MARKET STRUCTURE AND DISTRIBUTION PATTERN OF RICE AS A MAJOR COMMODITIES IN REGENCY CONTRIBUTOR TO INFLATION BANYUMAS

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ABSTRACT

This study focuses on the rice commodity marketed in Banyumas Regency. The problem is related to the trend of commodity prices in Purwokerto that are more unstable Compared to other regions in Central Java. Beside, based on the formation of inflation structure, food materials have a dominant role than other sectors and hulled rice is the most important commodity in the food material commodities sector. It was identified that the market structure of hulled rice trading in Purwokerto tended to be in tight oligopoly type at the whole seller level and tended to loss oligopoly type at lower levels. Related to the distribution line, it was found that the commodity was distributed hulled rice from paddy farming to the final consumer level, through the hulled paddy milled, whole sellers and retail sellers level.

Keywords: Rice commodity, distribution line, price formation

INTRODUCTION

Inflation is the tendency of the price-the price to rise in general and continuously (www.bi.go.id). Inflation is often emphasized as a problem compared to the benefits, especially if inflation emerged as a result of the economic shock or government policy. If this type of unanticipated inflation, inflation will have an important effect on the economic welfare aspects. Prices will increase faster than the rate previously estimated price of the real value of all assets decline. The impact is more going widen the gap distributional (Doepke and Schneider, 2005).

Modern Inflation Theory states that inflation could be on the demand side (demand pull inflation) and the supply side (cost push inflation) (Samuelson and Nordhaus, 2005). Demand pull inflation occurs due to an increase in total demand resulting in a change in the level of prices because the demand exceeds the number of items offered. This inflation occurs because of the increase in total demand as the economy is concerned in a situation of full employment. The cost push inflation caused by rising costs of production (input), which causes the price of products (output) generated group.

Understanding inflation from the supply side is relevant and interesting to study because existing prices at the consumer level is determined by the actors in it. The behavior of producers and traders in raising or lowering prices will bring the impact of price changes in the market. The length of the distribution chain that must be passed by a commodity also impact the price reflected on the consumer side. The more the length of the distribution chain, the higher the final price of the commodity.

To detect patterns of distribution and movement of commodities, the focus of the case studies in this research is the rice commodity marketed in the territory Urban Purwokerto. Issues raised is the development of prices in general in Purwokerto more volatile

than other regions in Central Java and Yogyakarta. On the other hand, the movement patterns are influenced by inflation inflation majority of foodstuffs and commodities rice is a commodity that is counted as the most important contributor to inflation in the sector derived from these foods. Therefore, this study aims to (1) identify the strategic commodities market structures contributor to inflation Purwokerto area, (2) identify patterns of distribution, including distribution costs and barriers to regional inflation contributor strategic commodities, and (3) determine the behavior of manufacturers, distributors and retailers in the price formation mechanism of strategic goods contributor to inflation in the region.

ANALYSIS METHOD

Data used in the study include: (1) primary data obtained through interviews or circulating questionnaires to businesses (from upstream to downstream, including associations) related to the commodity elected, and (2) secondary data obtained from the study of literature and useful to provide explanatory information from the primary data analysis. The number of respondents overall sample as many as 100 respondents. Secondary data were obtained from the Central Bureau of Statistics, local government agencies as well as surveys that have been done before (Ahmad, 2011).

Of sampling in the context of primary data collection, conducted proportional random sampling. Respondents were selected randomly by using several stages of sampling and taking into account the contribution to the role of these commodities in each region. The sampling process is done by stages as follows: (1) at the initial stage, the sample of respondents is determined from the merchant's side retailers were selected at random to determine its location in 6 traditional markets in the city of Purwokerto, (2) from an early stage can be known supplier of commodities sold retailers and also the location where the commodity is derived. In this second phase, the respondents sought is a wholesaler respondent with the information known based on information from retailers, and (3) the third stage is the selection of respondents commodity producers based on the information obtained from the respondents wholesalers.

Data analysis tools used include:

1. Detection of Market Structure

Commodity market structure is analyzed using several quantitative approach as follows:

a. Herfindahl Hirschman Index (HI)

HI is the sum of the squares of the market shares of all companies in an industry. HI is one tool for measuring the strength of the market [Samuelson and Nordhaus (2005), Nissan (2003)] that

Dirumuskan; $HI = \sum_{i}^{n} s^2$, Where: si = share market companies to-i (%); and i = Number of all companies in the industry.

If the company controls 100% of industry sales, then the HHI would be worth 1. The amount of HI in the following criteria;

HHI <0.01 (highly competitive index); HHI <0.1 (unconcentrated index);

HHI = 0.1 sd 0.18 (moderate concentration); and HHI> 0.18 (high

concentration)

b. Concentration Ratio (CR)

CR is a measure of the market share of the biggest companies in an industry or a large company's relative share of the total industry. CR is used to measure the level of competition in the market structure (Bikker & Haaf, 2002). CR can be calculated by summing each company's market share. The greater the number CR, the greater the concentration of an industry. If CR4 reaches 100% it can be said that the market is a monopoly market.

c. Minimum Efficiency Scale (MES)

MES is a measure of the barriers to entry for a company to enter into an industry. If the value of MES is high relative to demand, and if the operational costs are then MES will be an important measure for the company's entry into the market (Gal, 2001). MES formulated; The company's MES = output / total output. Based on the criteria, MES> 10% describe the high barriers to entry into an industry.

2. Commodity Distribution Pattern Detection

To determine the pattern of distribution of rice commodities required direct surveys on businesses. The survey results will also be useful to know the behavior of manufacturers, distributors and retailers in the price formation mechanism of strategic goods contributor to inflation in Purwokerto. For each major commodity inflation contributor, will be identified ways of distribution, whether to follow a simple pattern such as:

[producer ◊ *wholesalers* ◊ *retailer* ◊ *end consumer*]

or whether there are other patterns of distribution channels. Associated with the behavior of manufacturers, distributors and retailers in the formation of prices of goods, will be dug up information on the basis of pricing in each of the distribution chain, is determined based on the cost of production + profit margins, following the market price, the competitor's price or the buyer.

3. Principal detection Shaping prices

The empirical method for detecting this price forming approach Testing test Asymmetric Transmission Price. Granger Causality application is used to prove that the price movement upstream as downstream price movements the price drivers and test the inter-dealer transactions in commodity markets in the distribution channel. The results of this causality is used to detect the most dominant effect transactions in the overall price formation. On the Granger test, regression models were produced to test whether variables affect the X1 more variation change X2 (X1 ◊ X2) X2 or otherwise affect more variation change X1 (X2 ◊ X1) (Gujarati, 2003). Granger test assumes that (1) all information is relevant for predicting the target variable (dependent), (2) Error term in the causal relationships between variables are not correlated with the variables studied, (3) Each of the variables studied is stationary, (4) Because it is a test of causality, the coefficients of the estimation result is not important, (5) The test statistic F is required to determine the effect of causality. Results F significant ◊ X1, X2 show *X*2 influenced.

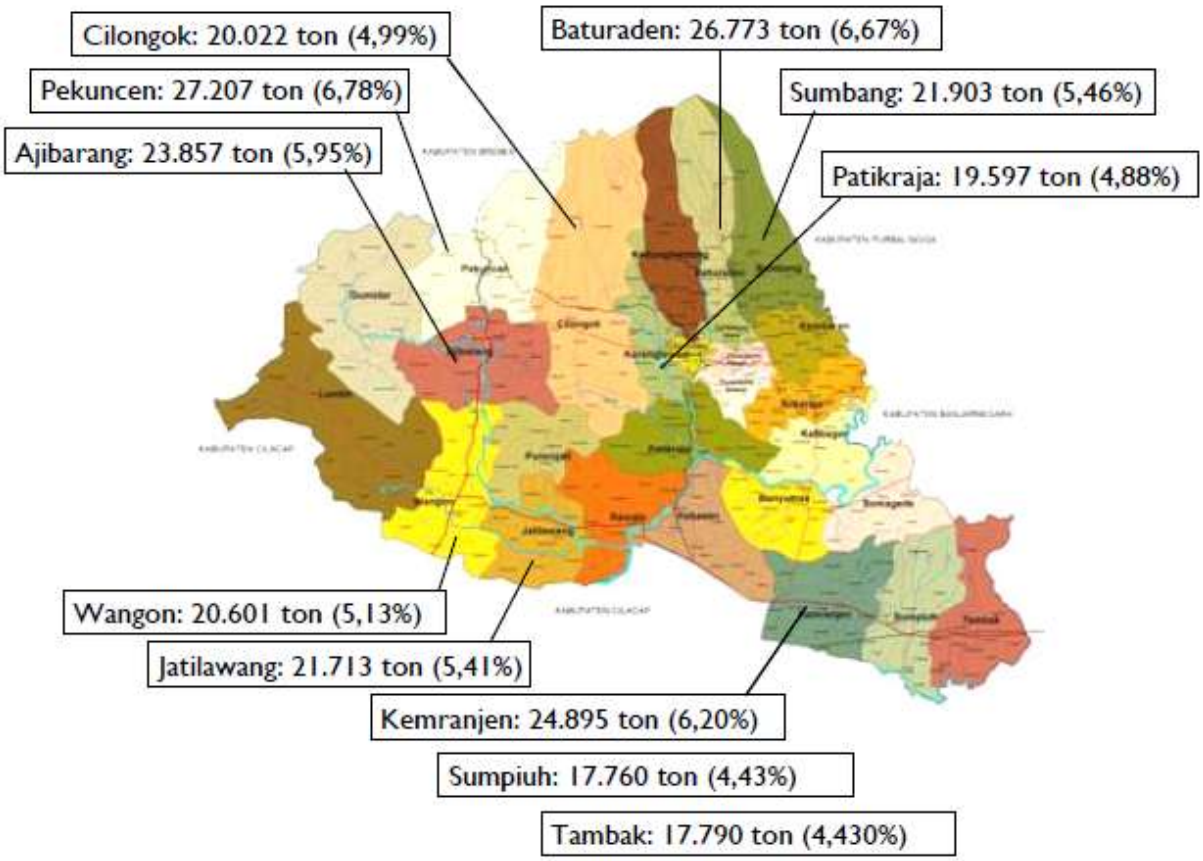
RESULTS AND DISCUSSION

A. Characteristics of Farmers Rice

Rice circulating in Purwokerto most of the rice produced from rice farmers in Banyumas. According to data in 2010, the total production of rice in Banyumas district of 401 263 tonnes. District of the main rice-producing District of Pekuncen, Baturraden and Kemranjen who each contributed more than 6%. the total production of rice Banyumas. Map of the distribution of rice production in 2010 is as Figure 1.

From the field survey obtained information on the characteristics of survey respondents in the level of rice farmers. Farmer's acreage averaged around more than 1 ha, of 4,900 m2 to 30,000 m2. With the land area, the average rice production per field ranged from 1.6 tons to 36 tons per year. The frequency of the rice planting period in Banyumas is high. During the first year of planting, there are 3 times the average of the largest production contained in the third growing season. The number of workers in the area will also be relatively varied. At least every farm can be done by three people at most involve farmers and 10 farmers.

To produce rice, respondents in general farmers meet production constraints in the case of bad weather and the limited availability of fertilizers. Fertilizer is an important component in rice farming in Banyumas. The average cost of fertilizer farmers have reached 17.6% of the total production cost components. Height this fertilizer cost is related to height farmers' dependence on artificial fertilizers. This matter Banyumas rice cultivation caused the majority rely on non-organic rice varieties.



Source: Department of Agriculture district. Banyumas, 2011, the data is processed

Figure 1. Major Regional Producers Rice in the district. Banyumas

From the field survey known to most farmers working on land owned by someone else (the landowner). It is identified from the high cost of land rental. On average each farmer requires a land lease fee of 41.3% of the total cost of issuance. While spending on labor costs are also significant, approximately 20.8% of total production costs.

The production of rice farmers no overall sale. Most rice is consumed by farm families themselves. The average rice that is not sold approximately 34.3% of total production. For most of the rice sold, in general, farmers sell rice to wholesalers, approximately 62.8% of total sales of rice. The remainder is sold to wholesalers and a small portion to the retailer. Farmers generally sell to retailers and wholesalers are not in the form of dried paddy rice but has been shaped. This is generally the case in Banyumas because rice farmers can easily process the grain crops into rice through rice mill services are scattered in every district in Banyumas.

B. The characteristics and market structure in Level Dealer

The traders in urban areas Purwokertomayoritasmemperoleh commodities mainly derived from Banyumas own. Traders who buy paddy rice also obtain supplies from farmers in Banyumas. However, when there is a shortage of rice. The rice suppliers to bring rice from rice-producing areas in the northern regions of Java, like Demak, Purwodadi, Holy. Meanwhile, some traders also get rice from outside Banyumas and are generally obtained from around the Cilacap and Banyumas as Banjarnegara.

On the side of the purchase price, purchase price range of dry paddy rice by traders for grain is between Rp. 2700.00 up to Rp. 6600.00. The dried grain prices vary depending on the type of rice varieties. As for the purchase price of rice, the average under normal conditions traders to buy rice from the larger merchant Rp. 6700.00 per kg. The amount of rice traded also vary. For small merchants (retailers) sell a daily average of 43-70 kg of rice, and for big rice traders were able to sell 5-8 tonnes of rice / day.

For the price, there is a tendency of the rice trade between wholesalers and retailers in urban areas Purwokerto higher than other cities. The maximum selling price in Purwokerto Rp. 6800.00 while in other cities Rp. 6200.00. This indicates that sellers tend to prefer to sell rice in Purwokerto because it is considered more attractive. Meanwhile, the seller set rice prices to the final consumer retailer reached Rp. 7000.00 when the supply slightly. In normal rice supply conditions, the maximum retail price of rice is Rp. 6900.00. The average price of rice in the last year at the retail level is Rp. 6700.00 on normal rice supply conditions.

From all rice traders who were respondents of this research, sales turnover rice per month on average almost reached Rp. 84,000,000.00. Value turnover of retailers with the lowest turnover in the month amounted to Rp. 4500000.00 million. For wholesalers, there are traders with a turnover of a month to Rp. 325,000,000.00. The share of sales to retailers is relatively low, about 0.335%, while the

highest turnover wholesalers almost 24.218% of the total samples taken.

The average turnover of a large trader (with a turnover of more than Rp. 100,000,000.00 per month) viewed 1 month Rp. 206,000,000.00. While traders with a turnover of less trade with an average turnover value of around Rp. 21,000,000.00. The average output of rice traders per month around 15 ton. From these data, the structure of the rice market in Purwokerto tends to be a tight oligopoly, where there are few traders with a turnover that is acting as *price leadership* while there are a lot of traders with a turnover of tiny behave as price followers.

Table 1. Main indicators Rice Market Structure in Purwokerto

Indicator	Value
HHI	0.09318
CR4	0.51902
MES	0.16248

Tight oligopoly tendencies of the rice market in Purwokerto indicated by the HHI, CR4 and MES. Value Herfindahl Index (HHI) of 0.093 rice commodity rice trade shows in Purwokerto tend to have low concentrations (unmoderated concentration). Meanwhile, CR4 value of 0.519 indicates as many as 4 company (merchant), the largest in Purwokerto Purwokerto market leader with a market share reached 51.9% of total sales of rice in Purwokerto.

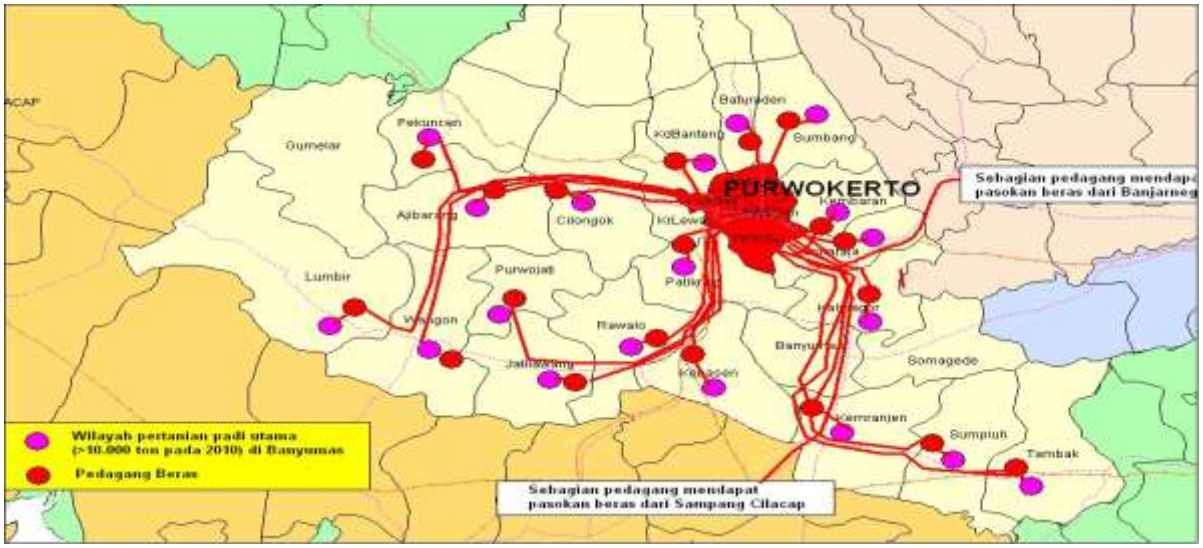
If using the HHI size, relatively there are no difficulties if there are new businesses to enter this market. Only with a high CR4 value, to enter the market in a large scale merchants size (high turnover) new businesses are difficult to get into the market. This is also supported by the MES value of 16.2% which can be said to fluctuations in prices and output largest company is able to influence the behavior of the prices on other traders.

C. Distribution patterns

In general, some traders claim to know the distribution channels of milling rice paddy (rice mill) to the final consumer. The commodity distribution lines stems from rice producers, namely rice farmers. No peasant production brought by the farmers themselves to be ground into the rice paddy and there are buyers who meet farmers. Paddy rice milling process be good brought by purchasers of rice and rice farmers are made by the mill. In Banyumas, some businessmen rice mill is also a big rice traders. He bought paddy from farmers or traders rice after rice processed by the mill entrepreneur then sold itself to wholesalers rice.

Rice traders (who hired rice mill to grind rice into rice) and wholesalers who buy paddy from rice mill entrepreneurs subsequently selling the rice well in rice retailers and to consumers. In general, a large rice traders have a storage warehouse and at the same time as a place to store both wholesale and retail sales. As for retailers, rice became the merchandise is absorbed directly by the final consumer (Figure 2).

For some cases, a fraction collector (which can also be businessmen rice mill) in the district to buy and take grain from the northern coast (Demak, Purwodadi, Kudus) with a better quality reasons, or if the supply shortage of Banyumas and surrounding area.



Source: Field Survey

Figure 2. Map of Commodity Distribution Line Rice Banyumas

By determining the final consumer of rice is in Purwokerto and surrounding urban areas, the distribution channels of rice from farmers to consumers can be known. Rice farming can be found easily in the area outside of Purwokerto, Banyumas Regency. In these areas, including Purwokerto also easy to find rice mill permanent and mobile. Therefore, farmers and buyers can access easily paddy rice mill nearby scattered in Banyumas. Banyumas relative was able to meet the logistics needs of rice to its people.

Rice from collectors and wholesalers then sold to retailers and wholesalers to resell, either in the local market and urban Banyumas Purwokerto, as well as other areas. Other areas include Banjarnegara, Tegal, Brebes and Wonosobo. Some manufacturers and dealers also sell its rice stocks to Cipinang Market, Bogor and Cirebon. Wholesalers and retailers supplying the majority of the wares of local producers and a small portion from the outside as from Banjarnegara, Banyumas and Cilacap.

D. The behavior of manufacturers, distributors and retailers in Rice Price Formation

Rice price movements can be identified from the farmer to the final consumer. Asymmetric Price Transmission Testing Results show the formation of prices along the distribution lines of rice from farmers to the end customer, the transaction relationship between farmers and wholesalers have the most important influence than the transaction the relationship between wholesalers with retailers, as well as the relationship between retailers to the end consumer. It can be seen from the value of the F statistic causal relationship between the variables farmers and wholesalers are higher than the relationship between actors and other economic agents. These results reflect the relative rice price fluctuations due to changes in prices that occurred in transactions between rice farmers by big traders. Nevertheless, the relationship between all the agents market transactions are relatively less visible because of all the relationships tend to be not significant (Figure 3).

CONCLUSION

The results of the identification of the market structure of commodity research shows rice commodity markets traded in a tight oligopoly Purwokerto tend to form at the level of wholesalers and become loose oligopoly on the smaller merchants. Related to the distribution patterns, identified distributed rice from farmers and grain traders to final consumers pass through rice mills, wholesalers and retailers. Some aspects related to the implications of the structure of the market and commodity pattern of the control policy commodity prices are examined, it can be concluded that: the prices of foodstuffs generally occurs a significant increase in the period of fasting and Eid. There are also a limiting factor in production due to the changing seasons and the trend of the harvest.

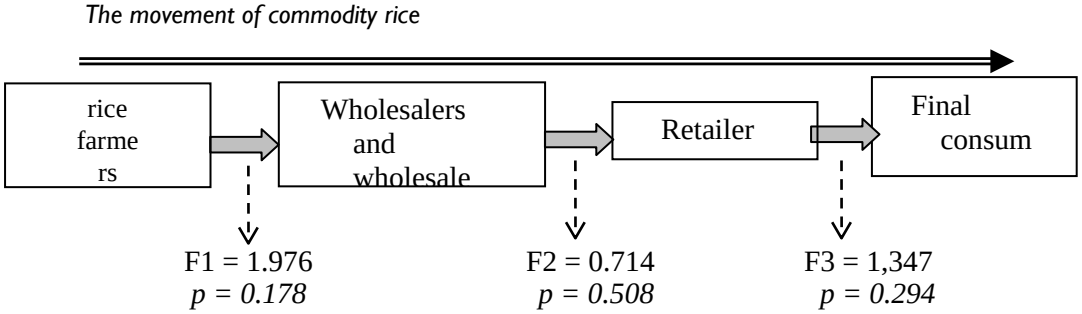


Figure 3. Value of Tests F Price Movement in Rice Distribution lines

Policy makers need to minimize imperfections factor information between the development trend of consumer prices with selling prices at the producer level (including farmers and ranchers). This will encourage the increased bargaining power at the producer level and encourage the creation of a shorter distribution chain.

REFERENCES

Ahmad, Abdul aziz, Grace Pritono, Agus Arifin. 2011. Mapping the distribution of commodities Largest contributor to inflation in Central Java and Yogyakarta (Case Study in Purwokerto). Cooperation Office of the Bank of Indonesia Purwokerto and the Faculty of Economics UNSOED

Bank Indonesia. 2008. The Indonesian Economic Outlook 2008-2013: Industrial Organization and formation of prices at the producer level. July 2008.

Biker, Jacob A and Kkatharina Haaf. 2002. Measures of Competition and Concentration in the Banking Industry: A Review of the Literature. Economic & Financial Modeling. Summer 2002.

Doepke, Matthias and Martin Schneider. 2005. Aggregate Implications of Wealth Redistribution: The case of Inflation, Unpublished Manuscript. UCLA and NYU

Gal, Michal S. 2001. Size Does Matter: The Effects of Market Size on the Optimal Competition Policy. Southern California Last Review, vol.7 pp.1437 -1478

Gujarati, Damodar. 2005. Basic Econometric. McGraw-Hill

Nissan, Edward. 2003. Relative Market Power versus Concentration as Measure of Market Dominance: Property and Liability Insurance. Journal of Insurance Issues, 26, pp. 129-141.

Samuelson, Paul. A., & Nordhaus, William D. 2005. Economics 18th edition. The McGraw-Hill Companies. New York