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Short Communication

EFFECT OF IMPORT TARIFF IMPLEMENTATION POLICY ON REFINED SUGAR PRODUCT COMPETITIVENESS IN INDONESIA.

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ABSTRACT
This research is set out to determine the effect of welfare distribution the respect to import duty on the government revenue, consumer expenditures, producer revenues, and efficiency losses (in production, in consumption and net effect), and the level of competitiveness of cane sugar in Indonesia by calculating the Domestic Resource Cost (DRC). The research used secondary data from related preceding researches and other references such as magazines, journals, bulletins and the like. The research result showed that the government revenue, change of consumer surplus, producer surplus, economic net loss in production and consumption and exchange gain economization, are influenced by the import tariff and elasticity price toward supply and demand. It also showed that sugar product competitiveness in Indonesia is higher than the same product from other countries as the value of DRC is less than one.

Key word: Sugar, Welfare Distribution, Domestic Resource Cost (DRC), Import tariff.

INTRODUCTION

The Indonesian government through the Ministry of Commerce and Industry-via letter number: 364/MPP/Kep/8/1999, has carried out import commerce policy. This policy states that public importers are allowed to import sugar. The main goal of import duty implementation is to reduce sugar import volume in order to protect domestic producers against the cheaper foreign sugar products. The admission charge of import applied is *ad valorem* (i.e. the percentage of the import duty is fixed to all imported commodities). The policy of sugar commerce, rise of competitiveness and efficiency of sugar production are noticeably prioritized to reduce import quota and economize its exchange. The implementation of its commerce is required to support Indonesian government's plans to protect all economic agents. It is expected to result positively in every unit of economic agents' welfare, particularly of producers and

consumers' welfare as well as the sugar product competitiveness in international commerce.With reference to this background the problems under focus are as follows: (i) how sugar commerce policy influence the units of economic agents' welfare such as producers, consumers and government; and (ii) how competitive the national sugar is compared to international commerce in order to reduce import quota. Based on these, the present research was initiated to investigate the following issues: (a) the effect of welfare distribution referring to the import duty on government revenue, changes of consumer and producer surpluses and efficiency losses (in terms of production, consumption, and net effect) and (b) sugar product competitiveness in Indonesia by calculating the Domestic Resource Cost (DRC). The results of this research are expected to be useful to the Indonesian government in formulating policy on sugar production.

RESEARCH METHODOLOGY

This Research started with data collection from secondary sources. The researcher employed the library research method which involves collecting data from related preceding researches and other references such as magazines, journals, bulletins and the like. Data were also collected from the statistic bureau, Indonesian Sugar Statistic and Development Center (P3GI), Logistics Affair Agency (BULOG) and other related institutions.

To calculate the welfare distribution as the impact of commerce policy through import duty (started from 25% to 120%) on the government revenue, consumer and producer surplus, efficiency losses (production, consumption, and net effect), the formula proposed by Tsakok (1990) was employed.

1. Nominal Protection Coefficient (NPC) is the level of domestic price protection toward foreign commodities:

$$\text{Gross NPC} = \frac{Pd}{Pb}$$

2. Change of government revenue (PGR):

$$PGR(E) = \frac{(NPC-I)(W'-V')}{(NPC)}$$

3. Saving of exchange gain for import deficiency (PFE):

$$PFE = \frac{(NPC-1)(ies\ V'-ep\ W')}{(NPC)^2}$$

4. Net economic loss in consumption (NELc):

$$NELc = 0.5ep\ \{(NPC-1)^2 / (NPC)^2\} \times W'$$

5. Net Economic Loss in Production (NELp) :

$$NELp = 0.5\ es\ \{(NPC-1)^2 / (NPC)^2\} \times V'$$

6. Change of consumer surplus (PWGc):

$$PWGc = -\{(NPC-1)/(NPC) \times W'\} + NELc\}$$

7. Change of producer surplus (PWGp)

$$PWGp = \{(NPC-1)/(NPC) \times V'\} - NELp\}$$

8. Net effect of Price Protection Policy :

(Net effect) = WQp + WQc + PGR

= -(NELp + NELc)

where:

V'   = Domestic product on the domestic price or support price.

W'   = Domestic consumption on the domestic price or support price.

es   = Price elasticity of domestic supply.

ep   = Price elasticity of domestic demand.

Pd   = Domestic price of commodity.

Pb   = World border price.

Qc   = Total domestic consumption.

Qp   = Total domestic production. To evaluate the national sugar product competitiveness by applying the following Domestic Resource Cost (DRC) proposed by Tsakok (1990) :

$$DRC = \frac{\sum_{j=1}^{n} aij\ Vj}{P^r i - \sum_{j=1}^{k} aij\ P^r j}$$

Where :

aij, j=1 ke n = coefficient of domestic resource and non-tradable input.

aij, j=1 ke k = coefficient of tradable input.

Vj = The shadow price of domestic resource.

$P^r i$ = output on border price (FOB price).

$P^r j$ = input on border price (CIF price)

RESULTS AND DISCUSSION

Refined sugar is one of the primary needs of Indonesian people. The need for refined sugar keeps rising continually along with the Indonesian population and income growth. For detailed information, the data on sugar industry in Indonesia are presented in Table 1.

Data in Table 1 showed that within 18 years, the total sugar production increased. However, the increase was lower than the entire national sugar demand. The increasing national sugar production did not meet the sugar demand in Indonesia since sugar supply and import were not adequate. The trend in sugar cane production appears to synchronize with the area of land allocated to its production. In 1990, sugar productivity reached 75.70 tons per hectare on the average, and it declined to 74.58 tons per hectare in 2008.

At present, Sugar production in Indonesia is incredibly centralized in Java. This Island is inhabited by almost 67 percent of the total Indonesian population and possesses the largest consumer contribution (almost 75 percent) of the entire domestic sugar production. In 2006/2007, the total sugar cane production in Java recorded 27.9 million tons (74.9%) production outside Java recorded 9.6 million tons (25.1%). In the 2007/2008 annual planting period, the total sugar cane production declined to 23.8 million tons (72.5%) in Java and declined to 8.5 million tons (27.5%) outside Java.

On the other side, information from the Indonesian Sugar Statistic and Development Center in 2006 sugar cane planting, in Indonesia showed that sugar cane planting was still concentrated in java. It is

approximately 285.026 ha or about 68.15 percent of the entire sugar cane planting area. Since 1999, the area of sugar cane field has declined. In that year, 152.305 ha of sugar cane area decreased to 118.188 ha or 22.44 percent by 2005/2006 annual planting period. On the contrary, dry field increased from 84.387 ha to 126.303 ha equal to 49.67 percent (Java) and 1.407 ha to 10.607 ha equal to 653.87 percent (outside java) (P3GI 2008). Furthermore, P3GI release that the problem is the sugar cane plants in dry filed has 31.60% productivity lower than in wet fields. As a consequence, sugar cane crystal level (rendement) in dry fields is factually lower than in wet fields. Ratnawati (2006) stated that the rendement in dry and wet fields are 7.59% and 8.12%, respectively. Moreover, sugar cane in dry fields requires high farming cost with different technology and production cost per kilogram and is more expensive since the sugar factory is locationed of a good distance. Nevertheless, in dry fields, sugar cane provides much benefit with minimal effort.

The result of applying import tariff toward the welfare of producer, consumer and government are presented in Table 2. By using the data in Table.1, the impact of import tariff implementation is simulated in 25%, 30%, 40%, 60%, 100% and 120% toward the welfare of producers, consumer, and government. If the government's intervention in terms of import tariff implementation is denoted with 25 percent, it results in reducing consumer's welfare measure with the decrease of consumer surplus estimated about 2536.932 billion. The loss in consumer surplus is then distributed to the additional producer's surplus of about IDR 1905.842 billion (74.52%), runs the economy inefficiency from producer sector about IDR 37.183 billion (1.46%), and contributes about IDR.590.087 billions to the government revenue (23.26%). The import tariff policy is supposed to economize the exchange gain to the tune of about IDR 1220.725 billions. This calculation is made with reference to the Nominal Protection Coefficient (NPC) estimation of about 1.55, and price elasticity to the national supply and demand is 0.025 and -0.119, respectively. With sugar import in 2008, it is estimated to 1.443.000 tons with the exchange rate at IDR 10.000/1 US $.

Table 1. The Production, demand, import and area of sugar, labour wage and the rate of sugar cane productivity in Indonesia 1990 to 2008

Year	Production (ton)	Import (ton)	Land Harvest of Cane (Ha)	Wage Labour (Rp/day)	Cane Production (Ton/ha)
1990	1.725.179	0	277.615	2.175	75.70
1991	2.025.171	0	317.090	2.244	79,20
1992	2.117.710	179.000	334.000	2.428	77,20
1993	2.289.645	92.000	323.302	2.550	76,60
1994	2.435.881	15..207	428.736	2.750	78,90
1995	2.059.576	687.936	436.037	3.250	76,90
1996	2.094.195	975.830	446.533	3.887	72,93
1997	2.191.986	1.364.000	386.878	4.475	79,19
1998	1.488.269	1.730.473.	377.089	5.040	78,60
1999	1.439.933	1.500.000	342.211	6.750	71,26
2000	1.690.004	1.500.000	340.660	7.800	71,47
2001	1.725.467	1.500.000	344.441	10.500	71,00
2002	1.755.354	1.500.000	350 722	10.450	72,30
2003	1.634.560	1.500.000	336.257	10.250	72,70
2004	2.051.000	1.348.349	344.000	10.765	72,50
2005	2.265.000	1.245.000	365.450	12.750	72,85
2006	2.375.000	1.150.000	380.000	13.500	73,00
2007	2.412.000	1.147.212	388.677	13.768	73,12
2008	2.443.000	1.443.000	396.000	13.876	74.58

Source : Indonesian Statistic Bureau (BPS), World Sugar Cane Statistic 2008/2009, P3GI Pasuruan and Logistics Affair Agency (BULOG)

Table 2. The Calculation of Welfare Distribution With Import Tariff as 5%, 30%, 0%, 60%, 100% and 120% in billions rupiah (using es 0,025 and ep – 0,119)

Item	Tariff 25%	Tariff 30%	Tariff 40%	Tariff 60%	Tariff 100% ..	Tariff 120%
1. NELp	3,8193	5,0849	7,7945	13,427	23,871	28,408
2. NELc	37,1838	53,5446	95,1904	214,178	594,940	856,714
3. WGp	1905,842	2286,508	3047,663	4569,753	7614,773	9137,964
4. WGc	-2536,932	-3053,243	4094,788	-6213,574	10593,933	-12855,505
5. GR	590,087	708,105	944,140	1416,210	2360,349	2832,419
6. FE	220,725	1226,894	1239,233	1263,909	1313,261	1337,937
7. E(US$)	162,763$	163,586$	65,231$	68,521$	175,101	178,390
8. Net Effect	41,008	58,629	102,984	227,605	618,811	885,122

Table 3. Calculating of Welfare Distribution With Import Tariff as 25%, 30%, 40%, 60%, 100% and 120% in billions rupiah (using es 0,41 dan ep -0,45)

Item	Tariff 25%	Tariff 30%	Tariff 40%	Tariff 60%	Tariff 100%	Tariff 120%
1. NELp	62,6368	83,3923	127,8304	220,207	391,480	465,894
2. NELc	140,6110	202,4800	359,9640	809,918	2249,773	3239,674
3. WGp	1847,024	2208,201	2927,627	4362,979	7247,163	8700,478
4. WGc	2640,359	-3202,178	4359,561	6809,314	12248,767	15238,465
5. GR	590,087	708,105	9445140	1416,210	2360,349	2832,419
6. FE	1695,742	1796,914	1999,258	2403,947	3213,326	3618,015
7. FE(US$)	226,099$	239,589$	266,568$	320,526$	428,443	482,402
8. Net Effect	203,247	285,872	487,794	1030,126	2641,254	3705,568

Table 2 shows that the higher the import tariff, the higher efficiency losses. This is obviously indicated by net effect value which gradually rose from IDR 41.008 billion with 25% import tariff to IDR 885.122 billion with 120% (more than 2000 percent increase).

The government effort to reduce this net effect of efficiency losses on producer sector is diverting some of government revenue (import tax) to increase production efficiency, particularly with respect to the cost of technology development. It can be applied at the farmers level, in which most workers are involved. The forms of the technology development would involve introducing the best seeds, better technique of planting, production facilities (fertilizer, tools, and chemical products) in line with the local needs.

The implementation of import tariff in consumer level particularly for underprivileged farmers can be solved by giving them subsidies. In this case, the government needs to apply two price system (protection price for producers and subsidized price for poor consumers). Import duty policy aimed at protecting domestic sugar production in a short term period is reasonable. However, in a long-term period this policy will not be applicable. Besides it inflicts not only in consumers financial loss (they must pay higher price), but also on the domestic sugar industry which in turn remains inefficient for being repeatedly protected. Moreover, in free trading era this situation is not applicable for long-term period. Import duty should decline gradually. As a result, it enables domestic sugar producers to renew their production system with the intention to improve efficiency and competitiveness compared to the foreign sugar industry.

If the goal of import tariff implementation is to stabilize domestic price, it may not be effective because foreign price change will directly be transmitted to domestic price. If scarcity of domestic sugar commodity occurs, it will result in high price difference between domestic and foreign price, and a high import tariff will result in smuggling. Therefore, the import tariff influencing sugar commodity price in Indonesia should be controlled by the government.

Table 3 presents the welfare distribution with assumption that price elasticity toward supply is about 0,41 and toward demand is about -0,45.

The DRC value was calculated using the input and output value rates of cane sugar production in East java particularly in dry and wet fields in the annual planting period 1990/2008. This Cane sugar production in East Java constitute the basis of production cost considering that these fields are the biggest ones in Indonesia. As a result, calculating the DRC value for sugar cane planted in dry and wet fields adequately represent the national calculation.

The results showed that DRC value of sugar cane planting in wet and dry fields is less than 1 (DRC=0.860 in wet field, and DRC=0.700 in dry field) implying that sugar product competitiveness in Indonesia is higher than the related product from other countries. Therefore, the hypothesis that sugar product competitiveness in Indonesia is lower than the same product from other countres cannot be accepted. This calculation result is in line with Ratnawati (2006), who found that coefficient value of domestic resource cost (DRC), planted either in dry field or in wet field, is less than 1 (DRC<1). This indicates that Cane sugar producers planting cane either in wet field or in dry field is economically efficient in using domestic resources. In other words, sugar cane producers get the advantage to produce sugar product in order to fulfill the import substitution. For Indonesia, It had better produce local sugar commodity in the season of devise saving than import sugar. But in fact, the demand has not been fulfilled, hence, to support local sugar in Indonesia the government needs to import sugar.

Based on DRC value above, it cannot directly be interpreted. It must be noticed that there are lots of sugar factories in Indonesia (especially in East Java) have been aged and no longer efficient. The inefficient old small factories should be replaced as they reduce national sugar output and competitiveness

Besides, it is necessary to consider how to relocate sugar factories outside Java for cane area since they are continually limited, and sugar product is to compete with other commodity (especially rice). In Java, cane planted in wet field cannot compete with other plants. This case occurs because the income from cane plants is relatively lower, and cane plants need higher cost of production and longer time. From counting on DRC value above, it appears that the efficiency and sugar production competitiveness in dry field is higher than in the wet fields.

CONCLUSION

The result of the evaluation on import tariff implementation to sugar product in Indonesia above contribute the following conclusion and suggestion:

1. From the results on the effect of import tariff on welfare distribution, it is clear that the government revenue, change of consumer surplus, producer surplus, economic net loss in production and consumption and exchange gain economization, are influenced by the import tariff and elasticity price toward supply and demand, so that the welfare distribution value will be bigger.

2. Sugar product competitiveness in Indonesia by cane field calculation in East Java is higher than the same product from other countries as DRC is less than unity.

3. The evaluation results above show that Indonesia has not been able to meet sugar demand from local production. To increase sugar production, it is necessary to increase the purchase of government sugar (*provenue* cost) and to increase planting areas and productivity through technology reparation in the farming level.

4. It is suggested that there should be further research with wider scope of discussion to include accounting of sugar product competitiveness in East Java.

REFERENCES

Indonesian Statistic Bureau. (1990-2008) Indonesia Year Book, Jakarta Logistics Affair Agency. Statistic Bulog, BULOG. Jakarta

Ismanto, HS. (1992) Elasticity Of Demand Sugar Cane Commodity In East Java, Thesis Post Graduate Program Gajah Mada University. Yogyakarta.

Kustono, (1991) The ability of sugar cane industry to meet the demand in Indonesia Food Magazine No.II Volume 8 pp 45-53

Khudori. (2000) Revitalisation Of Sugar Cane Industry To Empowering The Economy. Paper On One Day Seminar Strategy To Develop Sugar Cane Industry Facing The Global Free Market. State Polytechnic of Jember

Ratnawati. (2006) The Study Of Agribusiness Efficiency System And The Policy To Develop Production And Distribution Of Sugar Cane In Indonesia. Bogor Institute of Farming. Bogor.

Indonesian Sugar Statistic and Development Center (P3GI) (2008). Statistic and Number, Company Production Year *2008*. P3GI. Pasuruan

S.M. Kiptiyah (2007). The Implication Of Sugar Price Policy And Distribution Welfare Of Consumer, Government, And Producers to meet the Sugar Cane demand. *Journal of Brawijaya University,* .6. 1, (In press)

Tsakok, Isabelle,. (1990) Agricultural Price Policy. A. Practitioners Guide To Partial Equilibrium Analysis. Cornell University Press New York