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Input Output Analysis for Food Crops Sector in Central Java

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Abstract: ***Indonesia is an archipelagic country where half of the total land area has the potential to be an agricultural area, but only 46.17 percent has been cultivated. Indonesia or particularly Central Java area should have been a national food barn, however, rice imports is still continue to be carried out to meet the food needs of the population. Furthermore, This study not only finding out the backward and forward linkage, but also calculates the impact of the output multiplier and multiplier effects of the food crop sector in Central Java. This study also trying to determine the end of the food crop sector's demand changes to the output of other sectors. The method used is descriptive quantitative, which is an elaboration of the approach to analysis of Central Java input output 88 sectors in 2008 and 2013 which were aggregated into 24 sectors. The results showed that the food crop sub-sector in 2008 and 2013 had a low backward linkage and high forward linkages, however, this subsector only depends on a number of sectors. Flow on impact in output and income was much lower if compared to the other sectors, such as the animal feed industry sector. The proportion of the final demand for the food crop sector fell by more than 10 percent both directly and indirectly.***

Keywords: Input Output, backward and forward linkage, multiplier effect.

1. Introduction

Economic development can be interpreted as activities carried out by a country to develop economic activities and the quality of life of its people. Todaro in Arsyad (1999) says that the success of economic development is shown by 3 (three) core values, namely (i) the development of the community's ability to fulfill basic needs, (ii) increasing sense of self-esteem as a human , and (iii) the increased ability of the people to choose (freedom from servitude) which is one of human rights.

Every country tries to always increase its economic development. Economic development will be considered successful if the country is independent in its economy or is able to minimize the import of goods from other countries, both finished and semi-finished goods. Because basically, with the strength of the national economy, the people will be more prosperous. National policies are directed at accelerating economic growth which is one of the benchmarks for regional success.

Economic development is not only seen as a process where the interrelationships and interplay between the factors that cause economic development, but also seen as an increase in per capita income. The increase in per capita income is the acceptance and emergence of improvements in the economic well-being of the community. Usually, the rate of economic development of a country is shown by using the growth rate of Gross Domestic Product (GDP).

As a Developing Country, the Indonesian Government prioritizes economic development and improving people's welfare. Economic development in Indonesia is carried out by accelerating economic growth in order to improve the lives of Indonesian citizens. Economic growth is measured by the GDP of a region, which is calculated based on the price in the base year/ GDP on the basis of Constant Prices.

Referring to the main targets in the 2015-2019 National Medium-Term Development Plan, one of the general policies of national development is directed at promoting inclusive and sustainable economic growth. The high and sustainable economic growth is the main foundation to prepare Indonesia to escape from its position as a middle-income country into a developed country. Sustainable economic growth is characterized by economic transformation through strengthening agriculture and mining. The policy is also directed at improving management and value added of natural resources (SDA) through increasing production capacity, namely by increasing productivity and expanding agricultural areas, increasing competitiveness and value-added of agricultural and fishery commodities, and optimizing other mineral resources.

Indonesia with a total land area of + + 192 million ha, divided into 123 million ha (64.06 percent) is a cultivation area and the remaining 69 million ha (35.94 percent) are protected areas. Of the total area of cultivation area, which has the potential for agricultural areas covering an area of 101.8 million ha, including wetlands covering an area of 25.6 million ha, dry land of annual crops of 25.3 million ha and dry land of annual crops of 50.9 million ha. Until now, of the area that has the potential for agriculture, which has been cultivated into new agricultural areas amounted to 46.17 percent (47 million ha). So that there are still 53.83 percent more (54 million ha) of land that has the potential for expansion of agricultural areas.

Indonesia which lies on the equator is a fertile area and rich in natural wealth. With the total area and distribution of forests, rivers, swamps and lakes as well as fairly high and evenly distributed rainfall throughout the year it is actually a natural potential to meet agricultural water needs. However, in reality the utilization of these potentials to develop the agricultural sector is still not optimal. This is indicated by the continued import of rice to fulfill the basic needs of the community.

Rice is a staple food for most Indonesian people, especially those who live on Java and Sumatra. So that rice is one of the important things that must not escape government control. BPS data shows that in 2017 rice consumption averaged 114.6 kilograms per capita per year, so efforts to increase the agricultural productivity of the food crop sector continued. But efforts to increase the role of the agricultural sector are faced with several obstacles such as land conversion, farmers' access to technology, low funding sources and markets, uneven distribution of food production between regions and times, reduced interest in the younger generation to be involved in the agricultural sector, and the negative effects of global climate change.

The agricultural sector in Indonesia has a strategic role and contribution in development. As a food self-sufficiency country, the trend of rice production in Indonesia shows an increase from 2011 amounting to 65.75 million tons to 81.38 million tons in 2017. Therefore, the agricultural sector, particularly food crops should be a priority in development. But in its development, contributions in this sector are not optimal in development. Indonesia's economic growth, which is largely supported by the Industrial, Agriculture and Trade sectors, fluctuated steadily from 6.17 percent in 2011 to 5.02 in 2016.

2. Theoretical Framework

2.1 The Development of Agricultural Economic

According to Kuznets (1964), the role of the agricultural sector in developing countries (Low Developing Countries/LDCs) has four contributions to growth and national economic development, namely (1) product contribution, which is interpreted as dependence on other sectors such as industry and services. in expanding or expanding business towards the growth of the agricultural sector output both in terms of demand and supply. (2) Contribution of the market, which makes the agricultural sector an important source of growth in domestic demand for products from other economic sectors. (3) Contribution of product factors, where agriculture is a source of capital for investment in other economic sectors. (4) Foreign exchange contributions, where one of its activities is to carry out international trade, the agricultural sector becomes one of the contributors to the economic development of a country in generating foreign exchange through the sale of commodities, agricultural products, and through the sending of labor in agriculture.

2.2 The Compliance of Food Needs

The Republic of Indonesia has an obligation to fulfill food needs in accordance with Republic of Indonesia Law No.18 of 2012 concerning Food. Mention that (1) Food is the most important basic human need and fulfillment is part of human rights guaranteed in the 1945 Constitution of the Republic of Indonesia as a basic component to realize quality human resources; (2) that the State is obliged to realize the availability, affordability and fulfillment of fairly safe, quality and nutritionally balanced food consumption, both at the national and regional levels to individuals evenly throughout the territory of the Unitary State of the Republic of Indonesia at all times by utilizing resources, institutions , and local culture; (3) that as a country with a large population and on the other hand having diverse natural resources and food sources, Indonesia is able to fulfill its food needs sovereignly and independently.

2.3 Table of Input Output

The Input Output Model or Output Input Table was first introduced by Professor Wassily W. Leontif in the 1930s. According to BPS (2008) understanding the Input Output Table is a table that presents information about goods and services transactions that occur between economic sectors as well as the interrelationships between one sector and another sector in a region in a given period with the form of a matrix. Fields along the lines of the Input Output Table show how the output of a sector is allocated to meet the intermediate demand and final demand, and in the value added row shows the composition of sectoral value added creation.

Meanwhile, each column shows the use of intermediate inputs and primary inputs by a sector in the production process. In other words, the use of the Input Output Table will be able to show the output of an economic sector is distributed to other sectors and how a sector obtains the necessary input from other sectors. Input Output Analysis shows that in the economy as a whole contains sectoral linkages and dependencies, where the output of a sector is input to another sector and vice versa. This shows that there is a link that leads them to equilibrium between demand and supply in the economy as a whole.

3. Research Method

The method used in this study was quantitative descriptive, which is a description of the input-output analysis approach. Analysis of data in the Input Output Table is detailed information about sectoral input output, so as to be able to describe the inter-sectoral linkages in economic activity. Output produced by an economic sector can be distributed to two types of users, namely the production sector and the final consumer sector. The type of user in the production sector, using output from a sector was used as input to other sectors in the production process. The type of user for the final consumer uses the output of a sector as the final request. The cross Input can occur the flow of goods and services between sectors. That is, that from sector *i* to sector *j* there is a shift or vice versa. Similarly in the sector itself, the displacement occurs from sector *i* to sector *j* if *i* = *j*. This can be denoted in the general form, as follows:

$$Xi = \sum_{i}^{n} xij + Fi$$

Where:
Xi = the total output of sector i
Xij = the cross demand from sector i to sector j
Fi = the total of final demand from sector i

i = 1,2,3,...
j = 1,2,3,...

3.1 The Analysis of Linkages Across Sectors

Forward linkage analysis is an analysis tool to determine the degree of association between a sectors that produces output, which is used as input by other sectors. Meanwhile, the backward linkage analysis is the linkage that comes from the mechanism for using production inputs.

Using the mathematical formulations, the direct backward linkage is as follows:

$$B(d)i = \sum_{j=1}^{n} aij$$

Meanwhile, the formula of forward linkage is as follow:

$$F(d)j = \sum_{i=1}^{n} aij$$

Where: α_{ij} = input coefficient

3.2 The Analysis of Multiplier Effect

The multiplier number is a measure of the response to the stimulation of changes in an economy, expressed in a causal relationship. The total effect of consumption induction is calculated as $\sum_i b^*_{ij} - \sum_i b_{ij}$, where b^*_{ij} is inverse closed coefficient and b_{ij} are open inverse matrix coefficients. Whereas, consumption induced impact on income is calculated by multiplying the cells in the matrix opposite the grain and b^*_{ij}, with the coefficient of household income pi.

The overflow impact is calculated as the difference between the total impact and the initial impact, so the flow-on impact on output is $\sum_i (b^*_{ij} - 1)$. Likewise, impact on income is formulated as $\sum_i (b^*_{ij}\ p_i - p_i)$.

3.3 Detailed Output Multiple Impact

Consumption induced effect on output in detail according to the sector is calculated as $b^*_{ij} - b_{ij}$, whereas, the effect on the income is calculated as $(b^*_{ij}\ p_i) - (b_{ij}\ p_i)$. Flow-on impact on detailed output is calculated as $b^*_{ij} - 1$, whereas, impact on the income is calculated as $b^*_{ij}\ p_i - p_i$.

4. Result and Discussion

4.1 Descriptive Analysis

The agricultural sector in Central Java Province made the second largest contribution after the processing industry towards GRDP. The manufacturing industry sector contributed the most above 30 percent in the period 2011-2017. Followed by the agriculture, forestry and fisheries sectors which are above 15 percent, and the large and retail trade sectors; repairing cars and motorbikes with an average contribution of 14 percent per year. This proves that the agricultural sector still provides a considerable contribution as a driver of the people's economy. The real role of agriculture in this context is as a provider of employment for the community and the main source of income for farmers.

Table 1: Distribution of GRDP of Jawa Tengah at Current Market Price by Indutry (Percent), 2011-2017

Industry	2011	2012	2013	2014	2015	2016	2017
1	15,94	15,87	15,84	15,22	15,55	15,06	14,09
2	2,02	1,95	1,94	2,13	2,30	2,51	2,53
3	34,88	34,95	35,21	35,67	35,08	34,90	34,96
4	0,10	0,10	0,09	0,09	0,09	0,09	0,09
5	0,08	0,07	0,07	0,07	0,06	0,06	0,06
6	9,96	10,13	10,01	10,13	10,23	10,24	10,36
7	14,88	14,22	13,97	13,54	13,36	13,43	13,60
8	2,84	2,81	2,85	3,00	3,14	3,05	3,20
9	2,98	2,96	2,95	3,01	3,06	3,18	3,20
10	3,29	3,24	3,11	3,08	3,02	3,03	3,30
11	2,74	2,84	2,82	2,77	2,82	2,93	2,97
12	1,67	1,62	1,60	1,63	1,66	1,66	1,67
13	0,30	0,30	0,33	0,33	0,34	0,36	0,38
14	2,98	3,04	2,97	2,86	2,86	2,86	2,79
15	3,17	3,75	4,04	4,17	4,15	4,27	4,38
16	0,70	0,76	0,78	0,82	0,83	0,85	0,87
17	1,49	1,39	1,42	1,48	1,45	1,52	1,55
PDRB	100,00	100,00	100,00	100,00	100,00	100,00	100,00

Where:
1) Agriculture, Forestry and Fishing
2) Mining and Quarrying
3) Manufacturing
4) Electricity and Gas
5) Water Supply, Sewerage, Waste Management and Remediation Activities
6) Construction
7) Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles
8) Transportation and Storage
9) Accommodation and Food Service Activities
10) Information and Communication
11) Financial and Insurance Activities
12) Real Estate Activities
13) Business Activities
14) Public Administration and Defence; Compulsory Social Security
15) Education
16) Human Health and Social Work Activities
17) Other Services Activities

Source: BPS, 2011-2017

The contribution of the agricultural sector is quite large towards GRDP with the highest number in 2011 of 15.94 percent and continues to decline in 2017 with a decrease of 1.85 percent. But if you look at the rate of economic growth, the agricultural sector has a relatively small growth rate compared to the other GRDP sectors. (Presented in Table 2).

Table 2: Growth Rate of GRDP of Jawa Tengah at 2010 Constant Market Price by Indutry (Percent), 2011-2017

Industry	2011	2012	2013	2014	2015	2016	2017
1	3,83	3,04	2,15	-0,95	5,60	2,28	1,46
2	2,19	5,30	6,17	6,66	4,57	18,98	5,19
3	5,19	6,72	5,45	6,61	4,71	4,10	4,35
4	7,33	9,97	8,31	6,50	2,43	4,57	5,22
5	2,27	-1,39	0,23	3,45	1,63	2,17	6,51
6	2,23	6,33	4,90	4,38	6,00	6,52	7,13

7	8,23	1,85	4,72	4,79	4,09	5,61	6,10
8	4,17	6,64	9,33	9,26	7,69	4,91	6,30
9	5,57	5,31	4,51	7,61	6,79	6,40	6,59
10	8,03	9,74	7,99	13,00	9,53	8,31	13,27
11	4,14	3,57	3,89	4,12	7,61	9,11	5,38
12	6,08	5,43	7,70	7,19	7,59	6,80	6,49
13	9,33	7,08	12,12	7,97	8,49	10,62	8,72
14	2,57	0,50	2,65	0,78	5,31	2,37	2,57
15	18,41	17,55	9,53	9,37	7,55	7,64	7,15
16	9,74	10,33	7,12	11,37	6,61	9,86	8,60
17	2,69	0,70	9,24	8,50	3,21	8,62	8,99
GRDP	5,30	5,34	5,11	5,27	5,47	5,27	5,27

Source: BPS, 2011-2017

Unlike other sectors which are relatively stable, the rate of growth in the agricultural sector continues to decline in the 2011-2014 period. The condition of the agricultural sector was very bad in 2014 with a negative growth rate of 0.95 percent. Although 15 percent of the GRDP is supported by the agricultural sector, the rate of growth is still far below the services sector. Or it can be said that the agricultural sector which is still widely cultivated by the Indonesian people, has no good economic prospects going forward. However, the agricultural sector still remains the livelihood of the majority of Indonesians, many of them are engaged in farming to meet their needs. When viewed from existing potentials, Indonesia should be very capable of fulfilling the food needs of the Indonesian people themselves and even able to export to other countries so that it can make our country more advanced if utilized properly.

Table 3: Population Aged 15 Years and Over Who Worked During the Previous Week by Main Industry in Central Java, 2011-2016

Main Industry	Year					
	2011	2012	2013	2014	2015	2016
1	34,51	31,77	31,41	31,26	28,66	30,69
2	0,50	0,56	0,42	0,53	0,76	0,75
3	19,35	20,37	18,85	19,17	19,88	19,69
4	0,18	0,16	0,12	0,17	0,23	0,23
5	6,94	7,38	5,87	7,67	8,67	8,67
6	20,68	21,32	22,43	22,45	22,48	22,48
7	3,52	3,35	3,75	3,55	3,33	3,33
8	1,64	1,73	1,91	1,95	2,09	1,83
9	12,68	13,34	15,24	13,26	12,62	12,34
	100,00	100,00	100,00	100,00	100,00	100,00

Where:
1) Agriculture
2) Mining and Quarrying
3) Manufacturing Industry
4) Electricity, Gas, and Water
5) Construction
6) Trade
7) Transportation, Warehousing, and Communication
8) Financial
9) Services

Source: BPS, Sakernas 2011-2016

In the last five years (2011-2016), the population of Central Java working in the agricultural sector was around 28 percent to 34 percent of the Indonesian workforce. This proves that the agricultural sector still dominates the work sector in Indonesia. With the high number of workers and contributions to the GRDP sector in Central Java, the rate of economic growth in this sector should be increased. Therefore, the role of agricultural innovation is very important in encouraging improvements in the agricultural productivity of the agricultural sector so that it can be in line with other sectors so that the role of agriculture as a driver of the economy increases.

4.2 Input Output Analysis

4.2.1Backward Linkages

The results showed that direct backward linkages in both 2008 and 2013 in the sector (1) of food crops were very low. Sector (15) the livestock food industry is a mainstay sector since this sector has a high backward linkage index and a low backward scatter index or in other words this sector depends evenly on all sectors in the economy.

Table 4: The Direct Backward Linkages, 2008 and 2013

Sector	2008		2013	
	Backward Linkages	Backward Scatter	Backward Linkages	Backward Scatter
1	0.2511	0.1999	0.2923	0.0957
12	1.3946	0.4420	1.4666	0.2590
14	1.0793	0.5712	1.1294	0.3564
15	10.8147	0.0570	10.9844	0.0378
17	1.1192	0.5510	0.4833	0.9225

4.2.2Forward Linkages

Sector (1) food crops have a high linkage index both in 2008 and 2013, but the spread index is also quite high. This shows that the food crop sector only depends on a number of sectors. Sector (11) the oil and fat industry is suspected of being able to become a mainstay sector since it has a high forward linkage index but has a low spread index.

Table 5: The Direct Forward Linkages, 2008 and 2013

Sector	2008		2013	
	Forward Linkages	Forward Scatter	Forward Linkages	Forward Scatter
1	12.4999	1.6878	12.43	1.8532
11	3.6391	0.4861	3.0834	0.6264
15	0.5424	1.2207	0.5413	1.3355
19	2.2963	0.2958	2.2404	0.3311
21	0.8779	0.2441	0.967	0.2419

4.2.3Multiplier Effect

Consumption induced impact is defined as the impact of increasing household income as a result of increasing the final demand for output of a sector. There is a decrease in the value of the effect on output and income.

Table 6: Consumption Induced Impact, 2008 and 2013

Sector	2008		2013	
	Impact on Output	Impact on Income	Impact on Output	Impact on Income
1	0.5975	0.0826	0.3405	0.0519
4	1.1019	0.1524	0.5159	0.0787
5	1.7342	0.2398	1.1218	0.1711
8	1.2914	0.1786	0.6261	0.0955
9	1.2553	0.1736	0.6347	0.0968

15	4.0843	0.5648	2.2091	0.3370
18	1.0453	0.1445	0.5009	0.0764
20	1.1010	0.1522	0.5302	0.0809
21	1.0184	0.1408	0.5900	0.0900
23	2.5527	0.3530	1.2982	0.1980
24	1.5192	0.2101	0.7176	0.1095

Table 6 shows that in 2008 an increase of Rp. 1,000 final demand for sector output (1) for food crops will have an impact on increasing household income by Rp. 597.5. The highest effect on the sector (15) is the livestock food industry, where consumption induced impact is almost eight times compared to the sector (1) of food crops. Consumption induced impact on income also decreased from 2008 to 2013. The 2008 impact value of 0.0826 shows that if there is an increase in the final demand for sector output (1) of food crops in the amount of IDR 1,000, it will have an impact on increasing employment in all sectors amounting to Rp 82.6.

Flow-on effect is defined as the net impacts that occur in all economic sectors because of the initial impact, so flow on effect is considered to reflect more the size of an impact. Table 10 shows that the effect of sectoral crop (1) in 2008 was 0.8052, which means that increasing demand for food sector output (1) of Rp.1000 produced a net effect of the overall economic output of Rp. 805.2, of which 23 percent occurs in the sector (1) of food crops, 21 percent in the sector (11) of the oil and fat industry, 15 percent in the sector (19) trade, and the remainder is almost evenly distributed across all economic sectors. This figure is far lower than the value of the effect in the sector (15) of the animal feed industry at Rp 11.7599.

Table 7: Flow-on Effect, 2008 and 2013

Sector	2008		2013	
	Flow-on effect on Output	Flow-on effect on Income	Flow-on effect on Output	Flow-on effect on Income
1	0.8052	0.1113	0.5553	0.0831
5	3.4700	0.4448	3.2668	0.4413
8	1.8168	0.2483	1.0739	0.1598
12	1.7071	0.2184	1.3800	0.1885
14	1.8601	0.2520	1.4087	0.2004
15	11.7599	1.4983	9.5513	1.2916
17	1.8673	0.2466	0.6294	0.0873
18	1.7722	0.2512	1.1575	0.1779
20	1.8285	0.2514	1.3178	0.1917
23	3.1390	0.4378	1.7204	0.2627
24	1.9467	0.2715	1.1197	0.1688

4.2.4Multiple Effect of Output of Crops Sector

Based on the calculation of the multiplier output of the food crop sector, results are obtained as presented in Table 8. Increasing the final demand for the sector (1) of food crops by Rp 1,000 will directly increase the demand for output of the entire economy by Rp 1,425, 61 percent due to increased sector demand (1) food crops, sector (5) livestock 11 percent, sector (8) agricultural services 2 percent, sector (16) chemical industry and fertilizer 4 percent, sector (18) building 2 percent, sector (19) trade 9 percent, sector (21) transportation 4 percent, sector (22) finance 3 percent, and sector (24) services 2 percent.

Table 8: The Change of Crops Sector on the Output of Other Sectors, 2008

Sector	Pre	Direct	Indirect	Sub Total	Consumption	Total	Over flow
1	1	0.0870 (61)	0.0316 (49)	1.1186	0.06921	1.1878	0.1878
2	0	0.0000 (0)	0.0001 (0)	0.0001	0.02558	0.0257	0.0257
3	0	0.0000 (0)	0.0000 (0)	0.0000	0.00029	0.0003	0.0003
4	0	0.0002 (0)	0.0003 (0)	0.0004	0.00466	0.0051	0.0051
5	0	0.0160 (11)	0.0023 (4)	0.0183	0.01982	0.0381	0.0381
6	0	0.0000 (0)	0.0001 (0)	0.0001	0.00132	0.0015	0.0015
7	0	0.0000 (0)	0.0000 (0)	0.0000	0.00790	0.0079	0.0079
8	0	0.0036 (2)	0.0004 (1)	0.0040	0.00026	0.0042	0.0042
9	0	0.0000 (0)	0.0003 (0)	0.0003	0.00071	0.0010	0.0010
10	0	0.0000 (0)	0.0001 (0)	0.0001	0.00890	0.0090	0.0090
11	0	0.0003 (0)	0.0088 (13)	0.0091	0.16298	0.1720	0.1720
12	0	0.0000 (0)	0.0003 (0)	0.0003	0.03766	0.0379	0.0379
13	0	0.0000 (0)	0.0001 (0)	0.0001	0.00436	0.0045	0.0045
14	0	0.0000 (0)	0.0001 (0)	0.0001	0.00973	0.0098	0.0098
15	0	0.0000 (0)	0.0035 (5)	0.0035	0.00432	0.0078	0.0078
16	0	0.0061 (4)	0.0013 (2)	0.0074	0.00247	0.0098	0.0098
17	0	0.0000 (0)	0.0010 (2)	0.0010	0.01491	0.0159	0.0159
18	0	0.0034 (2)	0.0013 (2)	0.0047	0.00447	0.0092	0.0092
19	0	0.0135 (9)	0.0059 (9)	0.0194	0.09831	0.1177	0.1177
20	0	0.0001 (0)	0.0008 (1)	0.0009	0.02210	0.0230	0.0230
21	0	0.0055 (4)	0.0033 (5)	0.0088	0.05391	0.0627	0.0627
22	0	0.0043 (3)	0.0021 (3)	0.0064	0.02143	0.0278	0.0278
23	0	0.0000 (0)	0.0002 (0)	0.0002	0.00223	0.0024	0.0024
24	0	0.0025 (2)	0.0014 (2)	0.0039	0.01999	0.0239	0.0239

In 2013, there was a decrease in the proportion of final demand for the food crop sector both directly and indirectly. Increasing the demand for end sector (1) food crops by Rp 1,000, will directly increase the demand for output of the entire economy by Rp 1,574, of which 49 percent is due to increased sector demand (1) food crops, sector (5) livestock 5 percent, sector (8) agricultural services 2 percent, sector (16) chemical industry and fertilizer 14 percent, sector (18) building 5 percent, sector (19) trade 10 percent, sector (21) transportation 6 percent, sector (22) finance 5 percent, and sector (24) services 3 percent.

Table 9: The Change of Crops Sector on Other Output Sectors, 2013

Sector	Pre	Direct	Indirect	Sub Total	Consumption	Total	Overflow
1	1	0.0766 (49)	0.0199 (35)	1.0965	0.04592	1.1424	0.1424
2	0	0.0000 (0)	0.0001 (0)	0.0001	0.01321	0.0133	0.0133
3	0	0.0000 (0)	0.0000 (0)	0.0000	0.00033	0.0004	0.0004
4	0	0.0000 (0)	0.0002 (0)	0.0002	0.00276	0.0030	0.0030
5	0	0.0080 (5)	0.0010 (2)	0.0090	0.01604	0.0250	0.0250
6	0	0.0000 (0)	0.0002 (0)	0.0002	0.00052	0.0007	0.0007
7	0	0.0000 (0)	0.0000 (0)	0.0000	0.00311	0.0031	0.0031
8	0	0.0036 (2)	0.0003 (1)	0.0039	0.00017	0.0041	0.0041
9	0	0.0000 (0)	0.0006 (1)	0.0006	0.00039	0.0010	0.0010
10	0	0.0000 (0)	0.0001 (0)	0.0001	0.00496	0.0051	0.0051
11	0	0.0007 (0)	0.0104 (18)	0.0111	0.08233	0.0935	0.0935
12	0	0.0000 (0)	0.0002 (0)	0.0002	0.01884	0.0190	0.0190
13	0	0.0000 (0)	0.0002 (0)	0.0002	0.00242	0.0026	0.0026
14	0	0.0000 (0)	0.0001 (0)	0.0001	0.00642	0.0065	0.0065
15	0	0.0000 (0)	0.0022 (4)	0.0022	0.00436	0.0065	0.0065
16	0	0.0226 (14)	0.0025 (4)	0.0251	0.00229	0.0274	0.0274
17	0	0.0000 (0)	0.0012 (2)	0.0012	0.01087	0.0120	0.0120
18	0	0.0071 (5)	0.0020 (3)	0.0091	0.00264	0.0118	0.0118
19	0	0.0160 (10)	0.0058 (10)	0.0218	0.05049	0.0723	0.0723
20	0	0.0002 (0)	0.0005 (1)	0.0007	0.01442	0.0151	0.0151
21	0	0.0091 (6)	0.0041 (7)	0.0132	0.02837	0.0416	0.0416
22	0	0.0086 (5)	0.0035 (6)	0.0121	0.01035	0.0224	0.0224
23	0	0.0000 (0)	0.0002 (0)	0.0002	0.00787	0.0080	0.0080
24	0	0.0048 (3)	0.0022 (4)	0.0071	0.01144	0.0185	0.0185

5. Conclusion

5.1 The results of the study show that the food crop sub-sector in 2008 and 2013 has a low backward linkage and high forward linkages but this subsector only depends on a number of sectors.

5.2 Flow-on effect on output and income of the food crop sector is far lower than in the animal feed industry sector and other sectors in Central Java, although the change in the impact value in 2013 was not too high.

5.3 The proportion of the final demand for the food crop sector has fallen more than 10 percent both directly and indirectly.

References

[1] Ariani dan Purwantini. 2006. "Analisis Konsumsi Pangan Rumah Tangga Pasca Krisis Ekonomi di Provinsi Jawa Barat". https://ojs.unud.ac.id/index.php/soca/article/view/4117. [Accessed: Nov. 20, 2016].

[2] Arsyad, Lincolin. 1999. *Pengantar Perencanaan dan Pembangunan Ekonomi Daerah*, Edisi Pertama. BPFE-Yogyakarta: Yogyakarta.

[3] Badan Pusat Statistik, various years of publication. *Statistik Jawa Tengah*. www.jateng.bps.go.id. [Accessed: Nov. 26, 2016].

[4] Badruddin, Syamsiah. 2009. "Kemiskinan Dan Kesenjangan Sosial Di Indonesia Pra Dan Pasca Runtuhnya Orde Baru". https://profsyamsiah.wordpress.com/2009/04/23/49/. [Accessed: Dec. 27, 2016].

[5] Julian. 2016. "Pola Konsumsi Mahasiswa Indekos Di Universitas Lampung(Studi Kasus : Mahasiswa S1 Reguler Feb Unila)". http://digilib.unila.ac.id/24791/2/SKRIPSI%20TANPA%20BAB%20PEMBAHASAN.pdf, [Accessed: Dec.26, 2016].

[6] Lawani, Meri. 2012. "Studi Perbandingan Pola Konsumsi Pangan dan Non Pangan Rumah Tangga Kaya dan Miskin di Kota Makassar".https://www.academia.edu/9582162/BAB_I-BAB_V. [Accessed: Dec.26, 2016].

[7] Lisna, Vera dan Rifai, Nila. 2009. "Analisis Faktor-faktor Ekonomi Makro Yang Mempengaruhi Tingkat Konsumsi Era Pemerintahan SBY". http://burhan.staff.ipb.ac.id/files/2011/01/ANALISIS-FAKTOR-AKTOR-EKONOMI-MAKRO-YANG-MEMPENGARUHI-TINGKAT-KONSUMSI-ERA-PEMERINTAHAN-SBY-JILID-I.pdf. [Accessed: Dec.10, 2016].

[8] M.Fikri, Amri Amir, Erni Achmad. 2014. *Analisis Konsumsi Masyarakat Indonesia Sebelum dan Setelah Krisis Ekonomi*. Jurnal Perspektif Pembiayaan dan Pembangunan Daerah Vol. 1 No. 3, Januari-Maret 2014 ISSN: 2338- 4603.

[9] Mankiw, N.Gregory, 2004. *Teori Makro Ekonomi*, Eighth Edition. Erlangga. Jakarta.

[10] Mizkat. 2005. "*Konsumsi Non Pangan*".http://repository.unhas.ac.id, [Accessed: Dec.10, 2016].

[11] Nanga, Muara. 2001. *Teori, Masalah, dan Kebijakan*. Raja Grafindo Persada: Jakarta.

[12] Pratiwi. 2010. "Analisis Faktor – Faktor Yang Mempengaruhi Pengeluaran Konsumsi Masyarakat Di Indonesia Periode Tahun 1979-2007". http://eprints.ums.ac. id/7910/1/B300060009.PDF, [Accessed: Dec.27, 2016].

[13] Soembodo, Benny."Pandangan Masyarakat Miskin Perkotaan Mengenai Kesejahteraan Sosial".https://www.academia.edu/11678737/contoh_jurnal_kemiskinan_oleh_Benny. [Accessed: Dec.27, 2016].

[14] Sukirno,Sadono. 2013. *Makroekonomi Teori Pengantar*, Third Edition, Rajawali Press, 2013.

[15] Supranto. 2000. *Statistik, Teori dan Aplikasi.* Sixth Edition. Erlangga: Jakarta.

Author Profile

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