CALCULATION OF TRADE AND TRANSPORT MARGINS IN PATTERN OF TRADE DISTRIBUTION

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Abstract:

In the 2008 SNA, a trade margin is defined as the difference between the actual or imputed price realized on a good purchased for resale and the price that would have to be paid by the distributor to replace the good at the time it is sold or otherwise disposed of. Meanwhile, transport margins can be defined as costs paid separately by the buyer in retrieving goods at the specified time and location. The problem that arises is the calculation of trade and transport margins (TTM) for each commodity is not easy because each commodity has different margins while the transportation costs incurred together in one transportation (example: vegetable retail traders transport vegetable commodities consisting of red chili, shallots, cabbage, tomatoes, etc. in one go).

In responding to this problem, an assumption is made that the selling price of goods has included all costs incurred by traders to obtain the goods so that the TTM can also be defined as compensation for the trader as a supplier of goods which is the difference between the sales value with the purchase value.

The stages of calculating total TTM from producers to end consumers are as follows: 1) Determine the main pattern of distribution of commodity trade; 2) Calculating the TTM of each distribution business actor involved in the main pattern of trade distribution; 3) Calculate total TTM from producers to consumers based on business actors involved in the main pattern of trade distribution.

The percentage of TTM rice in Indonesia in 2018 is 20.83 percent; red chili 43.09 percent; purebred chicken eggs 13.09 percent; red onion 35.73 percent; beef 41.04 percent; pedigree chicken meat 24.72 percent; granulated sugar 33.18 percent; and cooking oil 17.05 percent.

Keywords: trade, transport, margin, pattern, distribution

1. Introduction:

In the 2008 SNA a trade margin is defined as the difference between the actual or imputed price realized on a good purchased for resale and the price that would have to be paid by the distributor to replace the good at the time it is sold or otherwise disposed of. Meanwhile, transport margins can be defined as costs paid separately by the buyer in retrieving goods at the specified time and location. The problem that arises is the calculation of trade and transport margins (TTM) for each commodity is not easy because each commodity has different margins while the transportation costs incurred together in one transportation (example: vegetable retail traders transport vegetable commodities consisting of red chili, shallots, cabbage, tomatoes, etc. in one go). In addition, some merchants also provide goods delivery facilities to consumers, which is actually the price that includes consumers, including transportation costs. The price that is one with the transportation cost is a special problem in the margin of trade value with the transport margin.

In responding to this problem, an assumption is made that the selling price of goods has included all costs incurred by traders to obtain the goods so that the TTM can also be defined as compensation for the trader as a supplier of goods which is the difference between the sales value with the purchase value.

The size of the TTM determines the high and low prices received by end consumers. In addition, the number of intermediary traders involved in distributing commodities is also a determining factor in

the prices received by consumers. With regard to domestic transactions, trade in a commodity from producer to end-consumer can occur with or without involving intermediary traders in it, which is reflected in the distribution chain of commodity trade. The distribution of commodity trade is an economic activity that bridges between production and consumption so that goods can be distributed from producers to consumers. The distribution of trade is also closely related to the role of the mediators involved in it. This distribution chain has an important role in the people's economy. If the distribution chain can be realized efficiently, then the movement of a commodity from producers to consumers will be pursued at the lowest cost. This can have an impact on the equitable distribution of added value for each trader involved with the tendency of prices affordable to consumers.

Distribution is the way total output, income, or wealth is distributed among individuals or among the factors of production (such as labor, land, and capital).[1]In general theory and the national income and product accounts, each unit of output corresponds to a unit of income. One use of national accounts is for classifying factor income[2] and measuring their respective shares, as in National Income. Domschke & Schield, (1994) emphasize: "Distribution encompasses a system of all activities that are related to the transfer of economic goods between manufacturers and consumers. It includes such a coordinated preparation of manufactured goods according to their type and volume, space and time, so those supply deadlines can be met (order fulfillment) or estimated demand can be efficiently satisfied" (Segetlija, Mesarić, & Dujak, 2011)

Distribution has a route along which goods and services travel from produce/manufacturer through marketing intermediaries (such as wholesalers, distributors, and retailers) to the final user. Channels of distribution provide downstream value by bringing finished products to end-users. This flow may involve the physical movement of the product or simply the transfer of title to it. Also known as a distribution channel, a distribution chain, a distribution pipeline, a supply chain, a marketing channel, a market channel, and a trade channel. (Ostrow, 2009, 59). The other type of route should not be neglected in the distribution channel so that the following definition is "Channel of distribution consist of one or more companies or individuals who participate in the flow of goods, services, information, and finances from the producer to the final user or consumer." (Coyle, Bardi, & Langley, 2003, 106).

There is a various route that product or services use after their production until they are purchased and used by end users[3]. A Distribution channel system usually includes the following operator such as producer/manufacturer, wholesaler, intermediary, and retailer. On the other hand, when it comes to business producer/manufacturer. Representative or sales subsidiary of manufacturer, business distributor, and business client was included. (Kotler/Wong/Saunders/Armstrong, 2006, p. 861).

From the commodity trading distribution chain, the main actors who have the biggest share in distributing commodities reach the final consumer. The series of trade routes of the main actors involved are summarized into the main pattern of distribution of commodity trade. The main distribution pattern is determined based on the largest percentage of sales from upstream to downstream. Finally, this study offers a method of calculating TTM calculated based on the margins received by actors involved in the main patterns of distribution of commodity trade.

2. Methodology:

The data used is sourced from raw data from surveys of the distribution patterns of strategic commodity trade conducted by the Central Bureau Of Statistics (BPS). The year of observation data is 2018. The indicators used are the percentage of sales volume to trade businesses carried out in the province, the percentage of purchase volume from trading businesses, the purchase price of goods sold, the price of goods sold, and the volume of goods sold out.

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[1] Paul A. Samuelson and William D. Nordhaus (2004). Economics, 18th ed., [end] Glossary of Terms, "Distribution."

[2] "Glossary "Factor income". Bureau of Economic Analysis, U.S. Department of Commerce. 2 October 2006. Archived from the original on 12 June 2018. Retrieved 2010-11-09.

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The Survey of the distribution pattern of strategic commodity trade covers all provinces in Indonesia with 354 municipal districts. The number of samples from this survey amounted to 10,000 respondents consisting of samples of producers and traders. The strategic commodities covered in this survey are rice, red chili, shallots, beef, broil chicken, broiler eggs, sugar, and cooking oil.

The business actors covered in this paper are producer/manufacturer, wholesaler, and retailer. The concept was obtained from the Indonesian Ministry of Trade No: 22/M-DAG/PER/3/2016 regarding general provisions on the distribution of goods. Producer/manufacturer are companies in the form of individuals or legal entities that produce goods. The wholesaler is a resale of new and used goods to retailers, industry, commercial, institutional or professional users, or to other large traders, or who act as agents or brokers in the purchase or sale of goods, both individuals and companies. Wholesalers in this paper are divided into a distributor, sub-distributor, agent, grocery store, trader collector, exporter, and importer. Meanwhile, the retailer is resale both new and used goods, primarily to the general public for consumption or personal or household use, through shops, department stores, kiosks, mail-order houses, door-to-door sellers, peddlers, consumption cooperatives, auction houses, and others (Indonesian Standard Industrial Classification, 2015). Retailers in this paper are divided into retail sales and supermarkets.

Since a distribution channel is a path from the producer to the final consumer. The final consumers to be covered in this paper are Households, Other Business Activities, Manufacturing Industries, and also the Government and Non-Profit Institutions.

3. Result:

The method of calculating TTM is based on data obtained from the Trade Distribution Pattern survey. First, turning goods volume units into standard units can be compared and combined with other data. The unit of volume used in kilograms (kg). Calculate the volume of goods sold. The volume of goods sold can be formulated as follows:

$$Q_{j\_sales} = \sum_{i=1}^{n} \%Q_{i\_sales} Q_{j\_tsales} \tag{1}$$

Q_{j_sales} = volume of sales of goods sold in the province to the j-th respondent
$\%Q_{i\_sales}$ = percentage of sales volume of goods sold in the province to the i-th business actor
Q_{j_tsales} = total sales volume (within and outside the province) of the j-th respondent

Next is to make an average value of the purchase price of merchandise sold

$$\bar{P}_{j\_purchase} = \frac{\sum_{i=1}^{n} \%Q_{i\_purchase} P_{i\_purchase}}{100} \tag{2}$$

$\bar{P}_{j\_purchase}$ = average purchase price of goods sold from the j-th respondent
$\%Q_{i\_purchase}$ = percentage of the volume of purchases of goods sold to the i-th business actor
$P_{i\_purchase}$ = purchase price of the i-th business actor

Then, make an average value of the sale price of the merchandise sold

$$\bar{P}_{j\_sales} = \frac{\sum_{i=1}^{n} \%Q_{i\_sales} P_{i\_sales}}{\sum_{i=1}^{n} \%Q_{i\_sales}} \tag{3}$$

$\bar{P}_{j\_sales}$ = average selling price of goods sold from the j-th respondent
$\%Q_{i\_sales}$ = percentage of sales volume of goods sold within the province to the i-th business actor
P_{i_sales} = sales price of the i-th business actor

Then, counting the percentage of TTM of each respondent

$$\%TTM_j = \frac{\bar{P}_{j\_sales} Q_{j\_sales} - \bar{P}_{j\_purchase} Q_{j\_sales}}{\bar{P}_{j\_purchase} Q_{j\_sales}} \times 100\% \tag{4}$$

$\%TTM_j$ = percentage of TTM of the j-th respondent
$\bar{P}_{j\_sales}$ = average selling price of goods sold by the j-th respondent
$\bar{P}_{j\_purchase}$ = average purchase price of goods sold by the j-th respondent
Q_{j_sales} = volume of sales of goods sold in the province to the j-th respondent

Next is the count percentage of TTM from respondents who are members of the k-th group of business actors. Each respondent was identified as a particular business actor in which the business actors were collectors, distributors, sub distributors, agents, wholesalers, retailers (conventional and self-service), importers and exporters

$$\%TTM_k = \frac{\sum_{j=1}^{n} \bar{P}_{j\_sales}Q_{j\_sales} - \bar{P}_{j_{purchase}}Q_{j\_sales}}{\sum_{j=1}^{n} \bar{P}_{j\_purchase}Q_{j\_sales}} \times 100\% \qquad (5)$$

$\%TTM_k$ = percentage of TTM of the k-th business group
$\bar{P}_{j\_sales}$ = average selling price of goods sold by the j-th respondent
$\bar{P}_{j\_purchase}$ = average purchase price of goods sold by the j-th respondent
Q_{j_sales} = volume of sales of goods sold in the province to the j-th respondent

The next step is to make distribution patterns from producers to consumers. To determine the TTM of a particular strategic commodity, a comprehensive distribution pattern is first made. The distribution pattern is based on the percentage of the volume of sales of goods addressed to the i-th business actor.

$$Q_{k\_sales} = \sum_{j=1}^{n} Q_{j\_sales} \qquad (6)$$

$$\%Q_{ki\_sales} = \frac{\sum_{j=1}^{n} \%Q_{i\_sales}Q_{j\_tsales}}{Q_{k\_sales}} \times 100\% \qquad (7)$$

Q_{k_sales} = volume of sales of goods sold in the province from respondents who are members of the k-th
$\%Q_{ki\_sales}$ = percentage of sales volume of goods from respondents who are members of the k-th group of business actors to the i-th business actor
$\%Q_{i\_sales}$ = percentage of the volume of sales of goods sold within the province to the i-th business
Q_{j_tsales} = total sales volume both within the province and outside the province of the j-th respondent

As an example, distributor businesses sell goods to sub-distributors by 50%, to wholesalers 40%, and retail traders by 10%. Then:
$\%Q_{distributor-subditributor\_sales} = 50\%$
$\%Q_{distributor-grocery\_sales} = 40\%$
$\%Q_{distributor-retail\_sales} = 10\%$

Next is to make the main pattern of distribution of strategic commodity merchandise. The assumption used is that the main pattern will be through the biggest volume of sales. In the previous example, the distributor businessman sells goods to sub-distributors by 50%, to grocery 40%, and retail traders by 10%, then the main selling channel is sales from distributors to sub-distributors.

Through this main pattern, total TTM will be made from producers to consumers. Business actors involved in this main pattern
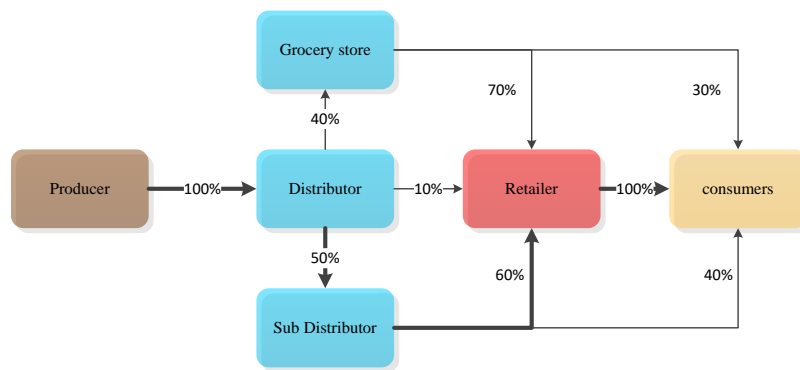
Figure 1: Example Of General Distribution Patterns

The main pattern of distribution of goods is:

Figure 2: Example Of The Main Distribution Pattern

Finally, from this main pattern TTM calculations are carried out from producers to consumers. TTM created from the first traders who get goods from producers.

$$\%TTM = \left(\prod_{k=1}^{n}(1 - \%TTM_k) - 1\right) \times 100\% \qquad (8)$$

$\%TTM_k$ = percentage of TTM from the k group of business actors
$\%TTM$ = percentage of total TTM

Based on data from the survey of distribution trade patterns, in 2018 it was found that the distribution pattern of rice commodity trade was as follows:
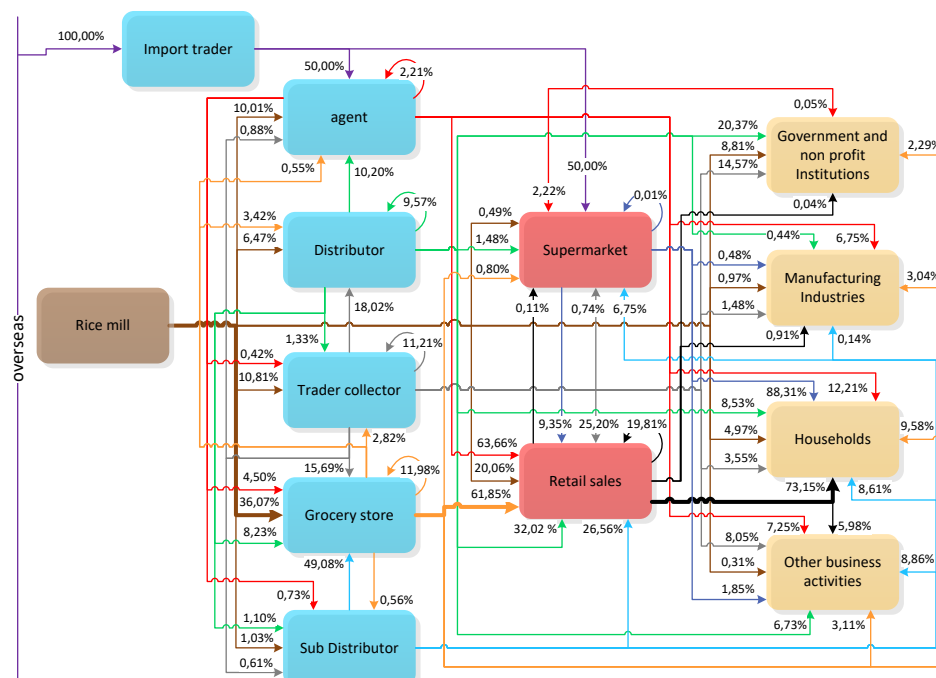

Figure 3: Distribution Patterns Of Rice Commodities, In Indonesia 2018

Meanwhile, the main pattern of distribution of rice commodity trade is the pattern that involves traders who make the highest volume of sales. From the previous figure it was found that rice mills, as rice producers, made the largest volume of sales to the grocery. Meanwhile, the biggest sales from the grocery are aimed at retailers. Furthermore, retail traders to households as final consumers. Thus, it was found that the main patterns of distribution of rice commodity trade were:
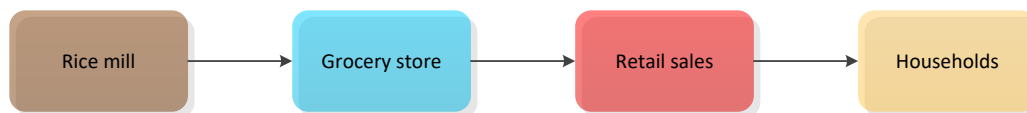

Figure 4: The Main Pattern Of Rice Commodity Distribution, In Indonesia 2018

With the TTM value of rice, grocery is 7.72% and retail trader is 12.17%, then the total TTM of the distribution of rice trade from producers to consumers is 20.83%.

Using the same method, it was found that the total TTM for red chili 43.09 percent; purebred chicken eggs 13.09 percent; red onion 35.73 percent; beef 41.04 percent; pedigree chicken meat 24.72 percent; granulated sugar 33.18 percent; and cooking oil 17.05 percent.

4. Discussion, Conclusion, and Recommendations:

The study offers an alternative calculation of total TTM charged to end consumers. By using the assumption that prices received by consumers (both end consumers and intermediary traders) include transportation costs, then the calculation of the value of trade and transportation margins from upstream to downstream of the distribution patterns of trading certain commodities can be done.

Another assumption that is quite influential from the TTM calculation method is the formation of the main distribution patterns that use the largest sales volume. This assumption can be used as a material for further discussion because, in field conditions, the TTM value of the distribution business is not only influenced by the biggest sales but is influenced by all sales. The purpose of selling different goods will cause different margins obtained.

However, like the assumptions of the methodology in general, the assumptions used in this method can facilitate the calculation of the TTM from initially more scattered to be more focused on certain points. So the TTM value can be calculated in general.

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