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The competitiveness analysis of Nutmeg farming as spices in Ternate, North Moluccas

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Abstract. Today's agricultural business is faced with various obstacles, and cannot be measured to what extent its competitiveness, while the conception of agricultural development that has competitiveness has not been described more operationally and implementable, so that there is a gap between the ideal conception and the actual field. This study activity aims to analyze the competitiveness of Nutmeg spice farming in terms of domestic resource use in Ternate City. Nutmeg farming in Ternate City has a competitive and comparative advantage, this is indicated by PCR and DRCR values that are smaller than 1 (one). The results of PAM analysis on nutmeg farming have no input transfers because they do not use foreign inputs. The NPCI value for all is below one (<1). The value of NPCI is smaller than one, meaning that domestic prices are lower than world prices, so there can be said to be a subsidy policy from the government. Whereas for nutmeg farming. The transfer value of factors for nutmeg is positive, this indicates that there is an implicit tax or transfer from the nutmeg farmer to domestic factor, so farmers have to pay more than the price of the shadow (social).

1. Introduction

Agricultural development needs to be continuously developed in order to lead to the creation of agriculture that is efficient, competitive, capable of increasing the income and standard of living of farmers in particular and the wider community in general. The direction of development is through increasing agribusiness patterns, especially increasing the quality and quantity of production, diversifying superior commodities, increasing the added value of products and expanding market control. Agricultural business is currently faced with various obstacles, and the extent of its competitiveness cannot be measured, while the concept of agricultural development that has a competitiveness has not been described in a more operational and implementable manner, so that there is a gap between ideal and actual conceptions in the field. Low productivity can be caused by several factors, including the level of technology and the use of inputs. On the factor side of input use, it is necessary to examine the quantity, proportion and type of input used

Given the role and contribution of the agricultural sector, efforts are needed to empower it more so that its efficiency and competitiveness can be further improved. This can be realized by modern agriculture which is tough, efficient in the use of resources, managed professionally and has the

advantage of winning competition both in foreign markets and meeting domestic needs. Competitiveness or 'ability to compete' does not grow by itself. Even if someone tries to grow it, it cannot be done individually. It needs a patterned arrangement with a clear and distinctive format [1]. According to [2] competitiveness is the ability of producers to produce a commodity with good quality and low production costs, so that the prices that occur on the international market can be produced and marketed by producers with sufficient profits and can maintain continuation of production activities. The concept of competitiveness in this study is based on the concepts of comparative advantage and competitive advantage. It can be further explained that the concept of comparative advantage was first known as the Ricardian model, which is better known as Ricardo's law of comparative advantage. The Ricardo theory of comparative advantage which was refined by Haberler interprets that labor of value is only used for intermediate goods, so according to Haberler the theory of opportunity cost is seen as more relevant. This study activity aims to analyze the competitiveness of nutmeg spices in terms of the use of domestic resources in Ternate City.

2. Methods
This study was performed using descriptive and analytic basis. Descriptive of a study that aims to focus on situations or events, the nature of the population or specific area by searching for factual information, justification of the state, making evaluations, in order to obtain a clear picture. Meanwhile analytic research that is directed at an explanation of the circumstances, with regard to relationships as well as variable-variable study tested the hypothesis that has been formulated previously. Troubleshooting is done by collecting data, developing the model that has been determined and estimate it both quantitatively and qualitatively. Presented in the form of descriptive equipped with tables, diagrams to more systematically to facilitate explaining the issues discussed and finally make conclusions and recommendations made.

2.1. Data Analysis

2.1.1. Policy Analysis Matrix (PAM). To determine the competitiveness of selected agricultural commodities in terms of the use of domestic resources used approach to policy analysis analysis matrix (PAM). [3] suggested the preparation of PAM is done after all of the data at the farm level is obtained. Preparation of PAM is done by using input-output structure at the level of farming. This can be obtained with a calculated financial and economic advantage. The impact of government policies that apply both to the input, output and input and output together can be known, to explain the competitiveness of a commodity. The PAM matrix is shown in Table 1.

Table 1. *Policy Analysis Matrix* (*PAM*)

Description	Input	Cost		Value
		Foreign Input	Local Input	
Private price	A	B	C	$D = A - B - C$
Social price	E	F	G	$H = E - F - G$
The impact of divergences and efficiency policy	I	J	K	$L = D - H = I - J - K$

(Monke dan Pearson, 1995)
Explanation:

D = private value	J = input transfer input
H = social value	K = factor transfer
I = output transfer	L = clean transfer

Table 1 shows that the first row of the PAM matrix contains figures calculated based on private prices (actual prices occurring in the market), namely prices that are actually received or paid by economic actors. The second line contains the computation of figures based on the social price or shadow price, that is, the price that represents the real social or economic value for the elements of costs and outcomes (the price that makes the best allocation of resources and thus generates the highest income). The third line is the calculation difference between private prices and social prices as a result of the impact of government policies or existing market distortions. For input and output that can be traded internationally, the social price can be calculated based on the shadow price, which in this case is approximated by the border price, for imported commodities the price of c.i.f is used and for exported commodities the price of f.o.b. It is necessary to know, of course, various adjustments are made to the point where the analysis will be carried out. Meanwhile, for domestic input, the offset cost or opportunity cost is used which is assessed from empirical research in the field.

3. Discussion

3.1. Potential of Nutmeg in Ternate
Potential nutmeg plant in the city of Ternate is large enough for the region Ternate Island which is not too extensive, namely 162.17 km2 which is a city of 8 village where the broad distribution of nutmeg plants spread across almost all districts except the District of West Ternate. There widest nutmeg plant in the village of Batang Dua is 1,298 ha with a production of 499.73 tons, or by 48.4% of the total production of nutmeg in the city of Ternate in 2018 of total Area of nutmeg plant in the city of Ternate is an area of 2,816 hectares and total production of 1,032.46 tonnes (Table 2).

Table 2. Planting Area and Production of Nutmeg in Ternate

No.	District	Planting Area (ha)	Production (ton)
1	Pulau Ternate	629	220.15
2	Moti	762	266.70
3	Pulau Batang Dua	1,298	499.73
4	Pulau Hiri	21	7.88
5	West Ternate Barat	-	-
6	South Ternate	74	25.90
7	Center Ternate	21	7.98
8	North Ternate	11	4.13
	Total	**2,816**	**1,032.46**

Sumber: [4]

3.2. Nutmeg Competitiveness Analysis Based on Policy Analysis Matrix (PAM)
Soetriono (2010) argues in his research on financial and economic analysis that are financially profitable farming is not necessarily economically profitable. This is possible, for example because there are subsidies on production inputs so that the financial benefits will increase, but the economic benefits remain or decreased. If it is not accompanied by an increase in productivity and output, it is economically the subsidy policy will not increase the economic benefits.

Farming efficiency can be determined by how simple it is to know the value of profits. An effort will continue to be run if the benefits greater than zero or has reached a normal profit. A more appropriate indicator of efficiency is the efficiency of the economy (social) rather than financial efficiency (private). Financial efficiency or financial gain is a measure of competitiveness in the actual market price. PAM analysis calculation results in Nutmeg Farming in the city of Ternate in the study area are 7 districts in the city of Ternate be viewed from two aspects: the financial and economic aspects can be seen in Table 3.

Table 3. Policy Analysis Matrix Analysis of Nutmeg Farming in Ternate

Description	Input	Cost		Profit
		Foreign Input (Tradable)	**Local Factor (Non Tradable)**	
Private price	69.206.500	-	3,672,500	65,534,000
Social price	68.311.515	-	3,640,600	64,670,915
Divergency effect	894.985	-	31,900	863.85

3.3. Financial aspects
The results of use of domestic resources in private (actual price) earned total revenue (total revenue) from Nutmeg USD 69.2065 million. The data shows that the acceptance of the highest private prices were nutmeg. Farm commodity prices high enough for their weakening rupiah against the dollar so the price of nutmeg in rupiah increased.

Nutmeg farming costs in the Policy Analysis Matrix can be classified into two, namely the cost of foreign inputs (tradable) and domestic input costs (non-tradable). On nutmeg farming does not use foreign inputs for farmers never fertilize and chemical pest and disease control. Thus the cost of foreign inputs (tradable) is zero.

The financial cost of the total in the farming consecutive nutmeg is Rp. 3,672,500,- and IDR. 4,683,000,-. It can be seen that farming costs based on private (financial) prices for nutmeg have a low value because they do not contain foreign components but only domestic components.

Based on the calculations presented in Table 2 can be seen that private profit to Nutmeg were IDR. 65,534 million. Judging from the indicators show that farming nutmeg in Ternate advantageous to cultivate.

3.4. Social aspects
The results of research on the use of domestic resources at social prices (shadow prices) obtained total revenue from Nutmeg IDR. 68,311,515,-. The data shows that the acceptance of the highest private prices on products Nutmeg caused by plantation commodity prices are high because of the weakening rupiah against the dollar so the price of nutmeg in rupiah increased.

Nutmeg farming costs in the Policy Analysis Matrix can be classified into two, namely the cost of foreign inputs (tradable) and domestic input costs (non-tradable). On nutmeg farming does not use foreign inputs for farmers never fertilize and chemical pest and disease control. Thus the cost of foreign inputs (tradable) is zero.

Total social costs in the farming nutmeg is IDR. 3,640,600,-. This shows that the costs of farming on the basis of social price (economy) for nutmeg products had low values because they do not contain foreign components but only the domestic component.

Based on the calculations presented in Table 3 it can be seen that the social profitability to Nutmeg IDR 64,670,915,-. Judging from the indicators show that farming nutmeg in Ternate advantageous to cultivate.

Both financial benefits and the economic benefits of farming nutmeg on top is positive, then the commodity farming has a competitive advantage and comparative advantage in the use of resources.

The results of the calculation of the PAM analysis above also show the private cost ratio (PCR), which is a comparison of domestic factor costs with the added value of output from tradable input costs at private (financial) prices. This ratio can be used as an indicator to achieve the purpose of farming activities is to obtain the maximum benefit. The maximum profit value can be obtained by farmers by trying to minimize the value of PCR, for example by minimizing non-tradable factor costs or by maximizing added value, namely by minimizing tradable inputs.

PCR is the same function as the DRC, differing only in the basic assessment of the price. PCR rated in the price of the private (financial) that have influenced government policy. PCR value is a

measure of competitiveness or efficiency in terms of financial value or competitive advantage. It can be interpreted that competitiveness in financial value is achieved if the PCR value is <1, on the other hand there is no competitiveness in financial value if the PCR is> 1.

Competitiveness analysis is an analysis to assess an economic activity (feasible or not feasible) in terms of the utilization of domestic resources used. In the PAM analysis to measure the international competitiveness of a commodity in this commodity is assessed by using the ratio resource Domestic Cost (DRCR), ie, the ratio between the cost of domestic value-added output of the input costs that can be traded on a social price. PAM calculation results show the value of PCR and DRCR for nutmeg as shown in Table 4.

Table 4. The calculation of Private Cost Ratio (PCR) and Domestic Resource Cost Ratio (DRCR) at Nutmeg farming in Ternate

Commodity	PCR	DRCR
Nutmeg	0.05	0.05

(primer data analysis)

Farming a commodity is said to have competitiveness if the DRCR is <1, meaning that the commodity is more profitable if cultivated domestically than imported. Conversely, if the DRCR> 1, it means that the farming of a commodity is not competitive or is not economically feasible to operate because there is a waste of domestic resources. So that in these conditions would be more favorable if the commodity is imported rather than grown in the country.

A farm that has a value of PCR and DRCR even smaller than 1 or close to 0 then farming is increasingly competitive and comparative advantages. From Table 4 it can be seen the value of PCR and DRCR, where commodities Nutmeg has a value of PCR and DRCR under one. This means farm nutmeg plant has a comparative advantage to do in Ternate.

4. Conclusion

The distribution of plants and nutmeg production in 7 sub-districts in Ternate City is quite large, Nutmeg farming in Ternate City has competitive and comparative advantages, this is indicated by the PCR and DRCR values that are smaller than 1 (one). The results of PAM analysis on the nutmeg farming did not transfer the input because it did not use foreign input. The NPCI value for all is below one (<1). The NPCI value is less than one, meaning that domestic prices are lower than world prices, so it can be said that there is a subsidy policy from the government. Meanwhile, tradable input value has no value for nutmeg farming because the commodity farming does not use foreign inputs. The value of the factor transfer for nutmeg is positive, this indicates that there is an implicit tax or transfer from the nutmeg farmer to the domestic factor / input producer, so that the farmer has to pay more than the shadow price (social). The value of Output Transfer (OT) of nutmeg farming has a positive value. This shows that there is a transfer from consumers to producers of Nutmeg, because consumers have to buy at a higher price than the international price or there is an indication of government policy regarding nutmeg price protection.

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