The analysis of marketing channels and price disparity of shallots in North Sumatera Province

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Abstract. One of the horticultural commodities that is widely cultivated in the province of North Sumatera is shallots. There are 4 districts in North Sumatera which are the centres of shallot production: Samosir, Simalungun, North Tapanuli and Karo. The Objectives of the study is to analyse the marketing channels, price spread, share margin and function of the shallot marketing channel in North Sumatera. The result of this research is that the highest level of disparity in North Sumatera is Channel II in the Karo region with a price difference of IDR. 10,500; selling price at the farmer level IDR. 8,000; selling price at consumer level IDR. 18,500. Meanwhile, the lowest level of disparity is found in Channel I in the Samosir region, with a selling price at the farmer level of IDR. 16,000; and the selling price at the consumer level is IDR. 20,000. The highest level of disparity between marketing institutions in North Sumatera is in channel II in Samosir Regency, which is between the margin ratio of traders and farmers. The lowest level of disparity between marketing institutions in North Sumatera is in channel II in North Tapanuli Regency, which is between the margin ratio of collectors and retailers.

1. Introduction
Moreover, shallots are widely consumed commodity in regions of Indonesia. There are eight provinces that highly contribute to shallots production, they are North Sumatera, West Sumatera, West Java, Central Java, East Java, West Nusa Tenggara, Central Sulawesi and South Sulawesi that accounted for 96.8% of shallots total national production in 2013 [1].

Shallots are among the typical horticultural commodities that are widely cultivated by Indonesian farmers. The high economic value of shallots is the primary factor that motivates the farmers in many regions to cultivate the shallot as a main stay commodity in shallot commerce [2].

Unfortunately, the lack of marketing empowerment on agricultural commodities is the flaw of Indonesian agricultural system, especially in North Sumatera. Marketing functions such as purchasing, grading, storage, transportation and processing carried out by the marketing agencies are working improperly. Yet, the competencies in practicing management elements are unoptimal. Still, the lack of market information availability leads to the price disparity among the regencies that bring on disadvantageous for farmers and end consumers [3].

However, shallots encounter the frequent fluctuations of price for it seasonal harvest. Shallots are categorized as perishable commodities that were easily rotten and vulnerable to temperature changes. However, from the horticultural agribusiness perspective, this commodity characterized by the inconsistent of market price, capital intensive, high-price risk due to its perishable properties and short-term fluctuation [4].
According to Statistics Board of North Sumatera province in 2018, there are several regencies identified as top producers of shallots in North Sumatera Province, namely: Simalungun, Dairi, Samosir, Toba Samosir, Humbang Hasundutan, Karo, North Tapanuli, South Tapanuli, North Padang Lawas and Mandailing Natal. Among those regencies, there are four centres of shallots producers in North Sumatera, namely Samosir, Simalungun, North Tapanuli and Karo regencies.

The marketing system of shallots is inseparable from the role of the marketing agencies. The referred agencies here are channelling institution who delivers the shallots from farmers to consumers who deal with one each other to form the marketing channels. The channels formed in marketing process per se, are very diverse. For example, the farmers could be directly dealing with the end consumers, or the farmers firstly dealing with the middlemen, collectors or wholesalers [5]. The Objectives of the study is to analyse the marketing channels, price spread, share margin and function of the shallot marketing channel in North Sumatera.

2. Methods

2.1. Determination of locations of study
This study was conducted in 4 (four) regencies namely North Sumatera, namely Simalungun, Karo, Samosir, and North Tapanuli, which are the largest plant areas and highest production in last 5 (five) years in North Sumatera.

On the district level, determination was based on the criteria as the centre of shallots producer in district level of each region. Thus, there are 12 (twelve) districts that fit to this criterion in 4 (four) regencies.

2.2. Sampling technique

2.2.1. Farmers. Determination of sample size of shallot farmers was using the Slovin technique. This Slovin formula calculates the minimum number of samples in uncertainty of population behaviour. By using the Slovin formula, the number of samples in this study are 93 (ninety-three) of farmers.

2.2.2. Sampling of commerce institution. Determination of sample of commerce institutions as using the Snowball Sampling.

Figure 1. Sales channel patterns in Indonesia in general [5].

2.3. Data collection
Data collection was based on the sources of data that consist of primary data and secondary data.

2.4. Data analysis
This study used descriptive analysis to investigate the problems. The data analyses conducted for these studies are:

2.4.1. Qualitative descriptive analysis. Describes the shallots marketing system in North Sumatera and explains how the shallots marketing channel pattern was formed from the farmer level to the end consumer.
2.4.2. Quantitative descriptive analysis. Describes the data by using the formula of share margin and efficiency of the market system. Marketing system margin is the difference of price between the prevailing price on the farmers’ side (Pf) and the prevailing price on end-consumers side (Pr-Pf). Therefore, the marketing system margin is the price difference between the prevailing price on farmers and the end-consumers (Pr-Pf). The marketing system efficiency is maximizing the use of input and output ratios by reducing the input costs without reducing customer satisfaction on goods or services. A given marketing is deemed to be efficient:

1. If the efficiency value is ≥1, the marketing channel is efficient and the market is perfectly integrated.
2. If the efficiency value is ≤1, the marketing channel is inefficient and the market is imperfectly integrated.

3. Results and discussion
The research results in 4 (four) regions namely Simalungun, Karo, Samosir and North Tapanuli revealed 3 channel patterns of shallot marketing system:
Channel I: Farmers → Retailers → Consumers
Channel II: Farmers → Wholesalers → Retailers → Consumers
Channel III: Farmers → Wholesalers → Retailers → Consumers
The numbers of marketing channels of shallot producing centres in respective regions are: two channels in Simalungun, two channels in Karo, two channels in Samosir and three channels in North Tapanuli.

3.1. The price spreading in four central regions are as follows:

Table 1. The ratio of the margin of marketing institutions in shallot-producing centres in North Sumatera.

| District    | Channel | Margin | Farmers | Retailers | Wholesalers | Retailers |
|------------|---------|--------|---------|-----------|-------------|-----------|
| Simalungun | I       | 0.5    | 2.0     | -         | -           | -         |
|            | II      | 0.41   | 2.27    | 2.50      | -           | -         |
| Karo       | I       | 0.6    | 2.1     | -         | -           | -         |
|            | II      | 0.45   | 1.01    | 5.15      | -           | -         |
| Samosir    | I       | 0.3    | 1.9     | -         | -           | -         |
|            | II      | 0.24   | 2.28    | 5.67      | -           | -         |
| Tapanuli Utara | I | 1.27 | 2.86 | - | - | - |
|            | II      | 1.20   | 2.76    | 3.49      | -           | -         |
|            | III     | 0.89   | -       | 2.76      | 3.49        | -         |

3.2. The efficiency of marketing system in each region:

Table 2. Marketing efficiency for each shallot marketing channel in Simalungun Regency.

| Channel | Sales Volume (Kg) | Farmer's Profit (IDR) | Intermediary-Trader’s Profit (IDR) | Farmer Production Cost (IDR) | Marketing Costs (IDR) | Marketing Efficiency |
|---------|-------------------|-----------------------|-----------------------------------|-----------------------------|----------------------|---------------------|
| I       | 375               | 3873                  | 6080                              | 6172                        | 2920                 | 1.09                |
| II      | 8200              | 3073                  | 6398                              | 5927                        | 3102                 | 1.04                |
Table 3. Marketing efficiency for each shallot marketing channel in Karo Regency.

| Channel | Sales Volume (Kg) | Farmer's Profit (IDR) | Intermediary-Trader's Profit (IDR) | Farmer Production Cost (IDR) | Marketing Costs (IDR) | Marketing Efficiency |
|---------|-------------------|-----------------------|------------------------------------|-----------------------------|-----------------------|---------------------|
| I       | 225               | 3449                  | 5950                               | 5551                        | 2800                  | 1.12                |
| II      | 9150              | 2499                  | 7903                               | 5501                        | 2544                  | 1.29                |

Table 4. Marketing efficiency for each shallot marketing channel in Samosir Regency.

| Channel | Sales Volume (Kg) | Farmer's Profit (IDR) | Intermediary-Trader's Profit (IDR) | Farmer Production Cost (IDR) | Marketing Costs (IDR) | Marketing Efficiency |
|---------|-------------------|-----------------------|------------------------------------|-----------------------------|-----------------------|---------------------|
| I       | 135               | 3850                  | 2636                               | 12150                       | 1364                  | 0.47                |
| II      | 7500              | 2950                  | 3839                               | 12050                       | 1161                  | 0.51                |

Table 5. Marketing efficiency for each shallot marketing channel in North Tapanuli Regency.

| Channel | Sales Volume (Kg) | Farmer's Profit (IDR) | Intermediary-Trader's Profit (IDR) | Farmer Production Cost (IDR) | Marketing Costs (IDR) | Marketing Efficiency |
|---------|-------------------|-----------------------|------------------------------------|-----------------------------|-----------------------|---------------------|
| I       | 175               | 8847                  | 2963                               | 7153                        | 1038                  | 1.43                |
| II      | 8200              | 8447                  | 3687                               | 7053                        | 1313                  | 1.45                |
| III     | 7100              | 7314                  | 3789                               | 8186                        | 1849                  | 1.11                |

3.3. Price disparity
The highest disparity rate in North Sumatera is Channel II in region of Karo, with difference price are IDR. 10,500; the selling price on the farmers’ level are IDR. 8,000; the selling price on the consumer level are IDR. 18,500. On the other hand, the lowest disparity rate was found in Channel I in the region of Samosir, with the selling price on the farmers’ level are IDR. 16,000; and the selling price on the consumers’ level are IDR. 20,000.

4. Conclusions
The highest level of disparity between marketing institutions in North Sumatera is in channel II in Samosir Regency, which is between the margin ratio of traders and farmers. In other words, the profit earned by farmers is only 0.24 times the cost of production, while the collecting traders can generate profits of 5.67 times the operational costs they incur. The lowest level of disparity between marketing institutions in North Sumatera is in channel II in North Tapanuli Regency, which is between the margin ratio of collectors and retail traders.

The highest level of disparity in the four shallots producing centres in North Sumatera is channel II in region of Karo. Where, the difference between the selling price on the farmers’ level and purchasing price on the consumers’ level are IDR. 10,500/kg. On the other hand, the lowest disparity occurred in Channel I in region of Samosir with difference price are IDR. 4,000/kg. Based on the findings of the study, some suggestions are presented as follows: The farmers are supposed to maintain the quality and quantity of shallots, in dealing with the competition of shallots marketing with outside the region, both domestic and abroad. It is proposed to government of North Sumatera province to carry out the coaching to all functions of the marketing system ranging from farmers, wholesalers, and retailers in or out of regions. It is also supposed to government of North Sumatera province to supervise the process of importing shallots abroad because it threatens the stability of the domestic price.

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