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Economic Journal of Emerging Markets

Trading system of food commodity

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Article Info

Abstract

Most of food commodities in the Central Java are produced and traded in the local market. The aim of this research is to analyse internal and external factors determining trade of food commodities and analyse its trade model in Central Java. Research data consist of both primary and secondary that were analysed according to SWOT and Location Quotient (LQ) methods. The analysis of internal factors suggests that the availability and the quality of food commodities as well as the regulations related to traditional markets still need to be improved. The analysis of external factors proves that the local production is subject to be increased. Based on LQ results it shows that the agricultural sector in Central Java is highly specialised and has a strong base sector.

Abstrak

Sebagian besar komoditas pangan di Jawa Tengah diproduksi dan diperdagangkan di pasar lokal. Tujuan penelitian adalah untuk menganalisis faktor internal dan eksternal yang menentukan system perdagangan komoditas pangan dan sekaligus memodelkan system perdagangan pangan di Jawa Tengah. Data penelitian meliputi data primer dan sekunder yang dianalisis menggunakan metode SWOT dan *Location Quotient* (LQ). Analisis internal menunjukkan bahwa ketersediaan dan kualitas komoditas pangan termasuk kebijakan pengelolaan pasar tradisional perlu ditingkatkan. Analisis eksternal membuktikan bahwa produksi pangan lokal masih perlu ditingkatkan. Berdasarkan hasil LQ menunjukkan bahwa sektor pertanian di Jawa Tengah cenderung terspesialisasi dan merupakan sektor basis ekonomi.

Introduction

The total value of food production in Indonesia tends to increase every year. According to the database of the Central Bureau of Statistics of the Republic of Indonesia the total output of food crops increased by 46% between 2000 and 2014 equivalently to IDR 112 trillion to IDR 146 trillion respectively. However, the increase of the food crops production was lower than the growth of the total sector.

Central Java is one of the most important regions of Indonesia in terms of both food production and food supply. The province has an over 1 million hectares of the arable land. The provincial government promotes sustainable agricultural development and support economic welfare of farmers in the region. The index of economic welfare of farmers living and working in Central Java Province increased from 97.20 to 105.33 during 2008 - 2013 period. In the same period, the national index for farmers in Indonesia increased from 97.07 to 104.62. The situation in Central Java is slightly better than that of the national level. This research is focused on the analysis of trading system of food commodity in the Central Java Province. In addition, this research also analyses the trade specialization of food commodity using location quotient (LQ) method.

The importance of the analysis is aligned to the study of Bonnard & Sheahan (2009); Chandra & Lontoh (2010); Jensen (2010); and Sen & Majumder (2011). The study of the local trading system in Central Java suggests that there are three basic ways to sell food products, which are as follows: 1) purchase from farmers and direct sales of goods to consumers, 2) indirect purchase from farmers and direct sales of goods to consumers and 3) indirect purchase of imported goods and direct sales to consumers. There are also certain internal factors determining trade of food commodities in Central Java such as the availability of goods produced in the local market and the level of prices; and food crops are limited and not durable, in consequence their availability is lower and merchants cannot sell them frequently. On the other hand,

the group of external factors consist of basic needs of communities in terms of food crops supply as well as the number of competitors.

This paper is relevant to the results of empirical studies conducted by Bonnard & Sheahan (2009), Chandra & Lontoh (2010); Jensen (2010); and Sen & Majumder (2011). Bonnard & Sheahan (2009) emphasised the significance of both market analyses and market mapping in order to explain the development of trade of goods and services. The market analysis and market mapping can provide valuable details concerning the market such as: information linkages among traders and regions in the regional market system; information related to food security in the market system; monitoring and evaluation of the regional food trade as well as useful information for policymakers.

Chandra & Lontoh (2010) concluded that all the efforts related to food security as well as an open economy in the environment of the global trading system are becoming more and more important issues for the ASEAN countries. Consequently, it is worth emphasising that ASEAN countries stated at the end of 2015 that the regional food security will be perceived as one of the most important issues for the ASEAN Economic Community. According to Jensen (2010) the sustainable food system including the production, distribution, trade and consumption is an important concern for stakeholders. It seems certain that both local and regional approaches to food systems will affect societies and will be vital for future development. Whereas according to Sen & Majumder (2011) the introduction of the fair trade policy is becoming more and more important and it should be widely applied. The way to implement fair trade rules is a standardisation process and certification of agricultural commodities. This statement leads to the critical discussion, which is certainly crucial and related to issues such as justice, equity as well as sustainable trade of food commodities.

Research Method

This research uses both primary and secondary data. Primary data were collected from the survey with 350 respondents (traders) in the province of Central Java conducted in early 2016. The sampling technique is a purposive sampling method or respondents were selected in accordance with the objectives of this research. Primary data consist of information related to food commodity trading system, such as: trade patterns and trade channels as well as internal and external factors affecting food commodities. Secondary data are mostly economic indicators that is 2000 constant price GRDP of the agricultural sector during 2000-2014.

Data were analysed according to three methods: descriptive, SWOT analysis (internal and external factors) and the location quotient (LQ) method. A descriptive method was used in order to explain a trading system used by food traders in the region of Central Java. The main purpose of SWOT analysis is analysis the internal and external factors affecting food trade in Central Java. The purpose of using LQ is to measure local specialisation of a sector or an industry in a specific region and compare it to a larger region, usually a country. It is possible to distinguish two types of LQ method: static location quotient (SLQ) and dynamic location quotient (DLQ). The goal of the SLQ method is to analyse comparative advantages of the agricultural sector in Central Java and its relative position in the country in the 2000-2014 period. On the other hand, the DQL method was used to evaluate the growth rate of the agricultural sector and compare it to the national average in the same period. This part of the research is related to the studies carried out by Mack & Jacobson (1996). SLQ and DLQ can be calculated according to the following formulas:

$$SLQ = \frac{qi/qr}{Qi/Qn} \qquad\qquad\qquad (1)$$

where:
SLQ = *Static Location Quotient* coefficient
Qi   = GDP generated by the agriculture in Indonesia
qi   = (regional) GDP generated by the agriculture in Central Java
Qn = GDP of the Republic of Indonesia
qr   = (regional) GDP of the Central Java Province

According to the formula the value of the LQ > 1 means that the sector has a regional competitive advantage, therefore the region where the sector is located is able export its products to other regions or abroad. Contrary, if the value of the LQ<1 the region is likely to import products from other regions or countries.

$$DLQ_{ij} = \left[\frac{\left(1+g_{ij}\right)/\left(1+g_j\right)}{\left(1+G_i\right)/\left(1+G\right)} \right]^t = \frac{IPPS_{ij}}{IPPS_i} \qquad (2)$$

where:

DLQ_{ij}	=	Index of the economic potential of the agriculture in Central Java
g_{ij}	=	GDP growth rate of the agriculture in Central Java
g_j	=	GDP growth rate of Central Java
Gi	=	GDP growth rate of the agriculture in Indonesia
G	=	GDP growth rate of Indonesia
t	=	The analysed period of time expressed in years (2014 – 2000)
$IPPS_{ij}$	=	Potential development index of the agriculture in Central Java
$IPPS_i$	=	Potential development index of the agriculture in Indonesia

The value of the DLQ>1 can be interpreted as a higher potential of the agricultural sector in Central Java in comparison with an average for Indonesia. Consequently, the value of the DLQ < 1 means that the agriculture in this specific region has a lower potential than the sector in other regions or the country as a whole.

Results and Discussion

In this research 43 basic food commodities are taken into consideration. These commodities are as follows: Rice, Paddy Rice, Corn, Cassava, Sweet, Potato, Peanuts, Soybeans, Green Beans, Red Onion, Garlic, Potato, Cabbage, Chili, Tomato, Carrot, Long Beans, Bean, Cucumber, Leaf Onion, Sawi, Red Beans, Eggplant, Chayote, Kale, Spinach, Mango, Rambutan, Duku, Star Fruit, Durian, Banana, Bark, Orange, Pineapple, Papaya, Melon, Watermelon, Avocado, Guava, Water, Apple, Mangosteen, Jackfruit, and Sawo. According to the Central Bureau of Statistics there are huge differences in the growth rate of food production. It is worth pointing out that the average annual growth rate achieved the highest value for mango and the lowest value for garlic, 341,23% and –10,50% respectively. Furthermore, it is necessary to emphasise that mango producers are supported by the government's policy through the establishment of the food processing industry. On the other hand production of garlic is limited due to competitors from low-lying lands in other regions. Further development of the production of other basic food commodities also depends on the government's programmes that support their production, e.g. by providing subsidies on seeds, fertilisers, extension of arable lands and technology.

Trade and production of livestock commodities in Central Java concern 13 products, which are as follows: Horse, Beef Cattle, Milch Cows, Buffalo, Goat, Sheep, Pork, Kampong Chicken, Broiler, Chicken, Duck, Quail, and Rabbit. The average annual growth rate of livestock commodities also varies, the highest average growth rate was achieved by beef cattle and the lowest one by buffalo, 655.86% and –6.23% respectively. The government has made certain efforts to support beef cattle business development in terms of both upstream (farmers) and downstream processes (markets and consumers).

Table 1. Distribution of respondents by commodities and gender

No	Commodity	Gender			
		Male		Female	
		Respondents	%	Respondents	%
1	Paddy rice	8	2.29	27	7.71
2	Fruits	8	2.29	27	7.71
3	Chicken meat	7	2.00	28	8.00
4	Beef	8	2.29	27	7.71
5	Fish	9	2.57	26	7.43
6	Corn	12	3.43	23	6.57
7	Soybean	10	2.86	25	7.14
8	Vegetables	9	2.57	26	7.43
9	Eggs	9	2.57	26	7.43
10	Tubers	2	0.57	33	9.43
	Total	82	23.43	268	76.57

Fishery commodities produced and traded in Central Java consist of 8 products, which are as follows: Marine Fisheries, Fish Pond, Fish Field, Swimming Fish, Fish Cage, Fish Reservoir, Fish River, and Fish Swamp. The highest growth rate has been achieved in the production of fish farming cage systems (19.82%). Fish farming is a highly demanded way of producing fishery commodities owing to the favourable conditions in Indonesia and especially in Central Java. On the other hand, marine fisheries are still limited because the local capital is not enough to boost this sector. Another crucial issue for fish production is a local consumption pattern. Further improvements of these conditions is absolutely necessary to stimulate business growth and to maximise the productivity in this sector. The survey is based on 350 respondents working as merchants in Central Java. The groups were divided in accordance with commodities and gender of respondents (see Table 1).

Table 2. Types of products sold by respondents

No	Commodity	Types of commodity
1	Paddy rice	Ciherang rice, IR 64, pandan, Rojolele, cisadane, organic paddy rice
2	Fruits	Avocados, grapes, apples, Duku, guava, orange, kedondong, mango, mangosteen, melon, snake fruit, sapodilla, watermelon, papaya
3	Chicken meat	Kampung chicken, broiler chicken
4	Beef	Beef super, regular beef, offal
5	Fish	Pomfret, milkfish, tilapia, carp, squid, cork, snapper, catfish, tilapia, sale, salmon, tuna, tuna, shrimp
6	Corn	Yellow corn, white corn
7	Soy	Local and imported
8	Vegetables	Broccoli, green beans, peppers, leeks, japan, green beans, kale, sprouts, cauliflower, potatoes, cabbage, cabbage, betel nut, pepper, melon, cabbage, lettuce, celery, cucumber, eggplant, tomato, carrot
9	Eggs	Broiler chicken eggs, chicken eggs, duck eggs, quail eggs
10	Tubers	Yams, cassava, tales

Table 2 provides the information about the most important types of commodities in traditional food markets. It is worth emphasising that the commodities traded in traditional markets and presented in the Table 2 are supposed to match local demand (a city or a district as a whole).

Internal and external factors of food commodity trading

Table 3. Internal and external factors determining trade of food commodities

Internal Factors	External Factors
Strengths:	**Opportunities:**
a. Most of food commodities are produced by local farmers;	a. Food commodities are the basic need of societies;
b. Merchants can easily get products suitable for customers;	b. Goods deliveries are guaranteed by local producers, however certain delays should be taken into consideration;
c. Food commodities are offered at affordable prices for local consumers;	c. Government policies aimed to support and revitalise traditional markets;
d. Quality of the services offered by local merchants is usually quite high;	d. Government policies intended to improve the quality and increase the production capacity of local farmers.
e. Good quality of local food commodities.	
Weaknesses:	**Threats:**
a. Some food commodities are vulnerable to the seasons changes and weather;	a. A relatively high number of competitors in the market;
b. Short expiry dates of food commodities;	b. Some of the competitors (merchants) sell their products outside the traditional markets;
c. The space of market stalls is usually very limited;	c. A better quality of the imported products, which are offered at competitive prices (it depends on foreign exchange rates)
d. Limited storage space for stock (e.g. lack of warehouses, just the traditional storage methods)	d. In case of crop failures it is necessary to look for suppliers from other regions or countries.
e. Merchants have to deal with various types of fees.	

Internal and external factors of food commodity trade in Central Java are described in the Table 3. The group of internal factors consists of strengths and weaknesses of the trade. On the other hand, external factors include indicators such as opportunities and threats. In general, it is possible to claim that the

strength of food commodity trade in Central Java is the quality and supply of products. Nevertheless, production of food commodities is vulnerable to climate changes and short expiry dates of products. Furthermore, the trade of food commodities in Central Java needs further improvements of distribution channels performance. In order to make distribution channels more efficient it is crucial to shorten supply chains, decrease cost of transportation and to improve the regulations related to traditional markets.

The negative impact of external factors on food trade shows that the government of the Central Java Province should regulate the market of food commodities. The main purpose of the proposed regulations is to improve market access for local products. Moreover, the regulations should also include tools to supervise and control both quantity and quality of imported food commodities. Nevertheless, there is still a great potential for local products because of the size of the local market. Therefore, the current situation of the producers in Central Java should be perceived as an opportunity. The regulations could support local producers and encourage them to compete efficiently with imported products, which are a direct threat for local food commodities.

Table 4. Development strategy of food commodity trade

Strengths & Opportunities:	Strengths & Threats:
a. Intensification and expansion of agriculture in order to maximise the productivity; b. Improving the quality of food commodities in post-harvest processing and warehousing; c. Determining trade policies in terms of food commodities.	a. Revitalisation of traditional markets: b. Introduction of legal frames in terms of food trading in traditional markets: c. The local government should support development of warehouses for food commodities in order to maintain their quality and support merchants.
Weaknesses & Opportunities:	**Weaknesses & Threats:**
a. The local government plays an important role in promoting the quality of food commodities; b. Merchants should give clear and accurate information about the quality and prices of food commodities; c. Merchants should cut some costs of local food commodities to boost sales.	a. The local government should encourage traders to focus their business on sales of local commodities; b. Traders should establish business relations with farmers associations.

The analysis of food trade in Central Java can lead to various solutions. However, taking both internal and external factors into consideration it is possible do determine a basic framework of such a strategy. Consequently, according to the findings of this research it is necessary to emphasise some crucial policies that should be considered by the government of Central Java. The main policy is that the revitalisation process of traditional markets revitalization is becoming more and more important issue and it is crucial to attract more customers and improve the management. In addition, the revitalisation of traditional markets could also be used to organise the presence of traders at traditional market areas and outside of it in a transparent manner. Regulations on food trade system are also essential to improve the distribution, pricing and quality of food commodities in Central Java. Merchants should also implement some strategic changes in their business activity, such as providing clear and accurate information concerning quality and prices of food commodities; and establishing business cooperation between associations of traders and farmers in order to ensure availability and quality of food commodities.

Food trading system in Central Java province

In Central Java there are two trading patterns of food crops: a) deliveries of food crops to local merchants from a regional commodity supplier in accordance with a period and a form of payment; and b) direct regional sales of food crops to consumers in accordance with a period and a form of payment. According to the survey conducted with 350 respondents working as traders in the region of Central Java it is possible to distinguish certain patterns of food trading. The pattern of trade depends on types of commodities, these patterns are as follows:

1. Type 1: Purchasing from farmers and direct sales to consumers. This method of sales is usually used in terms of commodities such as rice, local fruits, chicken, local beef, fresh water fish (aquaculture), corn, local soybeans, vegetables, eggs, and tubers
2. Type 2: Indirect purchase from farmers or producers and direct sales to consumers. This model is used in case of products such as sea fish, local beef, corn, local soybeans, vegetables and local fruits. Consequently, a merchant relies on agents (brokers) providing products from farmers and producers

3. Type 3: The last model of trade is based on indirect import of goods and direct sales to consumers. Merchants usually apply this model to sell products such as fruits, beef and soybeans

The first type of a trading model of food commodities in Central Java is based on a short distribution channel. In this model traders rely on direct deliveries from producers and farmers. It means that all parties are located in the same region. The model of the first type of food trading can be seen in the Figure 1. The model includes four elements: input, process, output and impact. Input elements consist of information about the availability of food products from farmers, quality of goods and pricing of products. Process elements of this model explain characteristic of sales at traditional markets, commodity segregation based on quality, pricing of commodities in the market (having considered costs of transportation, marketing, fees, interests, and the risk of damage to food commodities). The output element is supposed to explain sales of food commodities to consumers, business profits and fees. The impact elements of this model are supposed to explain a relatively low level of prices, which is related to a relatively short distribution chain, development of agriculture in the region and efforts to improve the welfare of both producers and traders.
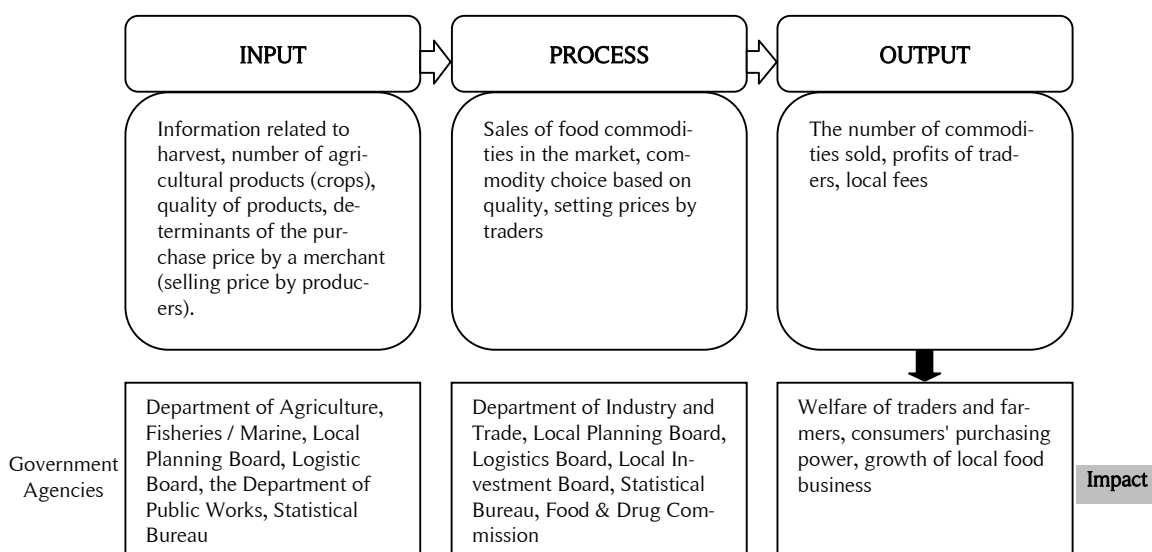
INPUT	PROCESS	OUTPUT
Information related to harvest, number of agricultural products (crops), quality of products, determinants of the purchase price by a merchant (selling price by producers).	Sales of food commodities in the market, commodity choice based on quality, setting prices by traders	The number of commodities sold, profits of traders, local fees
Department of Agriculture, Fisheries / Marine, Local Planning Board, Logistic Board, the Department of Public Works, Statistical Bureau	Department of Industry and Trade, Local Planning Board, Logistics Board, Local Investment Board, Statistical Bureau, Food & Drug Commission	Welfare of traders and farmers, consumers' purchasing power, growth of local food business

Government Agencies — Impact

Figure 1. Trading model of food commodities in Central Java type 1

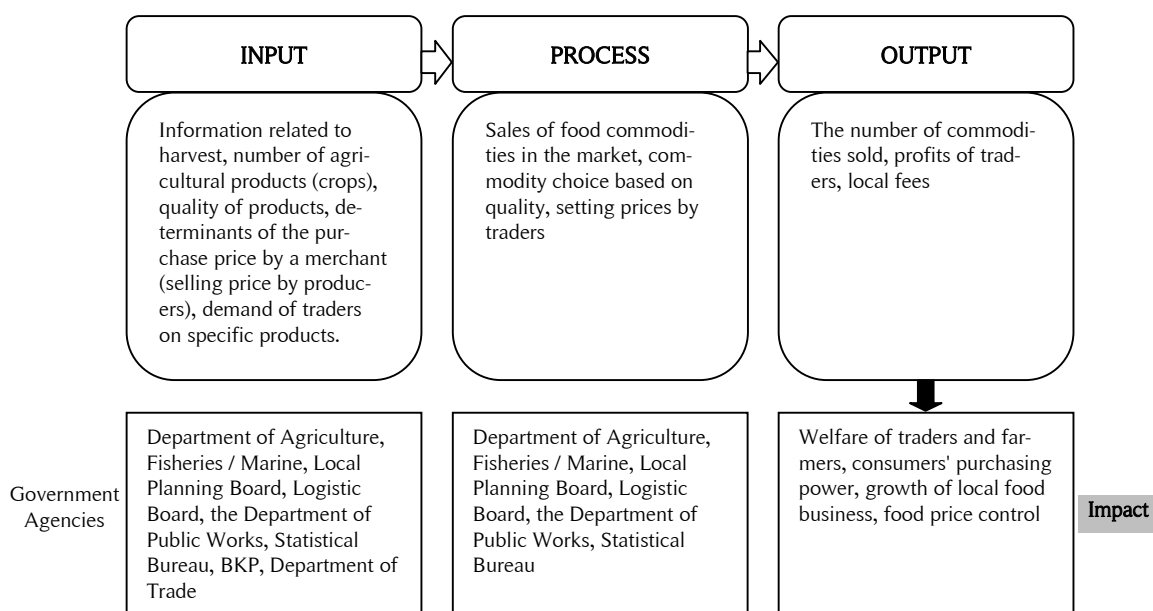| INPUT	PROCESS	OUTPUT
Information related to harvest, number of agricultural products (crops), quality of products, determinants of the purchase price by a merchant (selling price by producers), demand of traders on specific products.	Sales of food commodities in the market, commodity choice based on quality, setting prices by traders	The number of commodities sold, profits of traders, local fees
Department of Agriculture, Fisheries / Marine, Local Planning Board, Logistic Board, the Department of Public Works, Statistical Bureau, BKP, Department of Trade	Department of Agriculture, Fisheries / Marine, Local Planning Board, Logistic Board, the Department of Public Works, Statistical Bureau	Welfare of traders and farmers, consumers' purchasing power, growth of local food business, food price control

Government Agencies — Impact

Figure 2. Trading model of food commodities in Central Java (Type 2)

The type 2 model is applied if there is a demand for goods produced outside of Central Java. In this model traders at traditional markets contact suppliers from the region of Central Java. These suppliers already have business relations with certain customers (other traders) located in the specific market. In this model the prices are given by suppliers. Thus, the prices of food commodities will be relatively higher for the consumers because of the profits gained by agents (brokers). In consequence, this model has certain disadvantages, especially high prices for consumers. However, an important advantage of this pattern is a direct access to products guaranteed by specialised parties, therefore traders can focus on core business instead of looking for new sources of food commodities. Under these circumstances more products should be available on the market.

The second model also includes four elements: input, process, output and impact (Figure 2). Input elements provide the information about availability of food commodities from producers (farmers) to suppliers and the information about demand on specific products from traders. Therefore, at this stage both the quality of food commodities and their pricing depends on agents (suppliers). The process is supposed to provide further details about pricing and sales of food commodities at this stage. Output of the model describes further details concerning sales, profits of traders and fees (taxes). The last group consists of impact for improving the welfare of traders and farmers, consumers' purchasing power, control food prices and growth of local food business.
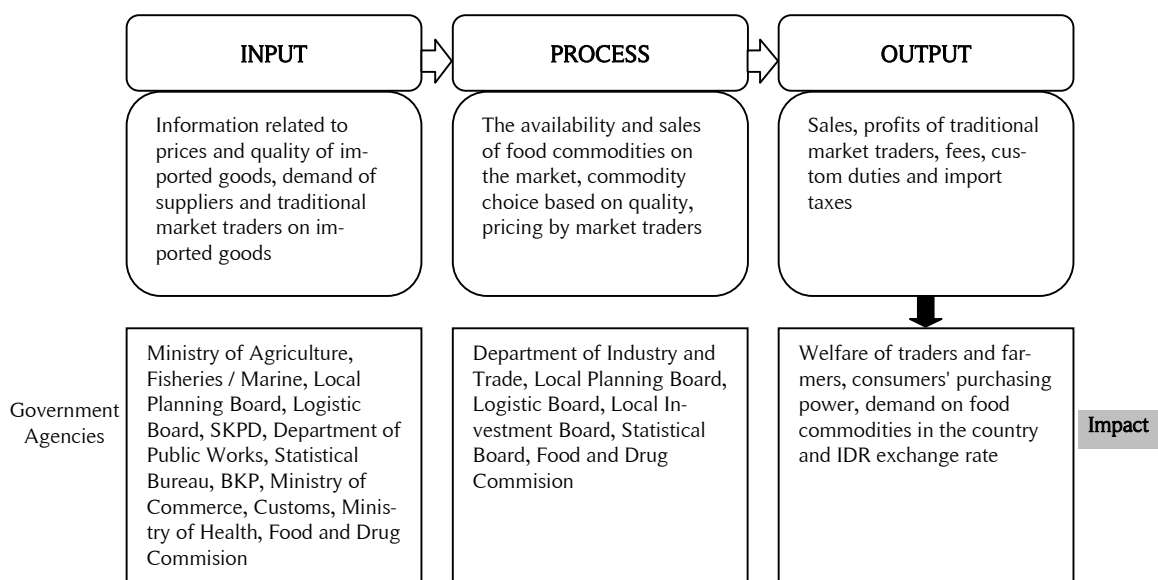
INPUT	PROCESS	OUTPUT
Information related to prices and quality of imported goods, demand of suppliers and traditional market traders on imported goods	The availability and sales of food commodities on the market, commodity choice based on quality, pricing by market traders	Sales, profits of traditional market traders, fees, custom duties and import taxes

Government Agencies			
Ministry of Agriculture, Fisheries / Marine, Local Planning Board, Logistic Board, SKPD, Department of Public Works, Statistical Bureau, BKP, Ministry of Commerce, Customs, Ministry of Health, Food and Drug Commision	Department of Industry and Trade, Local Planning Board, Logistic Board, Local Investment Board, Statistical Board, Food and Drug Commision	Welfare of traders and farmers, consumers' purchasing power, demand on food commodities in the country and IDR exchange rate	Impact

Figure 3. Trading model of food commodities in Central Java (Type 3)

Type 3 models the trading system with more distribution channels and more complicated one because goods are imported by Indonesian companies. Consequently, there is no fixed amount of goods in the market and the prices are vulnerable to fluctuations of exchange rates of foreign currencies (especially US Dollar to Indonesian Rupiah).
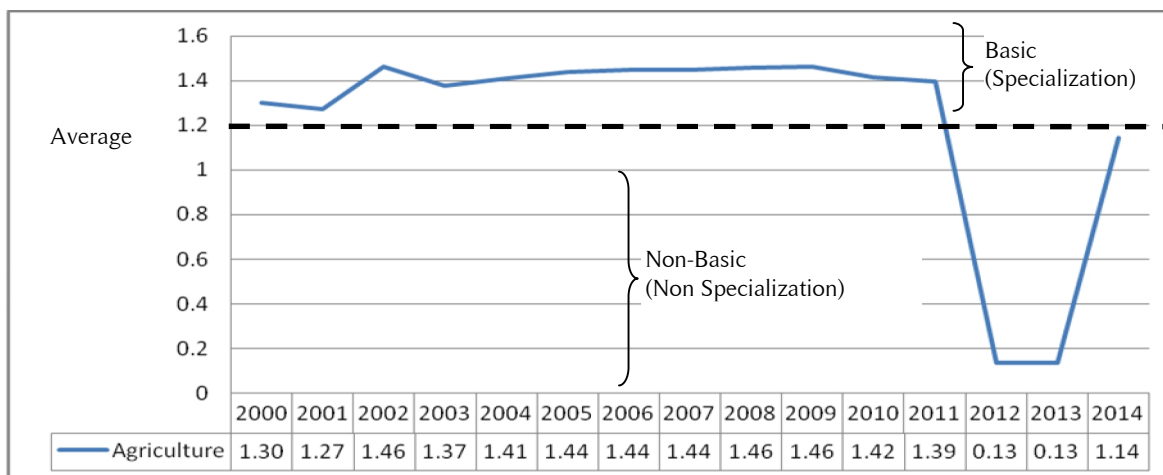
In this model traders are obliged to contact suppliers who provide goods directly from importers. Therefore, Javanese suppliers have to rely on the availability of food commodities distributed by Indonesian importers. In consequence, both suppliers (agents) and traders are dependent on food commodities provided by importers. It is worth emphasising that in terms of consumption it is possible to reduce this dependency and uncertainty with local substitutes. The substitution is possible only in case of certain products, it is also crucial to take consumers' approach into consideration. Preferences and habits of customers can cause low price elasticity of demand, which is why certain consumers will not decide to choose local substitutes instead of imported goods in case of price fluctuations. Consequently, it seems that the quality of imported goods is perceived as the most important factor determining their choice.

The third model of food trade includes elements such as input, process, output and impact. Input provides information concerning availability of goods, prices and quality of imported food commodities, information needs and the availability of food commodities imported by suppliers, and the information concerning demand of traders. At this stage, the pricing (in Indonesian Rupiah) of imported food com-

modities depends on both importers and suppliers. Process describes the availability of food commodities and sales operations conducted by traders. The pricing process and sorting of food commodities is based on their quality. Consequently, at this stage the final price of goods depends on all parties (importers, suppliers and market traders). The output of the model explains sales, profits of traditional market traders, fees, custom duties and import taxes. Therefore, according to this information it is possible to describe welfare of traders, consumer purchasing power, balance of demand and supply in the country, prices and Indonesian Rupiah exchange rates.

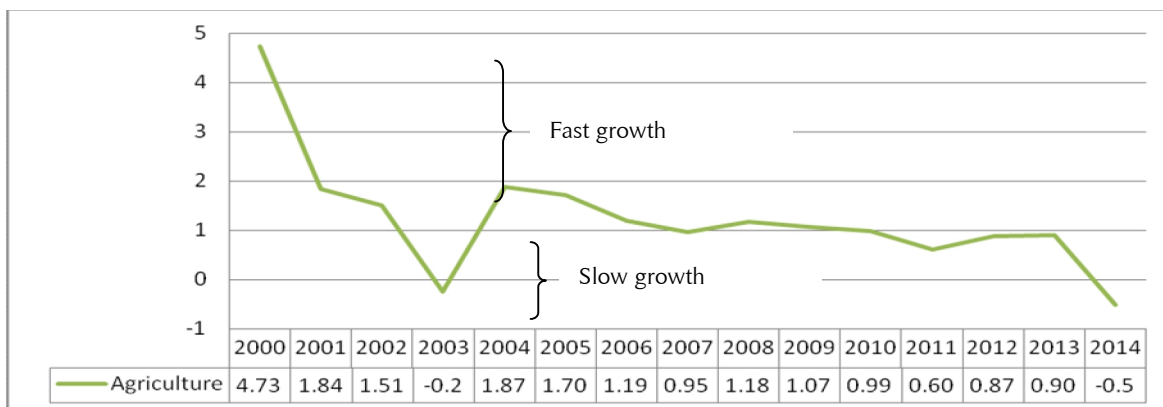## Regional analysis of agricultural sector

Regional analysis of the agricultural sector was conducted using SLQ and DLQ methods. The description of the agricultural sector illustrates products and commodities which are available in the province of Central Java. SLQ and DLQ calculation results can be seen in Figure 4 and 5. According to SLQ analysis in the 2000-2011 period the agricultural sector in Central Java can be perceived as the basic sector (specialised) in comparison with the national agricultural sector. Moreover, in the analysed period (2000-2010) the DLQ results show that the agricultural sector in Central Java is growing faster than the national average for the agriculture.

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Agriculture	1.30	1.27	1.46	1.37	1.41	1.44	1.44	1.44	1.46	1.46	1.42	1.39	0.13	0.13	1.14

Note: Provisional data for 2014

Figure 4. Curve of calculation results of SLQ analysis of the agriculture in Central Java

According to the results of SLQ and DLQ analyses concerning the agricultural sector in Central Java it is possible to emphasise the following findings. Firstly; the agricultural sector as a provider of food commodities is one of the priority sectors in Central Java. Secondly; Farmers, traders and the local government have taken advantage of the province's potential and play an active role in supporting the development of this sector as a profitable business and a crucial part of the economy of Central Java.

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Agriculture	4.73	1.84	1.51	-0.2	1.87	1.70	1.19	0.95	1.18	1.07	0.99	0.60	0.87	0.90	-0.5

Note: Provisional data for 2014

Figure 5. Curve of calculation results of DLQ analysis of the agriculture in Central Java

Conclusion

Trade of food commodities in the region of Central Java Province is mostly based on local products. The local producers should enhance production and boost consumption of local commodities. However, based on SWOT analysis there are still two important issues facing by local communities: the availability of products based on local needs and the quality of food commodities.

Furthermore, there are three types of trading patterns in Central Java: a short, medium and long distribution channels. Under these circumstances the local government should establish and implement local regulations on trade of food commodities. In addition, the regional analysis shows that the growth of the sector is stable and higher than the national average. According to SLQ and DLQ calculations it is possible to claim that the agriculture can be also perceived as a basic (specialised) sector of Central Java in comparison with other regions or even the Indonesian economy. The implication of this research is the local government in Central Java Province should conduct local policy on food trade and security. It can be referred on Briones (2011); (Konandreas (2012); Jayne, Sturgess, Kopicki, & Sitko (2014) and (Murwatiningsih, Nihayah, & Oktavilia, 2013). Farmer groups should cooperate with sellers in traditional market to control supply and price. This research is limited to food trade patterns in Central Java. Therefore, further research should take into considerations factors such as competitiveness of local business and its influence on further growth of the agricultural sector in Central Java.

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