

Chapter 14

FOOD SECURITY AND POVERTY ALLEVIATION: CASE STUDY IN INDONESIA AND TURKEY

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INTRODUCTION

Background

Indonesia and Turkey are two countries that represent the characteristics of Asian and European continents. The long history in the two countries generates different economic characteristics. The available economic resources have been utilized in the development process. During the period 1980-2017 Indonesia's economic growth averaged around 5.1% per year. While Turkish economy had an average economic growth rate of 4.6% (data.worldbank.org). Those two countries also experienced periods of economic fluctuation in response to the dynamics occurring both domestically and internationally.

The development of economic growth in both countries was also followed by the level of poverty. The continuing poverty levels in Indonesia and Turkey reflect that there are still problems in the development process. Various development programs that have been launched bring changes in the achievement of prosperity and poverty alleviation in both countries. Turkey which brings the icon of a European country has the character of a modern economy. While Indonesia in the ASEAN region is still pictured as an agrarian country that is transforming into a modern economy. The dual economy in Indonesia and the modern economy in Turkey still have the same problem, which is poverty. This is certainly a problem in the development process in both countries. As an illustration, the level of poverty during 2002-2016 can be measured from the amount of income per day which less than US \$ 1.90 (based on the level of international prices in 2011). The poverty rate in Indonesia is still on the average of 16.09% and in Turkey is on the average of 1.16%.

Poverty is closely related to the fulfillment of food needs done by residents of

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a country. The availability of food that is affordable by the community will make it easier for the community to fulfill their daily needs. Food affordability is closely related to the purchasing power and income of the community. The country's ability to manage food and control economic stability develops into important factor in poverty alleviation that occurs in Indonesia and Turkey. Considering the above explanation, this study objective is then to analyze the relationship between food security and poverty levels in Indonesia and Turkey.

Research Problem

Accordingly the research problem is how the relationship between food security and poverty in Indonesia and in Turkey.

LITERATURE REVIEW

Poverty is closely correlated to the fulfillment of food needs done by residents of a country. The availability of food that is affordable by the community will make it easier for the community to fill up their daily needs. Food affordability is directly linked to the purchasing power and income of the community. High inflation and the scarcity of food will erode the level of income and community purchasing ability which will ultimately reduce welfare and later may increase poverty in various countries. In the development of the global economy today the price of food commodities has fluctuated according to the supply and demand mechanisms that occur in the global market. The country's ability to manage food and to control economic stability happens to be significant factor in poverty alleviation occurred in Indonesia and Turkey.

In its development from time to time, the agricultural sector still provides hope for the availability of jobs for the people. The ability of the agricultural sector to provide jobs has made the agricultural sector a savior in building a strong national economic foundation. But along with the dynamics of the global economy, developments in the agricultural sector have stagnated and even declined in their contribution to the national economy. Globalization of the existing economy has caused the market share of domestic agricultural commodities began to be wore down by the presence of agricultural commodities from other countries. This condition, if it is left unchecked, will cause law to diminish marginal productivity in the agricultural sector.

In a study conducted by Levy, et al (2004) provided the view that food security contributes to poverty alleviation in the country of Malawi, but this cannot reduce the level of poverty that occurs. Nevertheless, food security is an important prerequisite for poverty reduction. The research done by Ahmed and Siwar

(2013) illustrated that the production of food commodities should be increased substantially to reduce food insecurity which will ultimately contribute to reducing poverty. In his research Adu, et al (2018) emphasized the importance of interventions in the agricultural sector to overcome the problem of food insecurity in Ghana. Those interventions referred to input supply, market access, infrastructure development, value added and processing, and counseling or capacity building training.

Food is one of essential elements in achieving the prosperity of the people in a country. The availability of sufficient food will be able to guarantee the people's food needs and ensure the fulfillment of people's basic rights in development in various countries. According to Law No. 18 of 2012 concerning Food it is stated that food is everything that comes from biological sources of agricultural, plantation, forestry, fishery, livestock, aquatic, and water products, both processed and unprocessed which are intended as food or drinks for human consumption, including food additives, food raw materials, and other materials used in the preparation, processing and / or manufacturing of food or beverages. In this case the fulfillment of food needs will be closely related to the efforts of the state in poverty alleviation of its people.

Poverty is a phenomenon where there are some people who have a lower level of welfare compared to the general welfare achievement. In this case according to Mood and Jonsson (2016) "... poverty is commonly defined as a lack of economic resources that has negative social consequences, but surprisingly little is known about the importance of economic hardship for social outcomes. This article offers an empirical investigation into this issue ... ". According to Haughton and Khandker (2009) poverty is "...a pronounced deprivation in wellbeing ...". Meanwhile, according to Hulme (2010) "... poverty is often defined this way in developing countries, as it focuses attention on vital human needs, and helps with measurement and cross country comparisons ..."

The availability of sufficient food can guarantee the sustainability of national development. Management of food resources becomes important, because of various problems both originating from within the country and abroad. The results of a survey conducted by Fabian Research Report (2015) in the United Kingdom showed that an increase in food prices has burdened low-income groups in the range of 16% to 35%. That is why resilient food security is needed so that the availability of food may secure food needs and may lead to poverty reduction.

Food security according to Law No. 18 of 2012 is the condition of the fulfillment of food for the state up to the individual, which is reflected in the availability of sufficient food, both in number and quality, safe, diverse, nutritious, equitable,

and affordable and not contrary to the religion, beliefs and culture of the community, to can live healthy, active and productive sustainably. Meanwhile, according to the international institute of Food Agricultural Organization (FAO) food security is interpreted as

“...“Food security [is] a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life...”

In this sense there are 4 (four) main components, those are availability, access, utilization and vulnerability (www.fao.org).

Other research conducted by Mahadevan and Hoang (2015) illustrated that there is no relationship between poverty and food security (composite food security index indicator) in urban areas but there is a weak relationship in rural areas. However, there is a strong relationship between poverty and calorie intake as well as food sufficiency for rural and urban areas in Vietnam. In relation to the problem of poverty, a research by Mukhlis and Simanjuntak (2016) concluded that the poverty rate is influenced by the level of wages and the unemployment rate. Mukhlis, et al (2018) emphasized that in the implementation of regional autonomy and fiscal decentralization policies in Indonesia, it should be able to encourage public access to available economic resources. This expansion of access can be seen as a community effort to get out of the poverty zone after the implementation of the regional autonomy policy. Whereas Mood and Jonsson (2016) concluded that there is a relationship between poverty and social relations. The higher the level of poverty is, the worse the social relations will be. While Pattinara (2009) stated that because they do not have access to socio-economic facilities, infrastructure, and communication, so some people live in poverty and are encountering their daily food needs in a sufficient amount only.

RESEARCH OBJECTIVE AND SIGNIFICANCE

Research Objective

The objectives of this study are:

- To carry out analyzes of food security and poverty levels in Indonesia and Turkey
- To analyze the correlation between food security and poverty in Indonesia and Turkey.

Research Significance

The significances achieved from this study are:

- Description of food security level and poverty levels in Indonesia as well as in Turkey. This information can be useful for the National Food Security Agency and local governments in formulating policies to improve food security and poverty alleviation.
- Development of theories on the relationship of food security and poverty levels, including concepts and measurement instruments. The results of developing this theory can provide another theoretical perspective on the relationship between food security and poverty levels.

RESEARCH METHODOLOGY

The type of research applied in this study is quantitative research. This type of research is selected with the consideration that the object being observed has quantitative elements that can be analyzed from Economics notions. The data used in this study are primary data and secondary data. Primary data includes data on location, type of livelihood, and income. Primary data objects such as; groups of poor households, farmers, as well as micro, small and medium enterprises. While secondary data includes data on poverty levels, food availability, food access, price levels, economic growth rates, education levels, and expenditure levels. Secondary data were obtained from the Central Statistics Agency, the World Bank and the Asian Development Bank. Secondary data used in this study covers the period of 1990-2017.

The data collection methods used in this study includes

- a. Document Analysis, data collection is done by recording various existing data both in government agencies and in community groups. These data include secondary data types.
- b. Observations in the field, data collection is done by making observations directly to the object under study.
- c. In-depth interviews, conducted by question and answer with respondents who deal directly with the object of research.

The procedural stages in research using

- a. Data collection
- b. Data tabulation
- c. Data verification
- d. Data analysis
- e. Drawing conclusions

The data analysis method used in this research is descriptive analysis which is done by describing food security and poverty levels. The description includes

a general description of food security and poverty levels, relevant indicators as measuring variables, verifying data, conducting data checking processes, and conducting inferences.

RESEARCH FINDINGS AND DISCUSSIONS

Indonesia's economic development is well related to the development of the agriculture sector, and agriculture is a sector with abundant endowment factors in Indonesia. Agricultural sectors have various types and different product characteristics, such as; marine fisheries, inland fisheries, agriculture, plantation, and forestry. The products are distributed in all provinces in Indonesia, and each region has a different type of commodity and different times of planting also harvesting. Moreover, planting patterns and crop patterns for agricultural products are largely dependent on the weather.

Table 1: Developments in Agriculture Sector GDP (Billion Rp) 2010 constant prices

| Sector | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|-----------|-----------|-----------|-----------|------------|
| Agriculture, Forestry, and Fishery | 1,129,053 | 1,171,446 | 1,210,956 | 1,257,876 | 1,307,026 |
| 1. Agriculture, Animal husbandry, Hunting and Agricultural services | 880,390 | 906,806 | 936,357 | 969,774 | 1,005,441 |
| a. Crops | 268,427 | 280,019 | 287,217 | 293,858 | 298,201 |
| b. Holticultural Plants | 124,301 | 127,110 | 130,832 | 135,647 | 145,134 |
| c. Plantation Crops | 338,502 | 345,165 | 357,138 | 373,054 | 387,502 |
| d. Animal Husbandry | 132,221 | 136,936 | 143,037 | 148,357 | 155,152 |
| e. Agricultural services and Hunting | 16,938 | 17,575 | 18,134 | 18,858 | 19,452 |
| 2. Forestry and Logging | 59,574 | 60,624 | 60,002 | 61,251 | 62,944 |
| 3. Fisheries | 189,090 | 204,017 | 214,597 | 226,851 | 238,641 |
| Gross Domestic Product | 8,564,867 | 8,982,517 | 9,434,613 | 9,912,704 | 10,425,316 |

Source: www.bps.go.id

Among food commodities from the agricultural sector, rice is Indonesians' staple food. Rice commodity is produced from a lot of rice farming in many regions in Indonesia. Various types of rice used by Indonesia's farmers produce various types of rice with different variety of characteristics, taste, and quality. The development of rice commodity production can be seen in the table below.

Table 2: Harvested Area Development, Productivity, and Production in Indonesia

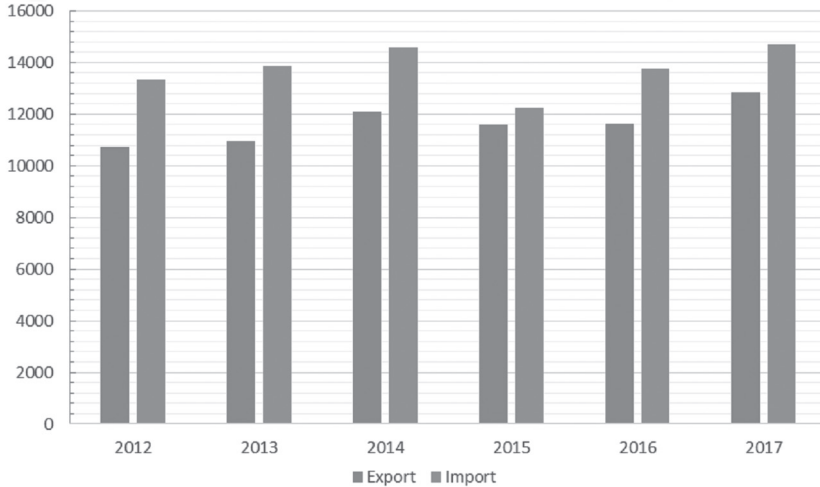
| Province | Harvested Area, Production and Productivity of Rice by Province | | |
|---------------------|---|--------------|------------|
| | Haervested Area | Productivity | Production |
| | 2018 | 2018 | 2018 |
| ACEH | 298847 | 57.13 | 1707342 |
| JAWA BARAT | 171182 | 56.34 | 9654192 |
| SUMATERA SELATAN | 521634 | 51.52 | 2687331 |
| LAMPUNG | 402614 | 47.77 | 1923277 |
| JAWA TENGAH | 1699071 | 56.55 | 9609086 |
| JAWA TIMUR | 1839335 | 57.61 | 10596382 |
| BANTEN | 334839 | 48.34 | 1618615 |
| BALI | 108438 | 59.77 | 648139 |
| NUSA TENGGARA BARAT | 282352 | 49.78 | 1405432 |
| KALIMANTAN SELATAN | 286546 | 40.68 | 1165536 |
| SULAWESI SELATAN | 1155702 | 50.1 | 5790001 |
| GORONTALO | 50956 | 46.81 | 238540 |
| SULAWESI BARAT | 66940 | 48.13 | 322176 |
| MALUKU | 23052 | 38.97 | 89828 |
| PAPUA | 30795 | 42.07 | 129557 |
| INDONESIA | 10990007 | 51.84 | 56974642 |

Source: www.bps.go.id

Until 2018, based on available data shows that the amount of production rice commodity is 56,974,642 tons. Among the provinces, East Java still is the main contributor to rice production in Indonesia, amounting to 19%, then followed by West Java by 17%. Based on its productivity, the province of Bali has the highest level of productivity, 59.77%. While based on the harvested area, East Java has the largest area of agricultural land which is 1,839,335 ha. Regarding the production capacity, Java still provides the largest contribution to national rice production. The ability of rice production is strongly determined by the quality of agricultural land, availability of fertilizers, human resources for agricultural processing rice.

Along with the population growth and increasing community income, then the food needs also rise. The government has to respond to the increase of domestic food needs, so that food needs remain available in the domestic market. In the era of world economy openness, Indonesia is also involved in international trade

activities on food commodities. Within the period 2012-2017, there was a deficit in export and import activities for crop commodities and animal. The following is the data:



Source: www.bps.go.id

Figure 1: Development of Exports and Imports of Indonesian Food and Animal by SITC Group (Million US\$)

From 2012 to 2017 there were fluctuations in export and import activities for crop commodities and animals. In general, there is a deficit trade balance for this commodity transaction. This happened because of the instability price of several crop commodities such as rice, soybeans, and beef. This condition raises the scarcity and affordability of domestic consumers to consume food commodities.

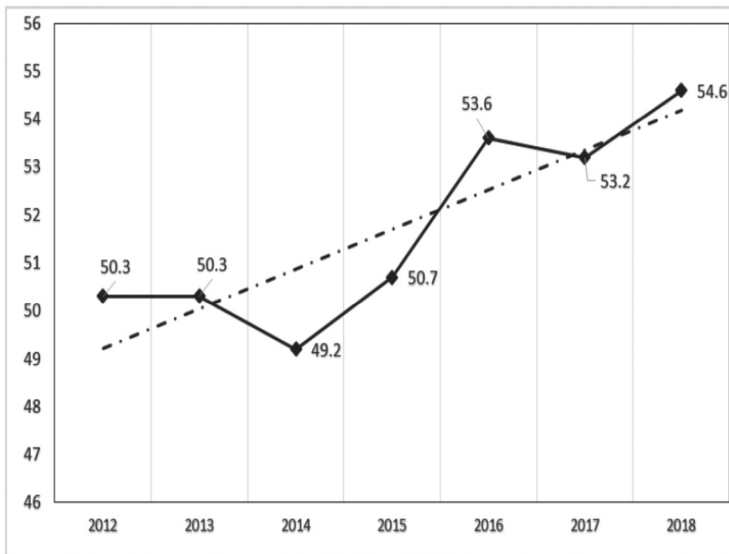
The Global Food Security Index is a composite indicator intended to monitor the development of food security in various countries (Thomas, et al, 2017). The development of the food security index in Indonesia can apply the indicators used by the global food security index. The measurement uses 18 indicators set by global food security (<https://foodsecurityindex.eiu.com/>).

Based on the indicators, the measurement of food security index is divided into four categories (<https://foodsecurityindex.eiu.com/>):

- a. Affordability, which measures the ability of consumers to purchase food products
- b. Availability, which measures the adequacy of a country's food stock
- c. Quality and Service, which measures the level of food safety

d. Natural Resources and Resilience, which assesses exposure to impacts climate change; its vulnerability to natural resource risk; and how a country adapts to existing risks.

Based on existing indicators and categories, the results of Indonesia's food security index show as follows:



Source: <https://foodsecurityindex.eiu.com/>

Figure 2: Progress of Indonesian Food Security Index

As the data showed that during 2012-2018 Indonesia's food security index had fluctuated. Higher index numbers represent food security that is getting stronger. The population's ability to meet their food needs is better. The progress from 2012-2014 showed a decrease in Indonesia's food security index. In 2014 showed an increase from 49.2 to 54.6. The ups and downs in the food security index illustrate a variety of factors that affects food security. These factors are climate, purchasing power, food commodity prices, production costs, and economic growth. Meanwhile according to Srinita's research results (2018) concluded that food security influenced by aspects of availability, accessibility, and absorption. Food availability is related to the food supply that exists in the economy. The greater production capacity, the better the guarantee of food availability for the society. Food accessibility is relevant to the ability of society to be able to meet their food needs. This surely influenced by commodity prices and income levels. Whereas absorption is related to the quality of food. This food absorption will depend

on the quality of the environment in production and food consumption for the population.

The poverty that occurs in the development process shows the existence of imbalance income between society. Increasing poverty rates represents an increase in the number of people who have income levels that cannot fulfill basic needs. Poverty might happen because of various factors according to the conditions faced by each region/country. A country going forward with a high level of income per capita certainly has a level of poverty with fewer populations compared to developing countries. There is a difference in poverty levels between regions / between countries illustrate still a disparity both intra-region and extra-region income. As for the level of development of poverty in Indonesia as follows:

Table 3. Poverty Rate in Indonesia (%)

| PROVINCE | 2014 | 2015 | 2016 | 2017 | 2018 |
|---------------------|-------|-------|-------|-------|-------|
| ACEH | 16.43 | 15.92 | 15.68 | 15.92 | 15.68 |
| SUMATERA BARAT | 7.14 | 6.75 | 6.55 | 6.75 | 6.55 |
| SUMATERA SELATAN | 13.39 | 13.1 | 12.82 | 13.1 | 12.82 |
| BENGKULU | 17.03 | 15.59 | 15.41 | 15.59 | 15.41 |
| DKI JAKARTA | 3.75 | 3.78 | 3.55 | 3.78 | 3.55 |
| JAWA BARAT | 8.77 | 7.83 | 7.25 | 7.83 | 7.25 |
| JAWA TENGAH | 13.19 | 12.23 | 11.19 | 12.23 | 11.19 |
| DI YOGYAKARTA | 13.1 | 12.36 | 11.81 | 12.36 | 11.81 |
| JAWA TIMUR | 11.85 | 11.2 | 10.85 | 11.2 | 10.85 |
| BALI | 4.15 | 4.14 | 3.91 | 4.14 | 3.91 |
| NUSA TENGGARA BARAT | 16.02 | 15.05 | 14.63 | 15.05 | 14.63 |
| KALIMANTAN BARAT | 8 | 7.86 | 7.37 | 7.86 | 7.37 |
| KALIMANTAN TIMUR | 6 | 6.08 | 6.06 | 6.08 | 6.06 |
| SULAWESI SELATAN | 9.24 | 9.48 | 8.87 | 9.48 | 8.87 |
| SULAWESI TENGGARA | 12.77 | 11.97 | 11.32 | 11.97 | 11.32 |
| GORONTALO | 17.63 | 17.14 | 15.83 | 17.14 | 15.83 |
| MALUKU | 19.26 | 18.29 | 17.85 | 18.29 | 17.85 |
| PAPUA | 28.4 | 27.76 | 27.43 | 27.76 | 27.43 |
| INDONESIA | 10.7 | 10.12 | 9.66 | 10.12 | 9.66 |

Source: www.bps.go.id

Based on the data and information above gives an overview that the agricultural sector is important in the Indonesian economy. Geographical conditions and the climate afford broad opportunities for the development of the agricultur-

al sector in Indonesia. The topography of Indonesia that is islands and tropical is suitable for the development of the agricultural sectors of both the land and sea. Therefore, it is not surprising when the agricultural sector in Indonesia has a dual role both as a provider of employment and a supplier of food needs in-country. Conditions of dual-economy that occur in Indonesia can be seen from the modern and traditional sectors that come along with society's economic activity. The modern sector uses technology for the manufacturing industry and this usually applies in urban areas. While the traditional sector is the agricultural sector that developed in rural areas. This dual economy causes differences in productivity and income in various sectors and regions. In the end, the dual economy creates a difference in the income elasticity of demand for its output (Vollrath, 2009).

The agricultural sector in Indonesia mostly done by rural society. Their livelihoods are mostly farmers and fishermen. The contribution of the agricultural sector to Indonesian Burot Domestic Products is very high although it is decreasing over time. Large production in the agriculture sector sent to meet domestic and also needs export. However, based on available data, there is still a trade balance deficit for food commodities and animals. This shows their existence of domestic production capabilities that cannot meet the domestic consumer. Based on this fact, the agricultural sector has an important role in increasing its contribution to the value of Indonesia's GDP. In this case, FAO (2002); Udemezue and Osegbue (2018) emphasize the important role of the agricultural sector in creating food security, foreign exchange earnings from exports, development of rural areas, and economic development. A well-developed agricultural sector can encourage the economic development of a country.

In addition to improving food security, the development of the agricultural sector Indonesia also plays an important role in poverty alleviation. Within 2012-2018 Indonesia's poverty rate decreases from 10.7 to 9.66. Sector agriculture provides broad access for residents to be able to work and get income. Economic activities in the agricultural sector include; production, yield processing, marketing, post-harvest handling, land care, equipment maintenance import production, and export. The more developed the types of businesses that are there will encourage the production of economic value added. The production of value added will increase the per capita income of the population which can eventually reduce poverty. This poverty level can be reduced because of the increasing income of farmers, also because people can access affordable food needs. The results of this study are relevant to the findings of Oriola (2009) and Mukhlis (2019) that developed in the agricultural sector will be able to improve and strengthen community food security, food availability and poverty reduction. Also, the results of

this study emphasized the importance of the agricultural sector continues to be a vital sector for job creation, food security, and poverty reduction (Modi, 2018). For developing countries, the agricultural sector gives hope for the beginning of a prosperous society in the economic constellation of global and dual economic developments in the economies of each country.

The elements which negatively affect agricultural production in Turkey have characteristics that pose important challenges in providing food security at now and in the future. The most effective factor that limits food supply in Turkey is decreasing agricultural land. One of the reasons for the decrease in agricultural land is that the main problem which has been concentrated in this country is industrialization and urbanization. Agricultural land loss due to construction of tourist attractions, expansion settlement, and industrialization and urbanization, thereby increasing investment infrastructure. Since agricultural land used for non-agricultural goals, they become unproductive over time and face the damage. The decrease distribution of agricultural land will also decrease its productivity. As a result of the predicted serious conditions, the benefits of agricultural land are not enough, and young people who live on this land migrate to cities to earn their living and get a better life. While the old population replaces the young population who migrate from areas where agricultural activity is involved, and a decline in production is seen in agriculture (Eraktan and Yelen, 2012, 122-123). As a result of not using agricultural land productively, poverty becomes inevitable. Thus, prevention misuse of agricultural land is a very important issue to provide sustainable agriculture and preventing poverty (Tan, et al., 2014: 689).

The following table describes land use by product groups in Turkey and ten-year changes are shown. From the table, the total is 37,817 thousand hectares of agricultural land in 2018 in Turkey. 41% of the total land is planted, 38% is pasture, 11% is land empty, 8% is a garden, 2% is a vegetable garden. Can be said that the global crisis especially after 2008 and the conjunctural fluctuations in international markets triggered migration from rural areas during this period and caused a decrease in cultivation area. On the other hand, land use in Turkey's and production structure of ownership of small agriculture and fragmented negatively affected.

The following table shows the share of agricultural GDP and agriculture by price at present for a period of 10 years. The table shows that part of the agricultural sector in GDP increases every year. However, the percentage of the agricultural share had not increased. The reason for this situation is less in total GDP of agricultural growth in Turkey.

Table 4: Agricultural Land use in Turkey (1000 he)

| Year | Total utilized agricultural land | Area of cereals and other crop products | | | | (Thousand Hectares) | | | |
|------|----------------------------------|---|-------|-------------|---------------------------|---------------------------|--|---|--|
| | | Sown area | | Fallow land | Area of vegetable gardens | Area of ornamental plants | Area of fruits, beverage and spice crops | Land under permanent meadows and pastures | |
| | | | | | | | | | |
| 2009 | 38 912 | 16 217 | 4 323 | 811 | - | 2 943 | 14 617 | | |
| 2010 | 39 011 | 16 333 | 4 249 | 802 | - | 3 011 | 14 617 | | |
| 2011 | 38 231 | 15 692 | 4 017 | 810 | 4 | 3 091 | 14 617 | | |
| 2012 | 38 399 | 15 463 | 4 286 | 827 | 5 | 3 201 | 14 617 | | |
| 2013 | 38 423 | 15 613 | 4 148 | 808 | 5 | 3 232 | 14 617 | | |
| 2014 | 38 558 | 15 782 | 4 108 | 804 | 5 | 3 243 | 14 617 | | |
| 2015 | 38 551 | 15 723 | 4 114 | 808 | 5 | 3 284 | 14 617 | | |
| 2016 | 38 328 | 15 575 | 3 998 | 804 | 5 | 3 329 | 14 617 | | |
| 2017 | 37 964 | 15 498 | 3 697 | 798 | 5 | 3 348 | 14 617 | | |
| 2018 | 37 817 | 15 436 | 3 513 | 784 | 5 | 3 462 | 14 617 | | |

Source: Turkish Statistical Institute.

Table 5: Agriculture Sector GDP Value and Agriculture Sector Share In Turkey GDP (2009 = 100)

| Years | Agriculture* (Thousand TL) | Growth Rate (%) | Turkey (Thousand TL) | Growth Rate (%) | Share of Agriculture (%) | Exchange rate (TL) | Agriculture* (Thousand \$) | Turkey (Thousand \$) |
|-------|----------------------------|-----------------|----------------------|-----------------|--------------------------|--------------------|----------------------------|----------------------|
| 2009 | 81.234.274 | 9,1 | 999.191.848 | 0,4 | 8,1 | 1,545 | 52.592.510 | 646.894.531 |
| 2010 | 104.703.635 | 28,9 | 1.160.013.978 | 16,1 | 9,0 | 1,502 | 69.714.325 | 772.366.615 |
| 2011 | 114.838.169 | 9,7 | 1.394.477.166 | 20,2 | 8,2 | 1,677 | 68.491.565 | 831.691.448 |
| 2012 | 121.709.079 | 6,0 | 1.569.672.115 | 12,6 | 7,8 | 1,802 | 67.545.047 | 871.122.993 |
| 2013 | 121.709.079 | 0,0 | 1.809.713.087 | 15,3 | 6,7 | 1,904 | 63.914.163 | 950.350.602 |
| 2014 | 134.724.745 | 10,7 | 2.044.465.876 | 13,0 | 6,6 | 2,187 | 61.604.432 | 934.855.430 |
| 2015 | 161.447.917 | 19,8 | 2.338.647.494 | 14,4 | 6,9 | 2,713 | 59.499.609 | 861.879.256 |
| 2016 | 161.304.618 | -0,1 | 2.608.525.749 | 11,5 | 6,2 | 3,024 | 53.414.802 | 862.744.000 |
| 2017 | 189.000.175 | 17,2 | 3.106.536.751 | 19,1 | 6,1 | 3,648 | 52.209.326 | 851.490.804 |
| 2018 | 213.350.153 | 12,9 | 3.700.989.489 | 19,1 | 5,8 | 4,720 | 42.517.223 | 784.087.116 |

Source: Turkish Statistical Institute.

The first application related to food safety in Turkey begins with several agents located in Law No. 1580 City was issued in 1930 and now the subject of food safety has taken its place in the law that changes and develops (Buzbaş, 2010: 6).

This index created in 2012 by the Economist Intelligence Unit under DuPont sponsor. 105 countries were considered when creating the first index. 107 countries evaluated in 2013 and 109 countries in 2014, while 113 countries evaluated in 2018 (Dağdur ve Olhan, 2015: 50; foodecurityindex, 2018a). EIU experts examine food security under three main dimensions: accessibility, availability, quality and security, natural resources and flexibility, and 28 indicators used in this dimension (foodecurityindex, 2018b).

Table 6: Comparison of Global Food Security Index Comparison in Turkey and Indonesia

| Years | Country | | | |
|-------|---------|-------|-----------|-------|
| | Turkey | | Indonesia | |
| | Rank | Score | Rank | Score |
| 2012 | 36 | 63.7 | 64 | 46.8 |
| 2013 | 38 | 62.9 | 66 | 45.6 |
| 2014 | 39 | 63.8 | 72 | 46.5 |
| 2015 | 39 | 66.0 | 74 | 46.7 |
| 2016 | 45 | 63.6 | 71 | 50.6 |
| 2017 | 49 | 61.1 | 69 | 51.3 |
| 2018 | 48 | 64.1 | 63 | 55.2 |

Source: GFSI Overall Rankings Table (2012-2018), <https://foodsecurityindex.eiu.com>

Based on the showed data and information, it can be said that agriculture sector is an important sector for Indonesia's economy. The geography and climate of Indonesia give a big opportunity to develop the agriculture sector. Indonesia's topography, a tropical and island nation, makes Indonesia suitable for developing agriculture and aquaculture. Thus, it is not something new if Indonesian agriculture has a double role as the occupation base and the food supplier for domestic markets. This condition shows the feature of dual economy where the modern and traditional sectors develop together in economy. Modern sector is shown by the use of technology in manufacture industry. This sector mostly develops in urban area. On the other hand, traditional sector is shown by the agriculture sector being developed by the people living in the village. Dual economy causes differences in productivity and earnings in many sectors and areas. Eventually, dual economy results in different earning elasticity from the demand for the output (Vollrath, 2009).

Agriculture sector in Indonesia is mostly developed by people living in the village. Most of the occupations of those people are farmer and fisherman. Therefore, the contribution of agriculture sector towards Indonesia's gross domestic is significant even though it decreases from time to time. A mass production in agriculture sector can be meant for fulfilling domestic needs also export. However, based on the data collected, there was still trade deficit for food and living animals. Trade deficit shows that domestic production cannot fulfill domestic demand. Thus, agriculture sector has an important role in increasing Indonesia's gross domestic product (GDP). FAO (2002) and Udemezue and Osegbue (2018) have emphasized the importance of agriculture sector in creating food securi-

ty and increasing the foreign currency income, village development, and economy development. A well-developed agriculture sector can encourage a country's economy development.

In addition to increasing the food security, agriculture sector's development in Indonesia also plays an important role in solving poverty. In period 2012-2018, Indonesia's poverty rate fell from 10.7 to 9.66. Agriculture sector has provided a big access to job opportunity so people can work and earn money. Economy activity in agriculture sector includes production, product process, marketing, post-harvest handling, land field care, production tool maintenance, and export-import activity. Developing agribusiness encourages the economic value added. Value added can increase per capita income which will reduce poverty. Besides farmers' increased earnings, the poverty nowadays has been lower as people can access to affordable food. This finding is relevant to Oriola's finding (2009) and Mukhlis (2019) where development in agriculture sector will increase food security and food availability and reduce poverty. Moreover, this finding also confirmed the importance of agriculture sector as a vital sector for job opportunity, food security, and reducing poverty (Modi, 2018). For developed countries, agriculture sector offers a hope to prosperous people in global economy and in dual economy development in each country.

Turkey, for its profitable geography and climate, is a country that is very suitable for agriculture production. In Turkey, unexpectedly, the poorest part of the country is the countryside. To solve the poverty problem in countryside area, a correct and decent agriculture regulation is needed. Having a young population in Turkey is one important role in solving poverty in Turkey. Turkey, having a young and big population, in labor potential-wise is profitable compared to many other countries. For its profitable climate, Turkey has all big production base design which can be planted. Turkey has a strategic geographic position. At the same time, it has an important advantage in export as its close distance to other countries. Therefore, if a regulation to encourage planting agriculture product towards a certain quality and standard is implemented, it will give a big opportunity to get foreign currency flow into the country. In the previous years, Turkey was considered as an experienced agriculture producer. To increase the earning of farmers, it is possible to create and implement regulations that will encourage the investment of new production branches. Turkey's countryside tourism is also profitable for its location and climate. With the investment towards this, it is possible to increase the countryside's income. Agriculture industry develops well in Turkey. Thus, it is possible to increase the countryside's income if it is encouraged to evaluate the new agriculture production cases that increases the value added by raw process-

ing. If the regulation is determined and implemented according to the agriculture of that country, it has a big potential in experienced agriculture production-wise. Agriculture sector is the main sector in Turkey and has a critical economy impact. This plays a supporting role in other sectors' economy and gives a big contribution for the national economy existence (Niyaz et al., 2012:210-211).

Countries' ability to ensure the consistency of food security directly relates to the agriculture regulation implemented. Developed countries with a historically good food security supports agriculture sector by using a high budget facility and attempting in staying it away from liberalization process. However, in some big developed countries, organization structural adaptation programs such as WB, IMF, and WTO are the main determining factors in agriculture regulation other than fulfilling the country's needs and solve this sector's problems (Eştürk dan Ören, 2014: 193).

CONCLUSION AND SUGGESTION

Conclusion

The food security in Indonesia and Turkey has a same pattern, which is determined by agriculture sector plays an important role in economy development in Turkey and Indonesia. That role is in providing food, solving poverty, and creating job opportunity. Geography, topography, and tropical climate make the inland waterways in Indonesia suitable for developing agriculture sector. Indonesia's agriculture sector's main commodity includes rice, corn, coffee, and fresh fish. Those various commodities can increase food availability and security for Indonesian. The same condition happens in Turkey as well. The agriculture sector creates the commodities needed in providing domestic food as well as exported food.

Business development in agriculture sector can result in job opportunity and income raise for farmers. The availability of job opportunity and income raise for farmers also result in the decrease of poverty in Indonesia. Domestic agriculture production also can be exported to earn some foreign currency income. However, whereas there's a rise in domestic demands that cannot be fulfilled, the government will import some food. That import is done to ensure the availability of affordable food for Indonesian.

The poverty condition in Indonesia and Turkey also has its ups and downs. This happens for the dynamic of the global economy. The existence of poverty in Indonesia and Turkey has become the target of development in both countries. In this case, various regulations has been implemented in order to solve the poverty.

Food security in Indonesia and Turkey is related to the poverty rate. In this case, fulfilment of people's needs depends on the availability of agriculture sector in producing food commodity. The development of agriculture sector results in creating job opportunity and reducing poverty in Indonesia and Turkey.

Food security reinforcement can be done by giving farmers feasibility in getting plant seed, irrigation and infrastructure repair, access to get fertilizer and deciding competitive rice cost. Moreover, population control shall also be counted by creating job opportunity for people that is suitable for job world demand. This can be done by reinforcing work training to improve labor's competence.

Suggestions

Based on the findings, it is important for the government to keep the agriculture sector to develop continuously in global economy. The participation of Indonesia and Turkey in open economy brings consequences in free trade for agriculture commodity. In improving the national agriculture sector to maintain the food security and solve poverty, some regulations needed are:

- a. Food commodity need analysis that is susceptible to the dynamic of global cost
- b. Providing affordable fertilizer for farmers
- c. Synergy of agriculture and industry sectors
- d. Reinforcement in agriculture human resources by introducing to production and product marketing technology through formal and informal education
- e. Providing agriculture business credit for pre-production
- f. Feasibility for farmers in getting plant seed and irrigation and infrastructure repair.

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