may incur inconsistencies with other years. Secondly, the marketized transition industrial development in Cambodia started in 1993, which makes it more suitable to examine the data from 1993 onwards. Thirdly, data for 1993, 1995, and 2000 were collected from Survey of Industrial Establishments, which have good coverages of industrial establishments. For example, the data for 2000 covered industrial establishments in 11 provinces and municipalities out of 20 provinces and 4 municipalities in Cambodia at that time.

### 3. Results and discussions

Table 1 summarizes the amount and changes of establishments, employees, and wages in the food and beverage (tobacco not included) production of Cambodia in 1993, 1995, and 2000. It is observed from Table 1 that there was a rapid expansion of establishments and employees in food and beverage production in Cambodia between 1993 and 2000. For example, there was only 79 establishments producing food and beverages, and this figure soared to more than 5,515 in 2000 (around 70 times). Similarly, the number of employees in food and beverage production increased around 10 times from 1,932 in year 1993 to slightly more than 20 thousand in year 2000. The uneven increase of food and beverage production establishments and employees, however, significantly reduced the size of food and beverage production establishments from about 24.5 employees per establishment in 1993 to less than 4 employees per establishment in 2000.

**Table 1:** Food and Beverage Production Establishments, Employees and Wages in Cambodia (1993, 1995, and 2000)

	1993	1995	2000
Establishments	79	101	5,515
Employees	1,932	1,673	20,085
Total wages (1,000 Riels)	2,089,204	3,012,903	14,752,000
Size of establishments (No. of employees per establishment)	24.5	16.6	3.6
Average wage (Riels)	1,081,369	1,800,898	734,479

**Data source:** UNIDO INDSTAT 2 (2019)

Note: Riel has been the official currency in Cambodia since 1980 (currency code: KHR). It must be distinguished from the so called 'First Riel' which were issued as official currency between 1953 and 1975. According to Fxtop.com online search, the exchange rates between USD and KHR in the mid-year of 1993, 1995, and 2000 were 1 USD to roughly KHR 2,800, KHR 2,250, and KHR 3,890. In the mid of 2X019 the exchange rate was around 1 USD to KHR 4,060.

The average wage per employee in food and beverage

production industry of Cambodia fluctuated sharply during the period between 1993 and 2000. In 1993, an employee in food and beverage production industry of Cambodia earned slightly over Riels 1.08 million, and this figure soared to over Riels 1.8 million two years later in 1995. However, in 2000 an employee in food and beverage production industry earned only less than Riels 735 thousand. In consideration of the dropped exchange rate to USD, the real purchasing power could be even lower.

Data in Table 2 do not provide evidence to support the possible positive relationship between average wages and the scale and/or productivity of food and beverage production in Cambodia. For example, as measured by the gross output and total value added, the absolute scale of food and beverage production in Cambodia dropped significantly between 1993 and 1995, similar as the productivity as reflected by the figures of output and value added per employee. However, during this period, as shown in Table 1, the average wage in food and beverage production in Cambodia increased sharply. To the contrary, when the absolute scale and productivity in food and beverage production increased sharply in 2000, the average wage dropped tremendously. This is an interesting result which contradicts to existing literature and popular belief that wages are usually positively associated with productivity.

**Table 2:** Output and Value Added in Food and Beverage Production in Cambodia (1993, 1995, and 2000, all figures are in 1000 Riels)

	1993	1995	2000
Gross output	69,533,388	57,534,215	1,271,511,000
Total value added	38,645,351	24,521,029	309,804,000
Output per employee	35,991	34,390	63,306
Value added per employee	20,003	14,657	15,425

**Data source:** UNIDO INDSTAT 2 (2019)

Table 3 provides a summary of employment and production of the whole manufacturing sector in Cambodia to serve as a comparison of findings obtained from Tables 1 and 2. According to Table 3, similar to employment in its food and beverage production, Cambodia experienced a rapid expansion of manufacturing sector in terms of production and employment, although not stable. For example, the employees in Cambodia's manufacturing sector dropped from 22 thousand to less than 17 thousand between 1993 and 1995, but increase tremendously to over 532 thousand 5 years later. The output and value added both soared around 60 times between 1993 and 2000.

However, unlike the situation in food and beverage production, the size of establishments and average wages for the whole manufacturing sector in Cambodia increased between 1993 and 2000. For example, on average, a manufacturing employee in Cambodia earned slightly more than Riels 874 thousand in 1993, and this figure almost doubled to Riels 1,738 thousand, and with another over 90% increase to near Riels 3,360 thousand in 2000. This suggests that the decrease of average wage in food and beverage production in Cambodia is not significantly associated with the overall situation in the whole manufacturing sector.

**Table 3:** Production and Employment in Cambodia's Manufacturing Sector (1993, 1995, and 2000)

	1993	1995	2000
Establishments	543	782	7,857
Employees	22,006	16,228	532,849
Wages (1,000 Riels)	19,234,642	28,205,865	1,789,961,000
Gross output (1,000 Riels)	184,763,244	434,878,342	11,163,108,000
Total value added (1,000 Riels)	89,255,438	173,258,615	5,367,797,000
Size of establishments	40.5	20.8	67.8
Average wage (Riels)	874,064	1,738,099	3,359,227
Output per employee (1,000 Riels)	8,396	26,798	20,949
Value added per employee (1,000 Riels)	4,056	10,677	10,074

**Data source:** UNIDO INDSTAT 2 (2019)

The findings leave spaces for a number of discussions in the article. Firstly, the rapid expansion of employment in food and beverage production in Cambodia intensifies the competition in the labor market, as the increase in the number of establishments in food and beverage production in Cambodia is significantly inconsistent with the increase in employees. Therefore, the sizes of food and beverage production establishments in Cambodia squeezed sharply, which could be a factor of the reducing wages. It may also lead to the lowering of job security as small firms usually have weaker job security in the market competition.

Secondly, similar to other countries at the early stages of industrialization and/or marketized transition, rapid expansion of food and beverage production in Cambodia may lead to under-employment and/or informal employment. This is particularly the situation for Cambodia, which has a strong presence of agriculture and a relatively low-skilled workforce. This may be another reason of the fluctuation of average wages in food and beverage production in Cambodia.

Thirdly, the low availability of data makes it impossible to examine the most recent development of food and beverage production in Cambodia. It also creates barriers to examine the relationship between employment in food and beverage production and the recent global market competition. This is a disadvantage as Cambodia's manufacturing development is heavily dependent on global markets and foreign investments, and the working conditions (including wages) in have strong connections with exportation (Arnold and Shih, 2010) <sup>[1]</sup>.

Some practical implications can also be generated. Firstly, as the workforce for food and beverage production in Cambodia is relatively low-skilled, it would be essential to take effective actions to enhance the education and training of workers in Cambodia. This is also supported by Lall and Sakellariou (2010) <sup>[15]</sup>, which find that the returns to education increased in line with the economic development and marketized transition. Similarly, Yu and Fan (2011) <sup>[15]</sup> argue that the rice production in Cambodia can be substantially improved by more use of modern technology. This again requires a workforce with proper education and skills.

Secondly, food and beverage production can become an effective instrument to diversify the household income and promote non-farm employment in Cambodia. However, as Rahut and Scharf (2012) <sup>[7]</sup> find that usually when the poor workers participating in non-farm employment, they are more likely to work in low-paid jobs and therefore earn lower incomes. There is hence a need to further investigate the possible 'Matthew Effects' in the employment of food and beverage production in Cambodia, caused by the

possible deficiencies in income distribution. Proper protection of labor rights including guarantee of minimum wages and access to appropriate working conditions is therefore necessary.

#### 4. Conclusion

This paper examines food and beverage production in Cambodia via the perspective of employment. It finds that the employment in food and beverage production in Cambodia expanded rapidly between 1993 and 2000, in terms of both the number of establishments and employees. However, the average wages during the same period fluctuated sharply and were consistent with neither the increase in absolute scale of food and beverage production, nor the increase in productivity. It is not likely to be influenced by the overall development of the whole manufacturing sector in Cambodia either, which witnessed a stable increase of average wages.

A number of discussions and practical implications are included in this article. For example, the relatively low-skilled workforce in Cambodia, as well as the reducing sizes of establishments in the food and beverage production, may become important reasons of the fluctuation of average wages in food and beverage industry. Since the data is only available before the year 2000, it is essential to further enhance the statistical capacity development in Cambodia, which may provide more data to capture the most recent development. Future studies may also investigate the possible connection between global competition in food and beverage market and the employment in Cambodia's food and beverage production, as food and beverage production (also the whole industrial development) in Cambodia largely depends on exportation and foreign investments.

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