Analysis of Value Chain and Market Structure of Nutmeg Marketing in South Aceh District

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Abstract. This research aims to analyze the value chain activities in nutmeg commodity and see how the market structure that occurs in nutmeg marketing in South Aceh Regency. The research method uses a survey method by sampling farmers with a simple random sampling while the level of marketing institutions with snowball sampling techniques. Based on the research results, it is known that the actors involved in the nutmeg commodity value chain are farmers, village collectors, sub-district traders, refiners, home industries, banks, agricultural extension centers and plantation offices. While the market structure formed is the Oligopsoni market structure.

Keywords: Value Chains, Nutmegs, Structures

1. Introduction
Nutmeg is one of the export commodities that has made Indonesia famous in the world, Indonesian nutmeg is able to supply 60-75% of the world's market share needs. This commodity, which was classified as spices was very special for Europeans, based on information obtained from the Aceh nutmeg forum, that the total area of Indonesian people's nutmeg plantations was 139,957 ha, production of 25,825 tons, productivity 474 kg / ha and total farmers 159,626 farmers. Aceh is one of the provinces that has the largest area of community nutmeg exploitation. The widest area of people's nutmeg area by district/city in Indonesia is South Aceh District with an area of 15,821 ha, Central Maluku District with an area of 14,228 ha and Halmahera with an area of 9,849 ha. Based on these data shows that South Aceh holds the largest land area in Indonesia. As for the area, production, productivity in the Aceh province can be seen in Table 1.

Table 1. Area, Production, Average Production, Number of Farmers and Labor Absorption by Regency/City in 2017

| No | District / City | Amount (Ha) | Production (Ton) | Average productivity (Kg/Ha) | Number of Farmers (KK) | Employment (Org/Ha/Thn) |
|----|----------------|-------------|-----------------|-------------------------------|------------------------|------------------------|
| 1  | Aceh Besar     | 332         | 76              | 229                           | 567                    | 133                    |
| 2  | Pidie          | 153         | 42              | 275                           | 314                    | 61                     |
| 3  | Pidie Jaya     | 280         | 8               | 29                            | 312                    | 112                    |
| 4  | Bireuen        | 157         | 32              | 204                           | 336                    | 63                     |
Table 1 above shows that South Aceh district is a district that has the largest plantation area in the Aceh province was 15,821 hectares with a total production of 7,713 tons and with labor absorption of 6,328 square meters/year. This illustrates show that 2.73 percent of the total population of South Aceh was 231,893 people work as nutmeg farmers.

Nutmeg plantations in South Aceh have long been cultivated by local communities, nutmeg farmers are continuing the cultivation business that had been initiated by their ancestors. But the problem that arises at this time aside from plantations, most of the people plantations was attacked by pests, many farmers have not utilized the nutmeg waste to be more valuable. And so that many farmers have fought to other business ventures to make ends meet. Besides that, nutmeg which is an export commodity and a large demand by the world market, farmers should be able to live with prosperity. Where farmers are able to provide a bargaining position for the price of the commodity. But ironically the situation was not the case, farmers were weak in determining prices and bargaining positions.

Value chain analysis is a conceptual approach to how to add maximum value to a product and activity in value chain records [2].

The value chain approach was first popularized by Michael Porter in his book "Competitive Advantage: Creating and Sustaining superior Performance" (1985). Value chain analysis explains the performance of an organization and its twenty networks in an organization's competitive position. Every company shall be seen as a collection of activities carried out to design, produce, market, deliver and support its products so that they could be identified by weaknesses and strengths. The value chain model is one of the analytical tools that is useful for defining competencies in companies in order to be able to lead to competitive advantage. These competitive advantages consist of cost advantages and differentiation. Differentiation focuses on competency-related activities and performs better than competitors. The cost advantage is carried out by reducing the costs of value chain activities [4].

The value chain analysis and structural analysis approaches serve to explain to anyone the benefits distributed in the value chain arrangements of the commodity marketing activities. So that it will help value chain actors and make it easier to identify which policies can be taken in order to obtain a better profit. Based on the introduction above, some problem identification can be formulated as follows: 1). How is the value chain of nutmeg agribusiness in South Aceh District. 2). How is the structure of the nutmeg oil market in South Aceh District.

2. Methods
The determination of the area in the study was carried out intentionally (purposive) in South Aceh District with the consideration that the area was one district had the widest nutmeg area plantations in the Aceh province. The selection of districts and villages was based on the same characteristics namely districts and villages that produced the largest nutmeg production among others in the subdistrict of Tapak Tuan.
The scope of this study was all actors involved in the order of the nutmeg commodity value chain in South Aceh district. The research method in this study used a survey method by determining the sample of farmers purposively with the criteria of farmers who have an area of 1-3 Ha. While the sample of traders have done by snowball sampling based on the flow of product distribution from farmers to end consumers. The number of farmers was 50 people, village traders were 4 people, 2 traders were big, 4 companies were exporters.

The nutmeg agribusiness value chain was analyzed with a value chain approach including identifying actors involved in marketing nutmeg from upstream to downstream and supporting actors involved in the order of the nutmeg oil value chain. Through tracking and involvement of actors with nutmeg oil marketing and then mapping the relationships between actors involved in the nutmeg chain in a diagram.

The structure of the nutmeg market was examined by looked at the many sellers and buyers at each level of the marketing institutions involved, product differentiation / product properties (homogenous products), and market concentrations at each level of traders in the district of South Aceh.

Market concentration could be seen from the number of sales and total sales at each traders level in the value chain order. With the following formula:

\[ CR = \frac{\text{The number of sales at each traders level}}{\text{Total sales of all traders}} \times 100\% \]

3. Results and Discussion

3.1. Nutmeg Value Chain

Based on the actor function identification through a search of the actors involved in the order of the nutmeg value chain. It could be explained that the search results illustrate in the order of the nutmeg value chain not only involved the main actors but there were also supporting actors who were involved indirectly in the nutmeg marketing value chain in South Aceh District. The main players in the order of the nutmeg value chain were farmers, village collector traders, wholesalers, refiners and exporters. Whereas supporting actors were those who support the main activities in the order of the value chain, included extension agents, the Plantation Service. In terms of nutmeg value chain activities, it could be illustrated in the following nutmeg value chain flowchart.

![Value Chain Flow Chart](image_url)

**Figure 1.** Value Chain Flow Chart

Based on Figure 1 above shows that the nutmeg value chain distribution of the actors which was carry out activities not only by the main actors, but also there was a coordination relationship with the plantation office and the Aceh nutmeg forum through supporting activities that were useful for farmers in achieving maximum results. The plantation office and extension agents provided training and production facilities both fertilizers, seeds and pesticides which were as input for farmers so that they could support farmers to achieve maximum results. The training given by the relevant offices in order
to improve farmers 'understanding of planting and maintenance techniques as currently some farmers' land was attacked by pests. The local government and the Aceh Nutmeg Forum also previously sought to found a solution in dealing with these problems by facilitating experts from renowned universities.

The actors involved have a coordinating and interrelated relationship between one another in the nutmeg commodity value chain. Therefore, the value chain activities in the nutmeg commodity business did not only involve the main activities, but there were supported activities that involved indirectly in the nutmeg commodity value chain in South Aceh district. More clearly the relationship of coordination and mutual need could be seen in Figure 3 below.

**Figure 2. Relationship between coordination and function in the Nutmeg Value Chain**

From the picture above, it was explained that at the trader level, treatments have been carried out in order to obtain added value to the nutmeg commodity which would be marketed to the next level of traders. Village collector traders have carried out division and drying. After the nutmeg was sold to sub-district collecting traders, the sub-district collecting traders did the sorting by classifying based on quality. At this level nutmeg has been separated according to the quality of A, B, C and DP, Fully Red and Fully White. Sub-district traders also facilitate capital lending for village traders. This caused a strong attachment between the sub-district trader and the village trader. This caused village collectors to sell nutmeg commodities from farmers to sub-district traders.

### 3.2. Marketing channel

The marketing channel changed the marketing chain which functions to distribute the commodity from the hands of the producers to the commodity in the consumers. Based on the results of the field survey, there were two forms of marketing channels in the South Aceh District. The description of these marketing channels could be shown in Figure 3 below.

**Figure 3. Nutmeg Marketing Channel in South Aceh District**
Figure 3 above shown that in the study area there were two forms of marketing channels. In channel one, it was a two-level channel, namely there were two intermediary traders (village collector traders and sub district collector traders) in marketing nutmeg from farmers to refiners. The marketing process of the nutmeg from producers to end consumers has a different marketing margin. Channel two was a channel that was more efficient than channel one, marketing margins were lower than the marketing margin formed on channel one. The channel was efficient with a farmer share rate of 12.57% while channel one is 11.87%. For more details could be seen in the following marketing margin.

| Table 2. Marketing Margins for Each Nutmeg Market Participant in South Aceh District |
|----------------------------------|----------------------------------|
| Costs and Market Participants    | Marketing                        |
|                                  | Type I (Rp/kg) | %   | Type II (Rp/Kg) | %   |
| 1. Farmers                       |                 |     |                 |     |
| Transportation Costs             | 17,000          | 100 | 17,000          | 11,87|
| Sack Costs                       | 200             | 0,14| 200             | 0,14 |
| Selling Price                    | 18,000          |     | 18,000          |     |
| Farmer’s Margin Profit           | 17,000          | 11,87| 17,700          | 12,36|
|                                  |                 |     |                 |     |
| 2. Village Collector Traders     |                 |     |                 |     |
| Transportation Costs             | 200             | 0,14| 200             | 0,14 |
| Sack Costs                       | 300             | 0,21| 300             | 0,21 |
| Selling Price                    | 18,000          |     |                 |     |
| PPD’s Marjin Profit              | 17,500          | 12,22|                 |     |
| 3. Wholesalers                   |                 |     |                 |     |
| Drying Costs                     | 500             | 0,35| 500             | 0,35 |
| Sorting Costs                    | 500             | 0,35| 500             | 0,35 |
| Saving Costs                     | 500             | 0,35| 500             | 0,35 |
| Sack Costs                       | 300             | 0,21| 300             | 0,21 |
| Selling Price                    | 143,250         |     |                 |     |
| PB’s Margin Profit               | 141,450         | 98,74| 141,450         | 98,74|
| 4. Refiners purchase price       | 143,250         | 100 | 143,250         | 100 |
| 5. Marketing Margin              | 126,250         |     | 125,550         |     |
| 6. Farmer Share                  | 11,87           |     | 12,57           |     |

Source : Primary Data (processed) 2018

3.3. Market Structure

In this study the market structure could be seen from the number of sellers and buyers at each level of marketing institutions involved, product/nature differentiation and by looked at market concentrations at each level of traders in South Aceh district. The results obtained could be shown in Table 2 below.

| Table 3. Analysis of Concentration Ratios Based on Traders in the Study Area |
|----------------------------------|----------------------------------|
| Merchant Rankings                | Amount | Amount of purchase per harvest (kg / month) | Kr (%) | Market Structure               |
| Village collector                | 2      | 3798                                        | 37,61  | Weak Oligopsoni Concentration  |
| District collector traders       | 2      | 3300                                        | 32,68  | Weak Oligopsoni Concentration  |
| Distillers                       | 2      | 3000                                        | 29,71  | Weak Oligopsoni Concentration  |
| Total                            | 6      | 10098                                       |        |                                 |

Based on the table above it could be explained that the market structure formed was a weak concentration oligopsony market. This suggests that market forces were not in the local traders, but market forces tend to be at the level of exporters. Therefore, it was considered necessary for government policy in an effort to stabilize the economic condition of the community, especially
nutmeg farmers, included by growing farmers' groups and nutmeg cooperatives in order to increase the capacity of farmers. So as to be able to bridge the nutmeg farmers in gaining access to world markets.

4. Conclusion
The nutmeg commodity value chain was formed not only involving the main activity actors but also involved supporting actors whose activities have a coordinating and interrelated relationship between one another. The strength of the value chain formed at the farmer level was obtained from capital assistance and counseling conducted by related agencies. Judging from the results of the concentration ratio and the number of sellers and buyers, the structure of the nutmeg market leads to the oligopsonistic market.

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