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Factors Influencing Marketing Margin Behavior of Sheep Trade in West Java

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ABSTRACT: Marketing margin is the difference between the price received by producers and that paid by consumers. Both, producers and consumers are concerned about the size of marketing margins, changes in marketing margins and the incidence of changes in margins. A study was carried out in order to identify and qualify factors that influence the marketing margin behavior for sheep trade in West Java. The data were gathered from a survey that was conducted in Karawang and Subang during the period of October 1993. A total of 40 farmers were questioned in this study using a structural questionnaires. The *ordinary least squares* method from *Shazam 6.2* is used to isolate factors that determine the marketing margin for sheep trade. The results of the study indicate that per unit marketing services/transfer cost, location of trade, sex, body weight and age of the animals are factors that influence per unit marketing margin ($P \leq 0.05$) and that of type of consumers does not show any significant level ($P \leq 0.05$). The study provide evidence that sheep farmers will get higher benefit for greater marketing margin, on the other hand, consumers will loose.

Key Words: Sheep Trade, Marketing Margin, Factors Influencing

Introduction

Price theory in its simplest form assumes that buyers and sellers meet directly. Equilibrium prices are determined by the aggregate demand and supply schedules of these buyers and sellers. A marketing margin may be defined alternatively as (1) a difference between the price paid by consumers and that obtained by producers, or as (2) the price of a collection of marketing services which is the outcome of the demand for and supply of such services (Tomek and Robinson, 1977).

Under the first definition, a marketing margin is simply a difference between the primary and derived demand curves for a particular product. Primary demand is in some sense a joint demand for all of the inputs in the final product, which is a food product at retail conceptually divided into two inputs: the farm-based components and the processing-marketing components. Therefore, the farm-level function represents the derived demand for the farm component of the final product, and in empirical analysis the farm price usually must be adjusted so that comparable components are being priced at each level.

A marketing margin also may be defined as the price of a collection of services, where the price is a function of the demand for and supply of all such services. The supply relation for marketing services is defined in terms of the marginal cost curve for the services, which in turn depends on input prices. Therefore, a particular marketing margin would thus depend on the particular demand and supply relations for services.

With regard to small ruminants production, unanswered question remain in related to price differences between farmers as producers and final consumers. The small ruminant enterprise form an important component of the agricultural farming system in Indonesia, since more than 60% of its population involves in agricultural sector. Its primary purpose is to generate cash income as well as to meet basic dietary food.

Primarily, small ruminant production in Indonesia involves the small farmers for whom it is a marginal enterprise at best. Therefore, both the producers and consumers for small ruminant production concerned about the size of marketing margin and factors that isolate the marketing margin of small ruminant trade. The objectives of the study were to determine the size of marketing margin for the small ruminant trade at farmers level and to identify and qualify factors that influence the

marketing margin behavior of sheep trade in Karawang and Subang, West Java.

Materials and Methods

Primary data were gathered from a survey that was conducted in Karawang and Subang, West Java during the period of October 1993. A total of 40 farmers, 20 farmers each sub-district, were questioned in this study using structural questionnaires. Supported information were collected from sheep traders as well as region middlemen. The farmers collaborate in this study were farmers that have at least 4 sheep in order to meet the hope that they could raise their small ruminants towards semi-intensive farming systems or industrial agriculture.

Underlying the assumption that small ruminant trade has a purely competitive market structure, the linear relationship between marketing margin and other independent variables can be expressed mathematically as:

$$MM_t = ß_0 + ß_1SC_t + ß_2BW_t + ß_3AGE_t + ß_4Sex_t + ß_5Con_t + ß_6Loc_t + \mu_t (1)$$

where:

MM	= per unit marketing margin (Rp)
SC	= per unit services/transfer cost (Rp)
BW	= per animal body weight (kg)
AGE	= age of the animals (months)
Sex	= dummy variable for sex of the animals
Con	= dummy variable for type of consumers
Loc	= dummy variable for location
μ	= error term
$ß_0, ß_1, \ldots ß_6$	= estimates of the parameter, and
t	= number of observations.

An ordinary least square (OLS) technique was used to estimate equation 1 (Judge et al., 1988). The OLS procedure of SHAZAM (White et al., 1990) was used to perform the analysis and to test for autocorrelation, multicollinearity and heteroskedasticity.

OLS technique was used to estimate equation (1) in this study since the method result in best, linear and unbiased estimate (BLUE)(Judge, 1988) and also consistent (Intriligator, 1978). In practice, this method is simple and easy to use.

Results and Discussion

Buying patterns for sheep that reported to be bought by farmers from the market during a one-year period are presented in Table 1. In average, the farmers in Subang have bought sheep (times in year) more than that of the farmers in Karawang (1.69 vs 1.12), and they bought more lambs than ewes. Most of the farmers (either in Subang or Karawang) have bought the animals during the period of Islamic month, i.e. 48% after the *Maulid Nabi* (the birth of the Prophet Muhammad S.A.W.) and 44% before the Islamic fasting month. The rest of them were bought indefinite time. This indicates that most of the farmers have not bought the animals during the peak demand season, such as Islamic holiday for Idul Adha and Idul Fitri. Therefore, the price was not too expensive due to the low competition among small ruminant sellers in the market.

With regard to the location of buying the animals, 85% farmers in Subang have bought the animals from the market within village, while that of the farmers in Karawang only 13%. Most of the farmers in Karawang have bought the animals from the middlemen who came to their house (60%) and the rest (27%) have bought the animals from their neighbor within village. It indicates that the farmers in Subang have already familiar with the market as the place where buyers and sellers meet together and easy to get access to the market, however the middlemen in Karawang still play an important roles in selling and buying the animals.

The reason for buying the animals showed that the farmers in Subang have bought the animals for fattening system (57%) and that of the farmers in Karawang only 27%. Most of the farmers in Karawang (70%) stated that they have bought the animals for raising and keeping traditionally to get lambs to sell. It indicates that the farmers in Subang have known more the market oriented in raising

Table 1.Buying patterns for sheep in Karawang and Subang, West Java.

Variables	Karawang	Subang
Frequency times/year	1.12	1.69
Period %		
Maulid Nabi	46	48.2
Fasting Month	44	44.4
Indefinite	10	7.4
Reason (%)		
Lambs	70.1	29.6
Fattening	26.6	57.1
- Other	3.3	13.3

sheep to do with fattening system compare to that of the farmers in Karawang.

The selling and buying activities by the farmers and the middlemen for the small ruminant were mostly transacted in cash.

Selling pattern for sheep that reported to be sold by farmers in Karawang and Subang during a one-year period are presented in Table 2. The farmers in Subang showed that they have sold the animals (times in year) more than that of the farmers in Karawang (2.8 vs 2.1). Most of the selling activities were conducted in the farmers' home by cash, so that the middlemen still play an important roles. This is also reported by Ashari et al., (1994) that only small part of the sheep farmers in West Java used market as the place for selling and buying activities.

Selling pattern for sheep by the period was grouped by selling pattern with the regular period according to Islamic calendar, i.e Idul Fitri, Idul Adha, Fasting Month and Maulid Nabi, and selling pattern with the irregular period, i.e. when the farmers need money immediately so that there was no choice except to sell the animals. The results showed that Most of the farmers in Karawang and Subang (50%) have sold their animals with the regular period according to Islamic calendar. Almost 75% of the farmers in Subang have sold their animals during the period of Idul Adha and that of the farmers in Karawang was 60%. It is understandable since during this period the price of the animals relatively increase, so that the farmers have additional profit. This is also reported by Soedjana (1992) that selling price of sheep in Bogor increased significantly during the period of Idul Adha by Rp.11,000 per head, or Rp.1,400 per kg live bodyweight.

The results on reason for selling the animals according to the regular and irregular period were almost the same in Karawang and Subang. Most of them have sold out the animals due to the immediate needs of money for their household. With the regular period of selling the animals, almost 75% of the farmers in Subang have sold their sheep due to support other job, such as making a small shop for household daily needs. However, 33% of the farmers in Karawang stated that they sold out their animals because the price of sheep was good at that time. Good in this case meant that the price of animals was in standard per kilogram live bodyweight. It indicates that the selling prices were not in estimation for the condition of the animals, but truly by the bodyweight.

In this study, the marketing margin was to be determined by the difference between what the consumer paid and what the producer received for the sheep produce. It was analyzed using prices of sheep that have been bought and sold by the farmers. In average, the size of per unit marketing margin in Karawang was higher than that of per unit marketing margin in Subang (Rp.14,100 vs Rp.8,100). This could be caused by the access to reach local market in Subang is easier than that in Karawang. A study by Karokaro *et al.*, (1993) indicated that per unit marketing margin of sheep trade in North Sumatra varied from Rp.6,575 to Rp.11,600 at farmers level.

OLS technique was used to estimate the coefficient of factors which influence the marketing margin behavior for sheep trade in Karawang and Subang, West Java. Results of the analysis are shown in Table 3 and Table 4 for Karawang and Subang, respectively. All of the coefficients estimated have the expected signs and most of them are significantly different from zero.

The adjusted coefficient of determination (R^2) for the model estimation in Karawang and Subang are 74% and 82%, respectively. The F statistic is significant at the 0.001 significance level. Therefore, the study rejects the joint hypothesis that the independent variables do not influence per unit marketing margin.

Table 2. Selling patterns for sheep in Karawang and Subang, West Java.

Variables	Karawang	Subang
Frequency times/year	2.10	2.80
Period %		
Idul Fitri	6.7	14.3
Idul Adha	40	44.8
Fasting Month	13.3	0
Maulid Nabi	0	0
Indefinite	40	40.9
Reason %		
Education	6.7	14.3
Other job	13.4	42.9
Good price	33.3	0
Need money	46.7	42.9

Table 3. OLS results of the estimation model for Karawang.

Variable Name	Estimated Coefficient	T-Ratio
Constant	- 3559.5^{ns}	-0.23772
Service/transfer cost	5.8322^{a}	1.8374
Consumer	754.66^{ns}	0.40896
Location	3775.8^{b}	2.2235
Sex	595.56^{ns}	0.12108
Body weight	1029.8^{b}	2.0869
Age	139.03^{a}	1.70775
Number of observations = 20 Adjusted R-Square= 0.7349 F-test= 3.460^{c}		

^{ns}Non-significant
^{c}P 0.001
^{b}P≤0.01
^{a}P≤0.05

Table 4. OLS results of the estimation model for Subang.

Variable Name	Estimated Coefficient	T-Ratio
Constant	- 121.63[ns]	-0.48904
Service/transfer cost	24.853[a]	1.66559
Consumer	69.466[ns]	1.3167
Location	143.53[b]	2.3912
Sex	43.591[b]	2.8503
Body weight	15.325[c]	1.6963
Age	0.82585E-04[ns]	0.77203E-01
Number of observations = 20 Adjusted R-Square= 0.82 F-test= 4.079[c]		

[ns]Non-significant
[c]P 0.001
[b]P≤0.01
[a]P≤0.05

The OLS estimation indicates that the parameter estimate on per unit services or transfer cost of the animals, per animal body weight (P≤0.05) and location of selling the animals (P≤0.01) are positive and statistically significant to the per unit marketing margin both in Karawang and Subang. The parameter estimate for the sex of animals in Subang shows a significant effect to the per unit marketing margin (P≤0.01), however, that of the sex of animals in Karawang does not indicate any significant level (P≤0.05). On the other hand, the parameter estimate for the age of animals in Karawang shows a significant effect to the per unit marketing margin (P≤0.05), however, that of the age of animals in Subang does not have any influence (P≤0.01).

This results show that the greater per unit services/transfer cost and per animal body weight the higher the per unit marketing margin. In the case for Karawang (Tabel 3), the results indicate that the older per animal, the higher per unit marketing margin.

Since the variable for location of selling the animals is dummy variable and it does indicate a significant level for the estimation, its interpretation should be very careful. Both, the location of selling the animals in Karawang and Subang have a significant effect to the per unit marketing margin. It means that if the farmers have sold their animals at the market outside their village, hence the per unit marketing margin would be higher. In the case for Subang, the variable for sex of the animals shows a significant influence to per unit marketing margin. This means that in Subang, type of sex of the animals that have been sold play an important role. Male animals result in higher per unit marketing margin.

Conclusion

The results of the study indicate that buying patterns for sheep in Karawang and Subang have done during the period of Islamic month with its reason mostly for raising the animals to get lambs to sell. While that of selling patterns shows that most of the farmers have sold their animals also during the Islamic Holiday with its primary reason to meet their household needs.

The estimation of the model to isolate factors which influence the marketing margin for sheep trade result in a good shape. The variables per unit services/transfer cost, location for selling the animals, sex, body weight and age of the animals are significantly affect and have positive relationship to the per unit marketing margin.

The implication of the preceding analysis is that changes in marketing margin for sheep trade will have impact for both producer and consumer. The sheep farmers, as in the producer side will get higher benefit for greater marketing margin, on the other hand, the consumer will loose.

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