THE IMPACT OF SUBSIDY POLICY FOR COMPETITIVENESS OF PADDY FARMING IN GORONTALO PROVINCE, INDONESIA

Zulkifli Mantau[1,*], Nuhfil Hanani AR[2], M. Muslich Mustadjab[3], Syafrial[4]

[1] Gorontalo Assessment Institute of Agricultural Technology at Indonesia Agricultural Research & Development Agency (IAARD), Indonesia

[2, 3, 4] Agricultural Socio-Economics Department/ Brawijaya University, Indonesia)

*corresponding author: mantau66@yahoo.com

Abstract: The aims of this research are 1) to analyze the policy impact of input and output subsidies to paddy-rice competitiveness, and 2) to analyze the comparative and competitive advantages of paddy farming in Gorontalo Province, Indonesia. The research conducted at Gorontalo Province. The method use Policy Analysis Matrix (PAM) to measure the competitiveness parameters such a Domestic Resources Cost Ratio (DRCR) as a ratio for comparative advantages and Private Cost Ratio (PCR) as a ratio for competitive advantages. Meanwhile, PAM also measure the protection coefficients, such a Nominal Protection Coefficient on Output and Input (NPCO and NPCI), Effective Protection Coefficient (EPC). In additional, Producer Subsidy Equivalent (PSE) was used to measure a relative incentive for producers (farmers). Consumer Subsidy Equivalent (CSE) was used to measure a relative incentive for consumer. The results showed that NPCO and NPCI are 1.35 (there's government protection for output/ rice) and 0.42 (there's protection for inputs or subsidies for tradable inputs), respectively. The result of the EPC is 1.51. EPC> 1 indicates that government protection works effectively to rice commodity. Based on PAM analysis, PCR and DRCR values in this study were 1.14 and 1.52, respectively. PSE obtained value of 0.33 which indicate that producers (farmers) are not receiving direct or indirect incentives from government subsidy policies. CSE obtained results -0.27 at the level of actual prices and -0.37 at the border price. It indicates that consumers lost a surplus of 27% of the domestic rice price on average, or 37% of the border price.

Keywords: *competitiveness, paddy farming, subsidy policy*

INTRODUCTION

Generally, Todaro and Smith (2015) stated that subsidy is a payment by the government to producers or distributors in an industry or other efforts to prevent the decline of that industry and to reduce the prices of its products.

The subsidy aims to reduce the price or increase the output (output). Suparmoko (2003) defined that subsidy (transfer) is one form of government expenditure which is also interpreted as a negative tax that will increase the income of those who receive subsidies or experience an increase in real income if they consume or buy goods subsidized by the government at a selling price the low one. Briefly that producer welfare always increases as the subsidy is increased (Alston and James, 2002).

Subsidy is better than a tariff that gives the same amount of protection to domestic producers because the subsidy, as opposed to a tariff, does not distort the prices that consumers pay (Salvatore, 2013). But, similar with tariff, subsidies can be present in both the export and the import sector. As regards the export sector, the subsidy can be either an export subsidy (i.e., given to domestic producers only on the exported part of their output) or a production subsidy (i.e., given to domestic producers on their whole output) (Gandolfo, 2014).

In additional, subsidiy can be present in input and output of farming system. Ellis (1994) stated that input subsidies involve transfer of income from government to producer. The transfer fee is higher than the surplus producers so there is net welfare loss. This has similarities to the resource side. Extra output requires extra resources, diverted from alternative activities which can be more effectively contributing to social welfare.

Therefore, it can generally be argued that subsidy policy is a form of government protection policy on domestic agricultural products/ commodities, protection of producers (including farmers) and protection of domestic consumers. The ultimate goal is expected to affect the level of competitiveness of products / commodities

One of the policy strategies to increase the competitiveness of agricultural commodities is by subsidizing both the input and output sectors. Long-term subsidy input policy is fertilizer subsidy (urea and NPK), while output subsidy is in the form of Government Purchase Price (HPP). Since long time, rice commodity is the most subsidized food commodity by the government, starting from seed subsidy, HPP grain to regulation on the ceiling price policy (HET) of rice per region in Indonesia. The last HET of rice is regulated in the Regulation of the Minister of Trade of the Republic of Indonesia No.57 of 2017. The amount of government protection on this commodity is understandable because rice (rice) is still a strategic food commodity that determines the political stability and security of the country. The theory underlying this policy is the theory of agricultural price policy.

In the past 10 years (2005 – 2015), Gorontalo Province has a productivity of rice 49.86 qu/ha in average. It is slightly higher than the national rice productivity of 49.59 qu/ha. (www.bps.go.id, accessed May 22th, 2017). Meanwhile, presently, Gorontalo has faced of a problem about land conversion. The data of PUSDATIN KEMENTAN (2016) showed that the growth of paddy land in Gorontalo is -0.80%. It means that currently, Gorontalo has experienced a decline of rice field

area almost 1% each year in the last 3 years (2013 – 2015).

The other problem is the price of rice in local market level is very volatile, which caused of social upheaval in the community. The government was try to solve this problem through UPSUS PAJALE Program (Special Effort Program for Self Sufficient of Paddy, Maize and Soybean). The one of effort of this program is planting area expansion and deregulation of rice ceiling price. But another problem was exist, especially in the policy of rice ceiling price. Based on Permendag No.57 2017 year, ceiling price of rice in Sulawesi area (include Gorontalo) was IDR 9,450/kg (medium rice) and IDR 12,800/kg (premium rice). Whereas, the price of medium rice in local market level can be reach an average IDR 10,000/kg and the premium rice can be reach an average of IDR 20,000/kg. It means that the price subsidy policy was never impact to the farmers directly. In additional, the policy tends to harm consumers.

The aims of this research are 1) to analyze the policy impact of input and output subsidies to paddy-rice competitiveness, and 2) to analyze the comparative and competitive advantages of paddy farming in Gorontalo Province, Indonesia.

RESEARCH METHODS
Competitiveness and Coefficient Protection

In the Policy Analysis Matrix (PAM) one of the output components is the protection coefficient, besides competitiveness parameters, such a competitive advantage and comparative advantage (Table 1).

To measure the competitive and comparative advantages, we use *Private Cost Ratio* (PCR) = C/ (A – B) and *Domestic Resource Cost Ratio* (DRCR) = G/ (E – F) which based on PAM table.

The coefficients are *Nominal Protection Coefficient on Output (NPCO) = A/E, Nominal Protection Coefficient on Input (NPCI) = B/F* and *Effective Protection Coefficient (EPC) = (A – B)/ (E – F).*

Table 1. Policy Analysis Matrix (PAM)

Items	Revenues	Costs		Profits
		Tradable Inputs	Domestic Factors (non tradable inputs)	
Private Price	A	B	C	D = A – B – C
Social Price	E	F	G	H = E – F – G
Effect of divergences and efficient policy	I = A – E	J = B - F	K = C - G	L = D – H = I – J – K

Source: Monke and Pearson (1989)
Notes: D=private profitability; H=social profitability; I=output transfer; J=input transfer; K=factor transfer; L=net transfer

Producer Subsidy Equivalent (PSE)

Nominal Protection Coefficient (NPC), both NPCI and NPCO as previously described, should still be equipped with PSE calculations. The NPC measures subsidies or taxes on domestic pricing structures, implicitly. It is not yet complete measuring the relative incentives for producers and consumers. NPC does not measure until the calculation on the input side (Tsakok, 1990). So we use advanced tests such as Producer Subsidy Equivalent (PSE) to include more explicit pricing information on indirect taxes and subsidies without combining them with complex added value.

There are two forms of equations in measuring PSE: a). If we only consider explicitly the net subsidy per unit of output or per total production which marketed, then the equation is:

$$PSE_i = \frac{P_{if}^d + (S_i + t_i)}{P_{if}^d} \qquad (2a)$$

Where:

P_{if}^d = domestic price of commodity i at farm level;
S_i = subsidy of commodity i
t_i = tax of commodity i
P_i^b = border price of commodity i

b). If we implicitly impose taxes or subsidies, then the equation becomes:

$$PSE_i = \frac{P_{if}^d + (S_i - t_i) - P_i^b}{P_{if}^d} \qquad (2b)$$

Consumer Subsidy Equivalent (CSE)

CSE is the same as PSE in principle, the difference between CSE is seen from the consumer side. CSE measures total subsidies or implicit taxes as a domestic price ratio (as in eq. 3.a) :

$$CSE_i = \frac{P_i^b - (P_{if}^d + t_i)}{P_{if}^d} \qquad (3a)$$

Or ratio of border price, as in eq. 3.b.

$$CSE_i = \frac{P_i^b - (P_{if}^d + t_i)}{P_{if}^b} \qquad (3b)$$

RESULTS AND DISCUSSION

The impact of subsidy policy can be seen in NPC (output and input) and EPC results. While the parameters of competitiveness are the value of Private Cost Ratio (PCR) for competitive advantage and the value of Domestic Resources Cost Ratio (DRCR) for comparative advantage. So in this paper only the four main parameters will be discussed. Based on PAM analysis, PCR and DRCR values in this study were 1.14 and 1.52, respectively.

The results of NPCO and NPCI are closely related to the value of output transfer (OT) and input transfer (IT) in the PAM analysis. The OT and IT results are respectively IDR 4,692,703.34 / year and IDR -974,694.69 / year. NPCO and NPCI are of 1.35 and 0.42, respectively.

OT results indicate that the private price of output (rice) received by farmers is greater than the international price. Furthermore, there is government protection at output (rice) in the form of incentives, or subsidized output prices, based on NPCO value. Another interpretation is because of the rice import tariff policy the total value of output is higher than the value that should be, that is, if there is no import tariff policy (distortion is eliminated). Talking about protection policy, Anapu, *et al* (2005) has similar arguments with this research. They argued that import tariff policy can be protected the paddy farming in Minahasa Regency. They found that output divergence an average is 39%, where 30% from import tariff policy.

Subsidy policy is closely related to the competitiveness of products or commodities. Direct subsidies are generally given in the form of export subsidies that can directly affect product competitiveness, while domestic subsidies, such as current subsidized output and input prices for rice, do not directly affect rice competitiveness. In this regard, Sawit (2009) stated that the policy of subsidizing food commodity exports has several advantages, namely: 1). export products can be better able to compete in foreign markets, so as to encourage the development of domestic food agroindustry, including primary industries; 2). keep the controlled public stock that is not too excessive, so it needs replacing stock. The excess needs to be thrown into the international market, even though the selling price of the commodity stock is not competitive in the world market, with that strategy the stock storage institution can reabsorb domestic procurement to renew stock from the last season's production; and, 3). There's a domestic production surplus, which if not exported will reduce prices at the national level, so that it will harm farmers as producers. In fact, the prices of commodities / food products are not competitive enough to compete in the world market.

The result of Producer Subsidy Equivalent (PSE) specifically for the output obtained value of 0.33. PSE <1 and / or negative values indicate that producers (farmers) are not receiving direct or indirect incentives from government subsidy policies (Tsakok, 1990). Or in other words, farmers actually lost a surplus of 33% with the policy of subsidizing the output. Meanwhile, theoretically, the subsidy results in an increase in both the quantity and *producer* price of output, while the change in *consumer* price is a decrease (Alston and James, 2002).

Why? Because the average price of rice received by the farmers in this research is IDR 8,700 / kg, while the ceiling price of rice by the government is IDR 9,450 / kg. In additional, the trader price of rice can be reach above the average of IDR 10,000 / kg. So there is a considerable price disparity that should be felt directly by farmers. In fact, producer farmers receive prices below subsidized prices. In addition, principally, PSEs and CSEs are measures of producer and consumer transfers respectively, not incentives to production and consumption (Cahill and Legg, 1990).

Meanwhile, from the consumer side also disadvantaged because based on the results of Consumer Subsidy Equivalent (CSE) obtained results -0.27 at the level of actual prices and -0.37 at the border price. These results indicate that consumers lost a surplus of 27% of the domestic rice price on average, or 37% of the border price. This means that consumers should be able to buy rice at subsidized prices but in reality at the market level, rice prices have soared above the ceiling price of rice.

The NPCI value of 0.42 indicates that government policy is protective for inputs (subsidies for tradable inputs). However, subsidized input policies such as fertilizer subsidies do not work effectively, because farmers continue to spend extra money to buy subsidized fertilizer. Because based on previous IT results, farmers will lose their subsidy value by IDR 974,695 / year. It means that the input subsidy policy will have an impact on input market distortions which will also impact on output market distortions. This is opposite with Sibande, *et al.* (2017) who found a paradox between subsidy input on maize farming in Malawi and orthodox theory of subsidies, where stated that subsidies cause market distortion. However, they found that poor farmers in Malawi would instead be able to sell their crops from the previous ones which were only subsistence crops

because of input subsidies, which led to the increase in their farming productivity.

Facts on the ground found that the price of subsidized urea fertilizer is IDR 1,800 / kg, but the farmers have to to buy it at prices from IDR 1900 to 2,050 / kg, due to the transportation cost of fertilizers varying between IDR 5,000 - 10,000 / 50 kg . Thus, it is wise if the government can change the subsidized fertilizer policy from subsidies for gas fuels in the fertilizer production process, to subsidies for fertilizer distribution or subsidized fertilizer transportation costs that will be more directly felt by the farmers. Related to this recommendation, Susila (2010) also suggested 2 (two) alternatives to substitute fertilizer subsidy policy with compensation policy, namely : 1). Direct subsidies in the form of inputs that are easier to distribute and more effectively reach targets, such as seed subsidies or credit subsidies; 2). indirect subsidies in the form of facilitation to support increased productivity of farmers, for example machinery subsidies, improvement of farming infrastructure and marketing systems.

The direct subsidy for the farmers was also stated by Suryana, *et al.* (2016). They argued that the indirect subsidy policy of fertilizer was not effective, so far. They recommend a direct subsidy policy to farmers in the form of cash assistance through two options, namely subsidizing input prices that received by farmers at the beginning of the planting season and output price incentives based on the volume of harvest.

Thus, it is not surprising that the results of NPCO, NPCI, PSE and CSE calculations significantly affect to the competitiveness of rice commodity in Gorontalo Province. The previously mentioned PCR and DRCR results show that rice farming in Gorontalo Province has no competitive advantage (PCR value) and comparative advantage (DRCR value), since both parameters are greater than one (> 1). This means that it is more profitable to import rice from outside Gorontalo (import) than to produce it in Gorontalo (the aspect of comparative advantage). While the PCR value indicates that rice farming is not profitable financially at farm level. This means that the farming has not been able to prosper the rice farmers.

Furthermore, the protection coefficient that combines output and input policies is Effective Protection Coefficient (EPC). The result of the EPC is 1.51. EPC> 1 indicates that government protection works effectively to rice commodity. Commonly, protection is given to export

commodities or commodities related to the livelihood of many people, such as rice. In connection with this, Salam and Tufail (2012) reported that wheat commodities do not receive protection or incentives when the commodity becomes imported commodity. This is understandable because imported commodities can pose a threat to the viability of similar domestic commodities. Thus, the policy of import tariffs, especially for imported food commodities, is generally carried out by governments in developing countries, which aim to protect the production of local farmers.

CONCLUSION

Based on the objectives and the results of this research, the conclusions are the impact of subsidy policy that has been carried out by the government on the output (rice) and the input of farming (seeds and fertilizers) has not been able to be felt directly by the farmers. This is evidenced by the large ratio of surplus loss by farmers as producers, both in terms of the output and input aspects of farming.

These conditions directly affect to the competitiveness of rice farming (comparative and competitive advantages). Currently, rice farming in Gorontalo has no longer have a comparative advantage and it's not profitable financially either, if the farmer has only applied a monoculture system with small planting area.

POLICY IMPLICATIONS

Fertilizer subsidy policies that have been implemented need to be reviewed, where there should be a transfer of gas subsidies to subsidies for distribution costs (transportation) of fertilizers, which may be more directly felt by the farmers.

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