

POLITICAL ECONOMIC ANALYSIS OF INDONESIAN RICE MARKET

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ABSTRACT

Many studies on rice self-sufficiency in Indonesia have been extensively conducted. Most of the studies analyzed the magnitude and trend of harvested area, production, productivity, consumption, and trade of rice. There have been no studies found related to political economic perspective for rice self-sufficiency yet. Such study is considerably important as rice self-sufficiency is not only a national economic issue, but also a politically related one as well. The strategic role of rice goes beyond economical reason for the country to conduct rice self-sufficiency program. Therefore, it is thought necessary to find out the political preference of the government in rice market along with rice self-sufficiency program to answer the question of who benefit most from such a policy. A political econometrical model was then developed to estimate the political weight of vested interest groups in rice market of Indonesia. This study was carried out using the secondary aggregate data at the national level from 2001 to 2014. This study used a political preferential function model to represent the objective of the government of Indonesia to maximize social welfare of rice producer, consumer, and the government. The rice policy in Indonesia is biased to the government as evidenced by the measured highest political weight for the government, compared to those of the others. Both political weight of the government and producer could affect the achievement level of rice self-sufficiency. Hence, the government is strongly recommended to reformulate rice policy to improve the role of vested interest group in the rice market.

Key words: self-sufficiency, vested interest group, political weight

INTRODUCTION

Self-sufficiency policy is theoretically inefficient (Monke and Pearson 1989). Nevertheless, it has been being an important agenda and goal of the agricultural development since the establishment of the Government of Indonesia according to the strategic role of rice in the economy (Baharsjah et al. 2014). The government aimed to achieve four main targets of the sustainable self-sufficiency, i.e. the increasing rice production, the stable price and reserve stocks, and zero import, hence the welfare of rice producer and consumer could be improved. In order to realize that condition, the government intervened the market by implementing four policy instruments, i.e. production policy, price policy, distribution policy, and import policy. The government allocated fund for implementing the policies and the allocation of fund tended to increase. Besides, the government provided subsidies from on farm to off farm activities (such as post-harvest, marketing).

Besides the production policy, the three policy instruments (price, distribution, and importation) were implemented by a state owned-parastatal of Indonesia, namely Badan Urusan Logistik (Bulog). Many studies revealed that the involvement of parastatals could cause market failure in accordance with the rent-seeking activities, thus generating high social cost. The consideration of the government to involve Bulog along with the attainment of self-sufficiency targets were not only based on economic reason, but also political background. Researches on self-sufficiency and state owned-parastatal conducted by many researchers and academicians however were either purely economics or politics. These did not cover political economic perspective about rice self-sufficiency by including the involvement of Bulog with its privileges on rice policy instruments.

During the analysis period, the allocation of self-sufficiency fund tended to increase from around IDR 10 trillion in 2002 to more than IDR 67 trillion in 2014; however, did not attain sustainable rice self-sufficiency. The level of self-sufficiency fluctuated between 95-100%. For this reason, research questions arose accordingly, i.e. Whose interest actually counts among the main vested interest groups in the rice market in Indonesia in accordance with the implementation of rice policies as very responsible for state-owned agency executing the policies? The answer to such question can either provide quantitative data for supporting aforementioned criticisms or disprove them. As there is no quantitative data supporting the criticisms, a political econometric model of rice self-sufficiency is then developed to estimate the political preference of the government to measure political weight of producers, consumers, and the government in the rice market. For that reason, this study aims to analyze the political weight of vested interest groups in the rice market where the government implements the rice policy instrument to achieve the rice self-sufficiency in Indonesia.

The strategic role of rice in Indonesia compels the government to achieve self-sufficiency (Sawit 2001, Timmer 2010). Increasing production, affordable rice prices, stable and enough reserve stock, and zero imported rice are set as the targets of rice self-sufficiency program in Indonesia. The government has provided input and output subsidies for rice commodity (Timmer 2004) and involved National Logistics Agency (Bulog) to stabilize rice prices, to manage reserve stock, and to import rice (Sawit 2001, Timmer 2004 and 2010) since the New Order Government Era (Amang and Sawit 2001, Timmer 2004). However, there have been some criticisms concerning the Bulog's involvement. Although it has been criticized that rice self-sufficiency program is not economically efficient (Barker and Hayami 1976) and is a high-cost policy (Timmer 2004), it is commonly executed by most developing countries to avoid vulnerability from the world's rice price and supply (Barker and Hayami 1976). Consequently, the budget allocations could become rather costly due to input subsidy such as fertilizer, seed, and machineries; and for price support during rice procurement and distribution that are conducted by Bulog. This price support policy is supposed to maintain the domestic rice price higher than the world rice price (Barker and Hayami 1976, Timmer 2004). Therefore, the self-sufficiency program results in decreasing national income (Monke and Pearson 1989).

Apart from Indonesia, strategic role of a state-owned parastatal, in Indonesian case is Bulog, is also found in African and other Asian developing countries (Rashid et al. 2005). In Indonesia, with the fact that it uses budget allocation from the government in its operational activities, there could be corruption found to exist in Bulog especially after the early 1990s (McCulloch and Timmer 2008). That is just found similarly taking place in some African countries where such state-owned parastatals are considered as subsidy predators (Neube and Maunganidze 2014), leading to government failure in budget allocation for food policy (Wambua et al. 2005, Zvavahera and Ndoda 2014).

The Indonesian government gives its mandate to Bulog to stabilize the domestic rice prices using the governmental procurement price and the rice sale price during rice procurement and distribution. Bulog maintains the reserve stock and imports rice to fulfill the annual rice procurement

(Amang and Sawit 2001). In addition, Timmer (2004) suggested that such policy is the final policy option. By that, Bulog, the only organization that receives such a privilege and an authority, represents the government to manage the rice market in Indonesia, as those are not given to the others. During 2001-2014 the distribution of rice for the poor through Bulog increased tremendously from around 1.48 million ton to 2.77 million ton which affected the domestic rice supply. This period will then be used to investigate the impact of pro poor regime under the Susilo Bambang Yudoyono (SBY) administration. Such privilege received by Bulog is concerned with market distortion (Lee and Kennedy 2007). Though in a certain commodity market, government plays a significant role as regulator, subsidy provider, and tax collector (Ortiz 1999). In order to regulate the market, government implements policy instruments in the given market structure of commodity where interest groups exist in the market (Barret 1999). For that reason, and also to cope with market failure, the government of Indonesia intervenes in the domestic rice market to achieve self-sufficiency by giving the mandate to a state-owned parastatal, i.e. Bulog.

METHODOLOGY

Data

This study was carried out using the secondary aggregate data at the national level from 2001 to 2014. The macroeconomic indicators consisted of the real national income per capita, the exchange rate of rupiah to US dollar, the import tariff of rice from the Central Agency of Statistics (BPS), the Central Bank of Indonesia (BI), the Ministry of Agriculture, and the Ministry of Finance.

As most of the rice produced, traded, and consumed are in medium quality, this study used the retail price of Indonesian Rice III (IR III) as the consumer price calculating the inflation of the food sector. Moreover, Bulog mostly imports Vietnamese 15 per cent broken that is equivalent to the medium rice and IR III. As a consequence, the nominal producer rice price came from the addition between dried unhusked-rice price and the milling cost of medium rice. For this reason, this study excluded steamed rice, aromatic rice, and premium rice (Basmati, Thai hom malli¹, Japonica) in the analysis. In order to calculate the political weight, the share of procurement to the national rice production and the share of distribution to the national consumption are determined as percentage. Two presidential eras or government periods, i.e. Megawati (2001-2003) and SBY (2004-2014) were transformed into dummy variable to distinguish both.

Analysis method

This study used a political preferential function model to represent the objective of the government of Indonesia to maximize social welfare of rice producer, consumer, and the government. Prior to further analysis using a political preferential function, there were three steps to be done firstly. The first step was to test the variables integration order using the Augmented Dickey-Fuller's unit root test. The only stationary and free from unit root were then used in the following step.

The second step was to estimate the rice demand and supply relation by using an ordinary least square method. The actual rice market structure in Indonesia tends to be a competitive market, which was indicated by free entry to and exit from market, many market players, and homogenous products. Since the analysis focused on the involvement of Bulog in "trading-likewise activity", thus the other traders were then unified into one part as non-Bulog. Therefore, the rice market structure was assumed as an oligopolic market. Hence, a dynamic-oligopolic model (Bresnahan 1982, Lau 1982) was then used to estimate the rice demand and supply relation. The third step was to determine the demand elasticity and the rice supply elasticity. Upon calculation of the demand and supply elasticities, the political weight of vested interest groups in the Indonesian rice market was computed. The function of the demand and supply relation are as follows:

¹ Premium rice quality from Thailand

The rice demand function

By adopting the dynamic-oligopolic model, an error correction model (ECM) with short-run parameters represented by one-lagged autoregressive distributed lag (ADL) model was specified below:

$$\Delta Qd_t = \alpha_0 + \alpha_{Pd}\Delta Pd_t + \alpha_Y\Delta Y_t + \alpha_Z\Delta Z_t + \alpha_{PY}\Delta PY_t + \alpha_{PZ}\Delta PZ_t + \alpha_{Qd}\Delta Qd_{t-1} + \gamma[Qd_{t-1} - \Theta_{Pd}Pd_{t-1} - \Theta_Y Y_{t-1} - \Theta_Z Z_{t-1} - \Theta_{PY}PY_{t-1} - \Theta_{PZ}PZ_{t-1}] + \alpha_D D_t + U_t \quad (1)$$

Where Qd is rice demand (kg), Pd is consumer price (IDR/kg), Y is income (IDR/cap), Z is consumer price of rice substitute (IDR/kg), PY is multiplication between Pd and Y being the shifting variable of demand, and PZ is multiplication between Pd and Z being the rotation variable of demand, D is dummy variable of government period, D = zero for 2001-2003 government period; and D = 1 for 2004-2014. The intercept is α_0 , the estimated coefficients of the long-run parameters are α_{Pd} , α_Y , α_Z , α_{PY} , α_{PZ} , α_{Qd} , α_D , and the error term is U_t . In the short-run parameters, the estimated coefficients of the variables are Θ_{Pd} , Θ_Y , Θ_Z , Θ_{PY} , and Θ_{PZ} . Hence, prior to the estimation of dynamic demand function, firstly was to compute the adjustment parameter (γ) from the ADL model to estimate the static demand function.

The supply relation function

In terms of the estimated elasticities of supply, the dynamic demand function provides reasonable econometric predictions, because in the supply relation there is a variable that computed using long-run parameters in the dynamic demand function, i.e. Q^* and the formula is $Q_t^* = \frac{Qs_t}{\theta_{Pd} + \theta_{PY}Y_t + \theta_{PZ}Z_t}$. By using the same method, firstly computed the adjustment parameter (λ) from short-run to long-run showing by the ADL model in the dynamic supply relation function as follows:

$$\Delta Ps_t = \beta_0 + \beta_{Qs}\Delta Qs_t + \beta_W\Delta W_t + \lambda\Delta Q_t^* + \beta_{Ps}\Delta Ps_{t-1} + \psi[Ps_{t-1} - \xi_{Qs}Qs_{t-1} - \xi_W W_{t-1} - \Lambda Q_{t-1}^*] + \beta_D D_t + V_t \quad (2)$$

Where Ps is producer price (IDR/kg), Qs is rice supply (kg), W is rice milling cost (IDR/kg), D is dummy variable represents the governmental period, and V_t is error term. The intercept is β_0 , the estimated coefficients of the long-run parameters are β_{Qs} , β_W , λ , β_{Ps} , and β_D . In the short-run parameters, the estimated coefficients of the variables are ξ_{Qs} , ξ_W , and Λ . The adjusted parameter from short-run to long-run is λ . There are two parameters of market power, i.e. λ is long-run market power, while Λ is short-run market power. Similar to the estimation of demand, so prior to the estimation of supply relation, was to estimate the adjustment parameter (ψ) from the ADL model.

The elasticity of demand

The computation of demand elasticity was conducted, adopting the same formula of Steen and Salvanes (1999). The formula was used previously by modifying the dynamic-oligopolic model that was developed by Bresnahan (1982) and Lau (1982).

Short-run elasticity of demand:

$$(\eta_{SR}) = [\alpha_P + \alpha_{PY}\bar{Y} + \alpha_{PZ}\bar{Z}] \cdot \left[\frac{Pd}{Qd} \right] \quad (3)$$

Long-run elasticity of demand:

$$(\eta_{LR}) = [\Theta_P + \Theta_{PY}\bar{Y} + \Theta_{PZ}\bar{Z}] \cdot \left[\frac{Pd}{Qd} \right] \quad (4)$$

The elasticity of supply

The computation of supply elasticity was relatively complicated as it included Q^* in the supply relation function. Zaini (2011) used the same model with Steen and Salvaned (1999) and derived the elasticity formula from supply relation function and found that:

$$(\varepsilon_{SR}) = \left[\frac{\alpha_{Pd} + \alpha_{PY}\bar{Y} + \alpha_{PZ}\bar{Z}}{\beta_{Qs}(\alpha_{Pd} + \alpha_{PY}\bar{Y} + \alpha_{PZ}\bar{Z}) + \lambda} \right] \cdot \left[\frac{P_S}{Q_S} \right] \quad (5)$$

The long run supply elasticity:

$$(\varepsilon_{LR}) = \left[\frac{\theta_{Pd} + \theta_{PY}\bar{Y} + \theta_{PZ}\bar{Z}}{\xi_Q(\theta_{Pd} + \theta_{PY}\bar{Y} + \theta_{PZ}\bar{Z}) + \lambda} \right] \cdot \left[\frac{\bar{P}_S}{\bar{Q}_S} \right] \quad (6)$$

Once the elasticities are obtained, the computation of the political weights in rice market was then conducted using the political preferential function model. Firstly, it was to compute the optimum price range as percentage of producer price (A, %), optimum price range as percentage of consumer price (B, %), CIF price of imported rice (P_W , IDR/Kg), share of Bulog's procurement to national rice production (B_{RP} , %), and share of Bulog's distribution to national rice consumption (B_{RD} , %). The quantitative parameters including demand and supply elasticity indicate the potential role of political weight on each implemented price intervention policy (Lee and Kennedy 2007). Through price normalisation, the political weights computed using formula as follows:

$$W_G = \frac{3}{1 - B_{RP}\varepsilon_{SRA} + B_{RD}\eta_{SR}^B} \quad (7)$$

$$W_P = \frac{-3B_{RP}\varepsilon_{SRA}}{1 - B_{RP}\varepsilon_{SRA} + B_{RD}\eta_{SR}^B} \quad (8)$$

$$W_C = \frac{3B_{RD}\eta_{SR}}{1 - B_{RP}\varepsilon_{SRA} + B_{RD}\eta_{SR}^B} \quad (9)$$

$$W_G = 3 - W_P - W_C \quad (10)$$

$$A = \left\{ \frac{P_S - P_W}{P_S} + \left(1 - \frac{1}{B_{RP}} \right) \frac{P_W}{P_S} + \frac{1}{\varepsilon_{SR}} \right\} \quad (11)$$

$$B = \left\{ \frac{P_D - P_W}{P_D} + \left(1 - \frac{1}{B_{RD}} \right) \frac{P_W}{P_D} + \frac{1}{\eta_{SR}} \right\} \quad (12)$$

Where P_W is CIF price (Rp/Kg), W_G is political weight of the government, W_P is political weight of producer, and W_C is political weight of consumer.

Once the political weights of the three vested interest groups were obtained, estimation of political econometric model to analyze rice self-sufficiency ratio from political economic perspective as follows:

$$SSR = \delta_0 + \delta_P W_P + \delta_C W_C + \delta_G W_G + \delta_A A_R + \delta_Y Y + \mu_t \quad (13)$$

$$SSR = \frac{Q_s}{Q_s + M - X} \quad (14)$$

where SSR is rice self-sufficiency ratio, A_R is national rice harvested area (ha), M is import of rice (kg), X is export of rice (kg), δ_0 is intercept, $\delta_P, \delta_C, \delta_G, \delta_A$, and δ_Y respectively are estimated coefficients of the corresponding variable, and μ_t is error term.

RESULTS AND DISCUSSION

Demand and supply relation estimates

Based on the results of the variables integration order test, it was found that the variables were non-stationary at the levels, but stationary in the first differences at reasonable level of significance. Hence, those stationary ones, the first different, were then used in the estimation of the rice demand and supply relation to obtain its elasticities. On the demand side, the current consumer price (ΔPd_t), the real national income per capita (ΔY_t), the current substitute price (ΔZ_t), the current rotating factor (ΔPY_t), the current shifting factor (ΔPZ_t), the lagged demand (Qd_{t-1}), and the government period (D^2) affect rice demand significantly at 90-95 per cent confidence level. The inelastic price elasticity of demand ($\eta_{SR} = -0.11$; $\eta_{LR} = -0.14$) emphasizes that rice is the main staple food in Indonesia. While the estimate coefficient of substitute price shows that maize is not a substitute, but, is a complement since the rice demand decreases when the maize price increases (Table 2). It may indicate that the consumers do not solely change to maize's price decreases. This finding may imply that diversification from rice to non-rice staple food does not work well. The other fact of demand is the distribution of rice for the poor family (Raskin) during 2004-2014 caused the decrease in rice demand.

Table 2. OLS Estimates of the dynamic demand function.

Variable	Parameter	Coefficient	St. Dev.	t-Statistic	Prob.
C	α_0	1.36E+10	2.78E+09	4.8957*	0.0163
ΔPd_t	α_{Pd}	-6.10E+08	85245803	-7.1530**	0.0056
ΔY_t	α_Y	722.0440	151.5221	4.7653*	0.0176
ΔZ_t	α_Z	-9.46E+08	1.96E+08	-4.8225*	0.0170
ΔPY_t	α_{PY}	-20.7517	3.218325	-6.4480**	0.0076
ΔPZ_t	α_{PZ}	26162996	5172820.	5.0578*	0.0149
ΔQd_{t-1}	α_{Qd}	-1.7735	0.300563	-5.9006**	0.0097
D	α_D	-2.30E+09	4.32E+08	-5.3178*	0.0130
U_{t-1}	γ	-0.322197	0.094080	-3.4247*	0.0417
<i>R-squared</i>		0.9569			
Long-run parameter					
Pd_{t-1}	Θ_{Pd}	7.14E+08			
Y_{t-1}	Θ_Y	246.1786			
Z_{t-1}	Θ_Z	8.18E+08			
PY_{t-1}	Θ_{PY}	-1.7776			
PZ_{t-1}	Θ_{PZ}	-20584571			
Elasticity					
Short-run	η_{SR}	-0.1122			
Long-run	η_{LR}	-0.1415			

Source: Secondary data analysis, 2016.

Notes: * Prob. < 0.90%; ** Prob. < 0.95%.

The estimates of the supply relation model shows that the variables of current rice supply were obviously influencing the current rice price. Regardless to the low significance level of the estimates, the short run own price supply elasticity (ϵ_{SR}) was 1.43 (Table 3). This implies that price was the only factor affecting farmers to cultivate their land. Phiri (2013) conducted political economic analysis of the maize market in Malawi and revealed that the price was the most important concern of the producers and affected the formulation of the political policy. The implemented public policies in agriculture may impart negatively to producers and even taxed through the policy that transfer income

² D = 0 government period 2001-2003, D =1 government period 2004-2014.

from the producers to the consumers through the price mechanism. This occurred because the non economic motives gave more influence to the most influential policy maker.

Table 3. OLS Estimates of the supply relation function.

Variable	Parameter	Coefficient	St. Dev.	t-Statistic	Prob.
ΔQ_{St}	β_{Qs}	9.42E-10	1.39E-09	0.6753	0.5247
ΔW_t	β_w	-0.9351	0.9033	-1.0352	0.3405
ΔQ^*_t	λ	-0.0003	0.0003	-0.9855	0.3624
ΔP_{St-1}	$\beta_{Ps\ t-1}$	0.0657	0.3800	0.1729	0.8684
D	β_D	17.4824	10.9106	1.6023*	0.1602
V_{t-1}	Ψ	-0.3040	0.1816	-1.6742*	0.1451
<i>R-squared</i>		0.4245			
Long-run parameter					
Q_{St-1}	ξ_Q	1.82E-09			
W_{t-1}	ξ_w	-0.5341			
Q^*_{t-1}	Λ	-0.0003			
Elasticity					
Short-run	ϵ_{SR}	1.4310			
Long-run	ϵ_{LR}	0.7406			

Source: Secondary data analysis, 2016.

Note: * Prob. < 90%.

Political weight estimates

The estimation of political weight used the short-run price elasticities of rice demand and supply in the adopted formula of Johnson (1995). The estimation showed that the biggest political weight is achieved by the government, followed by the producer and lastly the rice consumer (Table 4). As political weight indicates political preference of government and lobbying power of vested interest groups, it implies that the implemented rice policy instruments is biased to the government itself, rather than to the rice producers and the consumers. It proves that Bulog received the highest political preference, representing the government interest.

Table 4. The average¹⁾ political weight of vested interest groups in rice market of Indonesia.

Vested Interest Group	Political Weight
Producer (W_P)	0.5375(17.67%)
Consumer (W_C)	0.2324(7.67%)
Government (W_G)	2.2401(74.67%)

Source: Secondary data analysis, 2016.

Note: 1) 2001-2014.

Political econometric estimates

Due to the colinearity problem, the estimation of the political econometric function model excluded the constant coefficient of the regression. The estimation result of the political econometric function model of rice self-sufficiency (Equation 13) shows that the magnitude of political weight of the producer and the government directly affect the achievement level of the rice self-sufficiency in Indonesia (Table 5). This indicates that the greater political weight of producer and government will lead to the higher achievement level of rice self-sufficiency. On the other hand, the magnitude of political weight of consumer affects the decreasing level of rice self-sufficiency. It implies that the

achievement of self-sufficiency only could be achieved by involving the producer and government groups and minimizing the involvement of the consumer group.

As political weight is the approach of power or coefficient of lobby (Becker 1983, Zusman 1994), therefore the degree of government intervention in the rice market should be shifted from regulation to facilitation of the producer groups. The active participation of the producer under a good facilitation from the government can result in more productive rice farming. Hence, rice production is increased. As a result, sustainable rice self-sufficiency can be achieved, with resultant improvement of both producer and consumer welfare.

Table 5. OLS Estimates of the political econometric function model.

Variable	Parameter	Coefficient	St. Dev.	t-Statistic	Prob.
W _P	0.246652	0.098804	2.496365	0.246652 *	0.0341
W _C	-0.21119	0.260554	-0.81056	-0.21119	0.4385
W _G	0.266694	0.097933	2.723224	0.266694 *	0.0235
A _R	2.81E-11	2.75E-11	1.021846	2.81E-11	0.3335
Y	-2.01E-09	2.08E-09	-0.96578	-2.01E-09	0.3594
R-squared	0.339926				

Source: Secondary data analysis, 2016.

Note: * p < 0.90%.

The real example from the policy choices are, the price subsidy may be reallocated from import expenditure to agricultural infrastructure subsidy, such as agricultural roads, public irrigations, extensions, and post-harvest technology as the strategies that increased rice production successfully during the New Order Government Era (Amang and Sawit 2001, Timmer 2010). The involvement of Bulog in stabilizing rice prices and reserve stock is still needed. Yet the involvement of Bulog in stabilizing rice prices and reserve stock is important. Therefore, Bulog's procurement from domestic production must be endorsed and encouraged more than importation of rice. However, the existing procurement system using the governmental procurement price will obviously squeeze profit margin of private rice traders, i.e. non-Bulog (Timmer 1986). Consequently, by implementing price policy through Bulog, it shows that the government has more preference to Bulog than to non-Bulog. This emphasizes why the political weight of the government is the highest among the three vested interest groups in the rice market of Indonesia. This implies that this political economic study can simplify the actual rice market in Indonesia from a perfect competition market structure to an oligopolistic market structure.

Comparing to the other political economic studies on agricultural commodity, in producing country such as sugar in the Philippines (Lopez 1994) and rice in USA, Republic of Korea, and Japan (Lee and Kennedy 2007), the policies were biased to producer. In 13 developing countries, wheat policies were biased to consumer, while in 12 developed countries, wheat policies were biased to producer (Sarker et al. 1993). Those prove that commodity policy does not depend on the development level and function of commodity in certain countries, but depends on the political preference of the government.

Government intervention is a common nature in agricultural sector. Hence, typical intervention depends on political preference of the government. In case of rice in Indonesia, the subsidy is the dominant one. This choice of such policy is in line with the target to increase production that is mostly conducted in developing countries. It is confirmed with the budget allocation of the food security program during 2002-2014, that was dominated by the subsidy, followed by transfer and government expenditure (MOF 2016). During the analysis period, the budget of the food security programs increased from around IDR 10.26 trillion in 2002 to more than IDR 67.77 trillion in

2014, or increased by 5.77 per cent of growth rate. These findings are consistent with that of Amang and Sawit (2001) where the subsidy is provided starting from on farm and off farm activities to marketing activities, from regional level to national level, from individual life support to collective or public investment.

By design, the intervention in terms of subsidies is to support rice producer. Among the given subsidies, seed and subsidy are given to support and encourage rice producer to apply the recommended dosage of fertilizers, especially urea, the most influencing fertilizer on rice yield (Osorio et al. 2011). Other types of input subsidies, the government provides general food subsidy in term of output subsidy that is given to targeted consumer, i.e. rice for the poor family (Raskin). However, based on the analysis, the aggregate rice policies shows that those policies are biased to the government. The future rice policies are suggested to be designed to be neutral among the three vested interest groups of the rice market in Indonesia accordingly.

The distinguished magnitude of political weight between the government and the producer may help in elaborating next budget allocation related to typical subsidies of rice. The future rice policies must not substitute each other, but complement one another. The existing policies may be sustained by combining with intensive agricultural investment such as irrigations, agricultural roads, extensions, and postharvest management. Such policies have been conducted by the current presidential era, where irrigation is one substantial program among others in *Upaya Khusus Padi Jagung Kedelai* Program (Special Effort on Rice Maize and Soyabean). By then, the domestic production would increase, self-sufficiency could be achieved, the price could be stable, and lower risk of the world's price and supply vulnerability. Hence, the welfare of the producers and the consumers would be improved systematically.

CONCLUSION

Rice policies in Indonesia are biased to government wherein the highest political preference of the government is received by the government itself, followed by the rice producers and the rice consumers. Sustainable rice self-sufficiency could only be achieved by involving the producer and the government groups, as both vested-interest groups contribute to the achievement level of rice self-sufficiency. The shifting of the rice market structure from a perfect competition to an oligopolistic competition, can provide proof that giving privilege to Bulog to stabilize rice prices and to import rice result in the highest political weight of government in the rice market. The responsiveness of the producers to the rice prices, the price-stabilization policy instrument gives more incentive to the producers rather than save government expenditure. In order to improve the rice self-sufficiency performance, the government needs to increase the active participation of the producer groups under support and facilitation from the government groups in order to achieve the self-sufficiency target.

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