ANALYSIS OF PRICE TRANSMISSION ELASTICITY OF POTATO IN KARO DISTRICT, NORTH SUMATERA PROVINCE

Anita Rizky Lubis[1], Nelva Ginting[2], Sandro Panjaitan[3]

[1,2,3] Agribusiness Study Program, Faculty of Science and Technology, Mahkota Tricom Unggul University

ARTICLE INFO	ABSTRACT
Keywords: elasticity; price transmission; potato	The price gap between the price obtained by farmers and the price obtained by retail traders indicates that the price received by retail traders is not the price received by farmers. Prices are high when production is low, on the other hand during harvest the prices obtained are usually low, even though the product may not sell well because there are many products on the market. As a result of large price fluctuations, potato is a seasonal crop and its varied production often creates uncertainty for farmers in terms of income or profits for farmers. The purpose of this research is to analyze the price transmission elasticity of potatoes in Karo Regency and to analyze the marketing margin and farmer share. This research uses secondary data for 5 years (72 months) from 2018 to 2022. The research method used to analyze price transmission elasticity is simple linear regression. The results showed that the price transmission elasticity of potatoes in Karo Regency was inelastic. The marketing margin received by potato wholesalers in Karo Regency is RP 5,348/Kg, with a percentage of 24.67%. the marketing margin received by retail potato traders in Karo Regency is RP 11,152/Kg, with a percentage of 32.11%.
Email : anitarizkylubis28@gmail.com	

INTRODUCTION

Potatoes are one of the garden raw materials that can replace rice, because potato tubers have high carbohydrates, vitamins and minerals. (T et al., 2013). Potato production in Karo district fluctuated over the past three years, from 98,893 tons in 2020, to 95,356 tons in 2021, and to 90,631 tons in 2022.(BPS Kabupaten Karo, 2022). Farmers can only increase the production of their agricultural products, but the lack of market information makes farmers unaware of the market price of agricultural products, especially potato and carrot products, so that farmers get low prices for their crops and the pattern does not match when agricultural prices rise, resulting in price fluctuations in agricultural products, namely potatoes and carrots. (Ginting, 2019). The highest price of potatoes in Karo District in 2021 at the producer level was RP 6,000 per kilogram and the lowest price per kilo was RP 7,000 per kilogram. The highest price of potatoes at the retailer level was RP 13,000 per kilogram and the lowest was RP 9,800 per kilogram. (Dinas Pertanian Kabupaten Karo, 2021). High and low prices for consumers are due to the cost of production and the length of the potato distribution chain. Through the marketing price mechanism, consumer demand can lead to profits and losses. (Asmarantaka et al., 2018). The demand for potatoes continues to increase along with population growth and purchasing power. But there are several obstacles in the potato business, namely the occurrence of erratic price instability. The rise and fall of prices cannot be ascertained depending on market conditions. (Marina et al., 2020). Potatoes are a widely grown crop cultivated in Karo Regency. So to increase the productivity of high quality

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potatoes, intensive planting is necessary. In potato farming, farmers often face natural risks (uncertain weather and natural disasters) and economic risks where farmers have to face fluctuations in potato and carrot prices where farmers are usually only "price takers". The high marketing margin and price transmission are influenced by the market power of retailers which shows that the market is a concentrated market, so that the power of retailers to set prices is only the maximum profit for retailers.The purpose of this study is to analyze the elasticity of potato price transmission in Karo District.

METHOD

This study uses secondary data obtained from the Karo District Agriculture Office. Potato price is one of the research objects. The data used are potato prices at the farm level in Karo Regency and potato prices at retailers in Karo Regency for 72 months (5 years) from 2018 to 2022.

Price transmission elasticity was analyzed using simple linear regression. Simple linear regression analysis in this study aims to measure the strength of the relationship between two variables, as well as show the direction of the relationship between the dependent variable and the independent variable. The simple regression equation is formulated as follows (Levis, 2013). Price at producer level (Pf) and price at retailer level (Pr). Mathematically, the price transmission elasticity (Et) can be written as :

$$Pf = b_0 + b_1 Pr$$

Transformed in natural logarithm form into:

$$Ln\ Pf = Ln\ b_0 + b_1\ ln\ Pr$$

Description :
b_0 = intercept
b_1 = Price transmission elasticity coefficient
Pf = Price at trader level
Pr = Price at farm level

The criteria for measuring the price transmission elasticity analysis if the value of Et = 1 indicates that the rate of price change at the farm level is the same as the rate of price change at the trader level. The value of Et<1 indicates that the rate of price change at the retailer level is smaller than the rate of price change at the farm level. The value of Et> 1, the rate of price change at the farm level is greater than the rate of price change at the retail trader level. (Kusumah, 2018).

The calculation of marketing margins is based on the summation of total profits and costs incurred by all marketing institutions (Alfandana, 2014). The distribution margin is the difference between the production price and the consumer price. In this case, distribution is the sum of margins between related institutions, the sum of margins between aggregators and receiving traders, and the sum of margins between distributors and retailers (Anindita & Baladina, 2017). The Marketing Margin formula is as follows:

$$M = Hk – Hp$$

Description:
M   = Marketing Margin
Hk   = Retail merchant price
Hp   = Producer Price
Percentage margin, the following formula is used:

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$$\% \, M = \frac{M}{HE} X \, 100$$

Description:
%M = Margin Percentage
HE = Retail Price
M = Margin

RESULTS AND DISCUSSION

Price Transmission Elasticity of Potato in Karo District

Price transmission elasticity analysis is an analysis that describes the extent to which the impact of changes in the price of a good in one place or level on changes in the price of that good in another place or level.

Table 1. Results of Potato Price Transmission Elasticity in Karo Regency

	B	Std.Error	Beta	T	Sig.
Retailer Price (Pf)	0.835	0.038	0.934	43.391	0.000
Constant	0.135	0.258		1.351	0.398

Table 1 shows that the price transmission elasticity of potatoes in Karo District is in the inelastic category because E < 1 (0.835), meaning that the rate of change in potato prices at the retail level is greater than the rate of change in potato prices at the farmer or producer level. If the price change at retail traders is 1%, the price change at the farmer or producer level is 0.835% under one-way conditions. The results of this study are similar to research (Safira et al., 2019) which states that potato prices in Magelang district are in the inelastic category because the price at the trader level is greater than the price at the farmer level. Low price transmission reflects inefficient marketing where price changes at the consumer level are not fully passed on to farmers. This price transmission pattern occurs in a monopsony market where traders can control the purchase price of farmers. (Irawan, 2017).

Potato Marketing Margins in Karo Regency

Table 2. Potato Marketing Margin at the Wholesaler Level

No	Description	Rp/Kg
1	Purchase Price	16.330
2	Selling Price	21.678
3	Marketing Margin	5.348
4	Marketing Margin Percentage	24.67 %

Table 2 shows that the marketing margin received by potato wholesalers in Karo District amounted to RP 5,348/kg, with a percentage of 24.67%.

Table 3. Potato Marketing Margin at the Retailer Level

No	Description	Rp/Kg

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1	Purchase Price	23.569
2	Selling Price	34.721
3	Marketing Margin	11.152
4	Marketing Margin Percentage	32.11 %

Table 3 shows that the marketing margin received by potato retailers in Karo District amounted to RP 11,152/kg, with a percentage of 32.11%.

Marketing margins are lower when there are more marketing actors. The more marketing institutions involved in product distribution, the smaller the marketing margin. However, marketing margins are higher when there are fewer marketing actors. The fewer marketing agents involved in the distribution of goods, the higher the marketing margin. (R. et al., 2014). High marketing margins are not only due to marketing costs, but also due to the profits earned by traders. The retailer sets the selling price, who can offer a fixed price. For the trader, the amount spent in marketing costs is a component that determines the size of the marketing margin. Market margin at the wholesale level (Nugraha, 2014).

CONCLUSION

The price transmission elasticity of potatoes is in the inelastic category, meaning that the rate of price change at the level of retail traders of potatoes in Karo Regency is greater than the rate of price change at the level of farmers or producers of potatoes in Karo Regency, so the market is less efficient. The marketing margin received by potato wholesalers in Karo Regency amounted to Rp 5,348/Kg, with a percentage of 24.67%. The marketing margin received by potato retailers in Karo Regency amounted to Rp 11,152/Kg, with a percentage of 32.11%.

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