The Impact of Trade Liberalization on the Soybean Economic Performance in Indonesia

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ABSTRACT

This study intended to analyze the impact of trade liberalization on Indonesia soybean economic performance. Econometric model of Indonesia soybean economy was built through the simultaneous equations system. Parameter estimation was Two Stage Least Square method (2SLS). Forecasting performance and the formulation of policy alternatives was done by using the ex-ante simulation. The results showed as follow: (1) the main producers and exporters of soybeans are the U.S., Brazil, and Argentina, while the main soybean importer are China, Japan, and Germany, (2) full liberalization of world trade causes the rise of world soybean imports, and the reduced of world soybean exports cause the world soybean prices increase. For Indonesia, although the world soybean prices rise, but due to the implementation of full trade liberalization the price of imported soybeans become cheaper and resulting in falling prices and rising imports, and (3) the increased China imports and the decline in U.S. soybean production has increased the world soybean prices. For Indonesia, raising the world soybean prices led to rising soybean import prices so domestic prices of soybean rises and soybean imports decline.

Keywords: trade liberalization, econometric models, simulation

INTRODUCTION

Soybeans have a strategic role in Indonesia. Soybean was a source of vegetable protein consumed in processed form, namely tempeh, tofu, soybean sauce, tauco, soybean milk, and a variety of snacks [1]. In addition, soybean was the main raw material for feed rations, after corn [2][3]. The main source of animal feed protein derived from soybeans [4][5]. But, the greatest using of soybeans (83%) is as the main raw material for industries as tempeh (50%) and tofu (33%) [6].

Indonesia national soybean market experienced higher demand than the domestic soybean production. Since 1975, Indonesia's position shifted to a net soybean importer [7][8][9]. Indonesia soybean economic performance is less favorable after ratification the formation of WTO by the Law No. 7/1994. Indonesia soybean economic performance is becoming increasingly less profitable due to the monetary crisis (middle of 1997) and "pressure" the IMF (1998).

Indonesia soybean imports tend to increase, especially when Indonesia begun to liberalize trade. Initially, soybean imports averaged only 25% (1975-1998), rising to 61% (1999-2010). The increasing in soybean imports is begun since 1999. Indonesia soybean imports become higher. Under the agreement with the IMF (1998), monopoly on soybean imports by the National Logistics Agency (Bulog) should be abolished, this means every importer may import soybean [10]. This condition was accompanied by the abolition of import tariffs and value added tax (VAT) of soybeans. In addition, according to the Malian [11], United States of America (U.S.) as the largest producer and exporter of soybeans was provided export subsidies to stimulate soybean importer. Therefore Indonesian soybean importers use this facility. This condition was exacerbated by the activities of import and trade of soybean that according with Arifin [12] was "controlled" only by a few major players, which has shifted the role of Parent Cooperative Entrepreneur Tofu-Tempeh Indonesia (Inkopti) and Bulog.

Due to the liberalization of world trade, efforts to achieve soybean self-sufficiency must be more concern to external factors, in addition to internal factors. External factors, such as the full liberalization implementation of world trade, world demand for soybeans, and soybean supply the world, affect the world price. World soybean prices have a direct impact on the price of imported Indonesia soybean.

Full trade liberalization will occur when there are no any barriers on international trade. Based on the agreement at the WTO summit IV in Hong Kong in December 2005, all forms of export subsidies and related provisions abolished in 2013 [13][14]. Elimination of export subsidies was expected to enhance the competitiveness of Indonesia agricultural products [15].

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In addition, the increased China soybean import and the decreased of U.S soybean production suspected to have an impact on world soybean prices. As a small country with a market share of soybean imports ± 2%, these conditions will have an impact on the increased soybean prices imports in Indonesia. From the production aspect, this has positive impact on efforts to increase Indonesia soybean production. But from the demand aspect, it would be detrimental to industry tempeh and tofu as well as the consumers. Tempeh and tofu industry must buy soybeans with higher prices, so consumers have to buy tempeh and tofu with a more expensive price.

In relation with the above problems, the aim of this study is as follow: (1) to know the state of the world's soybean economy (producers, exporters, and importers of the world's soybeans, (2) to analyze the impact of full trade liberalization on economic performance of Indonesia soybean in trade liberalization era, and (3) to analyze the impact of external shocks of the major importing countries and a major exporter to economic performance of Indonesia soybean in the trade liberalization era.

MATERIALS AND METHODS

The data used in this study was time series in the period of 1978-2010. Data is obtained from various sources, namely the Central Statistics Agency, the Department of Agriculture, the Association of Indonesian Fertilizer Producers, Food Agriculture Organization (FAO), the National Agriculture Statistics Service-United States Department of Agriculture (NASS USDA), Economics Research Service-United States Department of Agriculture (ERS USDA), Earth Policy Institute, Soy stat, and World food.

Econometric model of the Indonesia soybean economy was grouped into two blocks, namely the domestic soybean market and world soybean market block. Details variables that make up each equation is as follows:

1. Soybean Domestic Market

Domestic market block consists of supply (harvested area, productivity, production, and imports), demand, and soybean prices.

(1) Soybean Harvested Area: $LPIN = a0 + a1PP + a2PJ + a3\,PF + a4\,LLPIN + \mu1$

(2) Soybean Producer Price: $PP = b0 + b1PKIN + b2LPP + \mu2$

(3) Indonesia Soybean Productivity: $YKIN = c0 + c1\,PP + c2PF + c3\,LYKIN + \mu3$

(4) Indonesia Soybean Production: $QKIN = LPIN * YKIN$

(5) Indonesia Soybean Demand

$DKIN = DKTP + DKTH + DKS$

$DKTP = d0 + d1PTP + d2POP + d3LDKTP + \mu4$

$PTP = e0 + e1PKIN + \mu5$

$DKTH = f0 + f1PTH + f2POP + f3LDKTH + \mu6$

$PTH = g0 + g1PKIN + g2LPTH + \mu7$

(6) Indonesia Soybean Imports

$IKIN = h0 + h1PI + h2DKIN + h3QKIN + h4ERI + h5LIKIN + \mu8$

(7) Indonesia Price Soybean Imports: $PI = (1 + RESTI)PKW$

(8) Indonesia Soybean Price:

$PKIN = i1IKIN + i2QKIN + i3DKIN + i4PI + i5ERI + \mu9$

Note:
LPIN = Soybean Harvested Area
PP = Soybean Producer Price
PJ = Corn Price
PF = Fertilizer Price
PTP = Tempeh Price
PTH = Tofu Price
PKIN = Indonesia Soybean Price
PI = Indonesia Price Soybean Imports
PKW = World Soybean Price
YKIN = Indonesia Soybean Productivity
QKIN = Indonesia Soybean Production
DKIN = Indonesia Soybean Demand

DKTP = Soybean Demand for Tempeh
DKTH = Soybean Demand for Tofu
DKS = Rest of Indonesia Soybean Demand
POP = Population of Indonesia's People
IKIN = Indonesia Soybean Imports
ERI = Rupiah exchange rate against dollar
RESTI = Indonesia Trade Restriction
LLPIN = Lag of Soybean Harvested Area
LYKIN = Lag of Indonesia Soybean Productivity
LPP = Lag of Soybean Producer Price
LDKTP = Lag of Soybean Demand for Tempeh
LDKTH = Lag of Soybean Demand for Tofu
LPTH = Lag of Tofu Price
LIKIN =Lag of Indonesia Soybean Imports

2. World Soybean Market

World soybean market made up of exports, imports, and world soybean prices.

(9) World Soybean Price: $PKW = j1IKW + j2EKW + j3LPKW + \mu 10$

(10) World Soybean Exports:

$$EKW = EKAS + EKBR + EKAR + EKSW$$
$$EKAS = k0 + k1PKW + k2QKAS + k3DKAS + k4NPRAS + \mu 11$$
$$EKBR = l0 + l1QKBR + l2DKBR + l3NPRBR + \mu 12$$
$$EKAR = m0 + m1PKW + m2QKAR + m3DKAR +$$
$$m4NPRAR + m5LEKAR + \mu 13$$

(11). World Soybean Imports:

$$IKW = IKJP + IKCH + IKJM + IKIN + IKSW$$
$$IKJP = n0 + n1PKW + n2QKJP + n3DKJP + n4NPRJP + n5LIKJP + \mu 14$$
$$IKCH = o0 + o1PKW + o2QKCH + o3DKCH + o4NPRCH + 5LIKCH + \mu 15$$
$$IKJM = p0 + p1PKW + p2QKJM + p3NPRJM + P4LIKJM + \mu 16$$

Note:
IKW = World Soybean Imports
IKJP = Japanese Soybean Imports
IKCH = China Soybean Imports
IKJM = Germany Soybean Imports
IKSW = Rest of World Soybean Imports
EKW = World Soybean Exports
EKAS = U.S. Soybean Exports
EKBR = Brazilian Soybean Exports
EKAR = Argentina Soybean Exports
EKSW = Rest of World Soybean Exports
QKAS = U.S. Soybean Production
QKBR = Brazilian Soybean Production
QKAR = Argentina Soybean Production
QKJP = Japanese Soybean Production
QKCH = China Soybean Production
QKJM = Germany Soybean Production
DKAS = U.S. Soybean Demand
DKBR = Brazilian Soybean Demand
DKAR = Argentina Soybean Demand
DKCH = China Soybean Demand
NPRAS = U.S. Nominal Protection Rate
NPRBR = Brazilian Nominal Protection Rate
NPRAR = Argentina Nominal Protection Rate
NPRJP = Japanese Nominal Protection Rate
NPRCH = China Nominal Protection Rate
NPRJM = Germany Nominal Protection Rate

LPKW   = Lag of World Soybean Price
LEKAR   = Lag of Argentina Soybean Exports
LIKJP   = Lag of Japanese Soybean Imports
LIKCH   = Lag of China Soybean Imports
LIKJM   = Lag of Germany Soybean Imports

Analysis procedure consists of model identification, parameter estimation, model validation, elasticity measurement, and model simulation.

1. Model Identification

Model identification was done through testing the model structure. Structural model identification formulation based on Order Condition was: $(K-M) \geq (G - 1)$,
Note:
K =   Total variables in the model (endogenous and predetermined variables)
M =   Identified variables (endogenous and exogenous variables) in the equation
G =   Total equation (total number of endogenous variables)

This model has 21 equations, which consists of 5 identity equations and 16 structural equations. From this model, it is obtained 21 endogenous variables, 37 predetermined variables (25 exogenous and 12 endogenous lag variables), so $K = 58$ and $G = 21$. The results show that the identification of each structural equation was done.

2. Parameter Estimation

This research uses Two Stage Least Square (2SLS) methods. The basic consideration was the method was practical, produces estimates that are consistent, easier, and simple [16]. In addition, the 2SLS method is less sensitive to changes in specification than the Three Stage Least Square (3SLS) method. Prediction model was computer application program of Statistical Analysis System/Econometric Time Series (SAS/ETS) version 9.1 for windows.

Each equation used the F test (simultaneous test) and the t test (partial test) to test whether exogenous variables significantly affect the endogenous variables. Coefficient of determination (R^2) was used to determine the goodness of fit model. Serial correlation test used was Durbin Watson test (DW test).

3. Model Validation

Statistical criteria for prediction validation were: Root Mean Square Error (RMSE), Root Means Square Percent Error (RMSPE), U-Theil coefficients [17]. RMSE and RMSPE statistics were used to measures of the deviation of variables actual values [18].

U-Theil coefficient (Theil inequality Coefficient) was a simulation statistical associated with error simulation. Proportion bias (U^M), variances bias (U^S) and covariance bias (U^C) was an indicator of bias based on the source. M^W indicates the occurrence of systemic error, for measuring the mean value simulation deviation of actual data. U^S reflect the model ability to follow the behavior of data from observed variables. U^C was a residual bias of U^M and U^S, often referred to as non-systematic error, where the value should be close to one.

4. Elasticity Measurements

Koutsoyiannis [15] states the value of elasticity can be used to see the sensitivity level of the endogenous variables in an equation for the change of exogenous variables.

5. Model Simulation

Model simulation was required to study the extent impact of changes in exogenous variables on endogenous variables. Simulation can be divided in half, historical simulation and ex-ante simulation.

Forecasting simulations performed on Indonesia soybean economic model. The conditions were as follows:
1. Simulation 1: full trade liberalization, both the exporter and importer countries, including Indonesia did not make trade restrictions at all, so the import prices equal world prices.
2. Simulation 2: the external shock in the importing country, such as China soybean imports increase by 30%.
3. Simulation 3: the external shock in exporting countries, such as soybean production decreased by 25%, due to the conversion of soybean acreage to corn acreage in the U.S..
4. Simulation 4: the combination of simulation 2 and simulation 3.

RESULTS AND DISCUSSION

General Model of Econometrics Economic Soybean Indonesia

Econometric model was representative enough to describe economic phenomena of Indonesia soybean, particularly the impact of trade liberalization on performance of Indonesia soybean economic. This was evident from the economic evaluation criteria and indicator value of determination coefficient statistic (R^2), F test, and DW test. Evaluation to economic criteria variables that make up the equation has a expected sign to economic criterion.

Most of the equations have high R^2 value. That is, the explanatory variables entered into the equation could describe the behavior of endogenous variables. F test for the entire equation shows that all explanatory variables, which make up the equation, simultaneously and significantly affect the endogenous variables. F test results are confirmed by the results of the t test (partial test) for each equation, at least one of the explanatory variables affect significantly (highly confidence level) to the endogen variables. Autocorrelation tested by DW against to the model. It shows the most equation have no autocorrelation symptoms.

Model Validation

Econometric model validation used was statistical indicators RMSE and RMSPE. This was represented by the deviation value, namely the difference between the actual mean with the mean predicted. This shows that the lowest deviation value (regardless of sign) was 0.0003% and the highest deviation was 6.8238%. With relatively low level of prediction error, the economic model built Indonesia soybean economic model was valid, because the predictions result were able to approach the actual value.

Econometric model validation uses statistical indicators of the U-Theil decomposition, namely U^M, U^S, and U^C. The results show that the lowest U-Theil was 0.0010 and highest U-Theil was 0.1979 and the average of U-Theil was 0.0669. The lowest U^M value was 0.0000 and the highest U^M value was 0.2600, while the average U^M value was 0.0162. The lowest U^S value was 0.0000 and the highest U^S value was 0.3700, while the average U^S value was 0.0524. U^C lowest value was 0.5300 and the highest U^C value 1.0000, while the average U^C value was 0.9305. Because U-Theil was relatively small, U^M, and U^S values close to zero, and the U^C value close to one, then the model was said to be quite valid and can be used in the simulation analysis.

World Soybean Economic
Main Producer and Exporter of Soybeans

Economic situation of the world soybean can be seen from the development of production, exports, and world soybean imports, and major countries exporting and importing soybeans. Situation of the world's soybeans can sharpen the analysis of the position of Indonesia in international trade in soybeans [19].

World soybean production is still bigger than the world's soybean demand. Average world demand for soybeans reached 105.75 million tons (1961-2010) while world soybean production reached 107.69 million tons. Meanwhile, the average world soybean exports reached 31.43 million tons (1961-2010) while world soybean imports reached 31.32 million tons.

United States (U.S.), Brazil, and Argentina is the world's leading producer of soybeans. The U.S. is the world's largest soybean producer with a market share of 49.50%, followed by Brazil 20.13% and Argentina 10.37%. Total market share of soybean production from three countries reached 80% (1974-2010).

U.S., Brazil, and Argentina is also a major exporter of world soybeans. The U.S. is the largest soybean exporter in the world with a market share of 63.13%, followed by Brazil 18.88% and Argentina 9.13%. Total market share of soybean exports from three countries reached 91.13% (1974-2010).

In addition, the U.S. is also the world's largest corn exporter. The United States is to develop ethanol made from corn. As a result, the demand for corn for ethanol has tripled, from 11% (2002) to 35% (2010) [20]. This is driving the price of corn in the U.S. and the world increased [21]. Similarly, according to Turzi [22], driven by national subsidies, nearly 40 percent of the corn grown in the United States is used for fuel, with prices of corn on the Chicago Mercantile Exchange rising 73 percent from June to December 2010.

Increase in corn prices due to corn demand for ethanol pushing corn production increased, including through an increase in corn acreage. Because corn competes with soybean in terms of land use, then it is converted soybeans into corn land. Conversion on a large scale has occurred in 2007. Data based Earth Policy Institute [20], the area of corn rose from 29 million hectares in 2006 to 35 million acres, while soybean area dropped from 30 million hectares to 26 million hectares.

Main Importer of Soybeans and the Position of Indonesia

China, Japan, and Germany is the world's major importer of soybeans. China is the world's largest soybean importer with a market share of 20.75%, followed by Japan 13.63%, and Germany 10.63%. Total market share of imported soybeans three countries reached 45% (1974-2010).

China is a net importer of soybeans since 1996 [23] and became the world's largest soybean importer since 1997 until now [9]. China soy demand increased drastically. China soy demand initially only 7.17 million tons (1964-1968), then doubled over, so be 15.91 million tons (1994-1998). In fact, demand in the period 2009-2010 increased again to be 61.05 million tons. This, according to Song, et al (2009) are caused by (a) revenue

growth (demand for *soy oil),* (b) the development of feed industry *(*soymeal demand), and (c) domestic and foreign investment along the coastal city of China.

Indonesia is a small country to soybeans commodity. On average (1976-2010), the position of Indonesia is an importer of soybeans which ranks 13th world [9]. In the period 1999-2003, imports of soybean Indonesia reached 3% of total world imports, but in the period 2004-2010, Indonesia imports stabilized at 2%. As for the U.S., Indonesia is a significant importer of soybeans, which in the period 2006-2009 Indonesia was ranked sixth and in 2010 was ranked fourth in the U.S. importer of soybeans [24].

Basic Conditions of Soybean Economic in Indonesia

Indonesia's soybean economic performance is affected by world soy economic conditions. From Table 1 it appears that the world soybean prices at USD 642.50 /ton, the price of imported soybean Indonesia reached USD 895.60/ton. At this price, the price of Indonesia soybean Rp. 14.24 million/ton and Indonesia soybean imports reached 1.91 million tons. With the harvest area of soybeans is only 0.65 million hectare and soybean productivity of 1.48 ton/ hectare, the production of Indonesia soybean only 0.97 tons. It means that domestic soybean production could only meet 32.91% of the total demand for Indonesia soybeans.

Table 1: Basic Conditions of Soybean Economic in Indonesia

No.	Variables	Basic Values
1.	Indonesia Soybean Harvested Area (LPIN)	653195
2.	Indonesia Soybean Productivity (YKIN)	1.48
3.	Indonesia Soybean Production (QKIN)	966266
4.	Indonesia Soybean Demand (DKIN)	2936209
5.	Indonesia Soybean Imports (IKIN)	1910885
6.	Indonesia Soybean Prices (PKIN)	14236301
7.	Indonesia Soybean Prices Import (PI)	895.60
8.	World Soybean Prices (PKW)	642.50

Simulation of External Shocks

The simulation analysis results for external shocks were presented in Table 2, both partially and simultaneously. Table 2 column 3 shows that the full liberalization implementation, without trade restriction (simulation 1), have an impact on the world soybean imports and world soybeans exports. World soybean imports increased 0.52%, Japan's imports of soybeans rose 26.01%, China soybean imports was 0.05%, and Germany soybean imports was 8.83%. World soybean exports fell 0.01%, where both U.S and Brazilian soybean exports rose 0.02%. On the other hand, Argentina soybean exports fell 0.23%. The increase in world soybean imports, followed by a decline in world soybean exports and it causes the world soybean prices raise 0.26%.

For Indonesia, although the world soybean prices rose from USD 642.50 to USD 644.20 (0.26%), full liberalization implementation (the world soybean price equal with price of imported soybeans) makes the price of imported Indonesia soybean decrease, originally USD 895.6 become USD 644.20 (28.07%). Cheaper imported soybean prices increase Indonesia soybean imports 10.07%. The fall in soybean prices was lowering the imported soybeans price in Indonesia, amounting to 18.34%.

Full liberalization implementation provides beneficial effects for tempeh and tofu industry and end consumers. Tofu and tempeh industry can buy soybeans at lower prices, while the final consumer can buy tempeh and tofu with a cheaper price. But the condition was detrimental to soybean producers in Indonesia. The fall of soybean prices will reduce soybean competitiveness. Therefore, the land, productivity, and soybean production decreased.

Table 2: Results of External Shocks Simulation

No.	Variables	Sim 1	Sim 2	Sim 3	Sim 4
			Changes (%)		
1.	Indonesia Soybean Harvested Area (LPIN)	-8.68	2.52	0.86	3.38
2.	Soybean Producer Price (PP)	-6.57	1.86	0.63	2.50
3.	Indonesia Soybean Productivity (YKIN)	-0.29	0.07	0.03	0.10
4.	Indonesia Soybean Production (QKIN)	-8.97	2.60	0.88	3.49
5.	Indonesia Soybean Demand (DKIN)	2.70	-0.70	-0.24	-0.94
6.	Soybean Demand for Tempeh (DKTP)	6.90	-1.71	-0.58	-2.29
7.	Tempeh Price (PTP)	-18.27	5.93	2.02	7.94
8.	Soybean Demand for Tofu (DKTH)	2.21	-0.57	-0.20	-0.77
9.	Tofu Price (PTH)	-2.47	0.67	0.23	0.90
10.	Indonesia Soybean Imports (IKIN)	10.07	-2.42	-0.82	-3.25
11.	Indonesia Price Soybean Imports (PI)	-28.07	10.34	3.52	13.86
12.	Indonesia Soybean Price (PKIN)	-18.34	5.95	2.03	7.98
13.	World Soybean Price (PKW)	0.26	10.34	3.52	13.86
14.	World Soybean Exports (EKW)	-0.01	0.32	-19.22	-18.91
15.	U.S. Soybean Exports (EKAS)	0.02	0.08	-45.84	-45.76
16.	Brazilian Soybean Exports (EKBR)	0.02	0.00	0.00	0.00
17.	Argentina Soybean Exports (EKAR)	-0.23	3.05	1.04	4.09
18.	World Soybean Imports (IKW)	0.52	20.06	-0.10	19.97
19.	Japanese Soybean Imports (IKJP)	26.01	-9.79	-3.33	-13.12
20.	China Soybean Imports (IKCH)	0.05	29.95	-0.01	29.93
21.	Germany Soybeao0l5.n Imports (IKJM)	8.83	-7.11	-2.42	-9.53

Description:

- Sim 1: simulation of full trade liberalization.
- Sim 2: simulation of China soybean imports increase by 30%.
- Sim 3: simulation of U.S. soybean production decreased by 25%, due to the conversion of soybean acreage to corn acreage in the U.S.
- Sim 4: the combination of simulation 2 and simulation 3.

China has becomes one of the world's largest importer of Song *et al* [25], Zhang and Yan [26], so China soybean imports will has major effect on world soybean imports. Column 4 of Table 2 shows the China soybean imports rose 30% in the era of trade liberalization (simulation 2). As a result, the world's soybean imports increased 20.06%, while world soybean exports rose only 0.32%. Because the increase in world imports was much larger than the world's soybean exports, the world soybean prices increased by 10.34%.

U.S. was the world's largest soybean exporter [25][9]. The decline in U.S. soybean exports will greatly affect the world's soybean exports. Table 2 column 5 shows the decline in U.S. soybean production by 25% in trade liberalization era (simulation 3) causes a decrease in U.S. soybean exports of 45.84%. The decline of U.S. soybean exports are followed by the increasing of Argentina soybean exports by 1.04%, while Brazil's soybean exports remain constant. The reason is the world's soybean exports decreased by 19.22%. On the other hand, soybean imports of Japan, China, and Germany also fell, respectively, 3.33%, 0.01% and 2.42%. Therefore, the world's soybean imports fell by 0.10%. The decline of world soybean exports was much larger than the world soybean imports. This led the world soybean prices rose by 3.52%.

Simulation for external shocks, the increased imports of Chinese soy and reduced U.S. soybean production in trade liberalization era are providing the same impact on the Indonesia soybean economy. Soybean prices rose and Indonesia soybean imports fell, but the changes vary. Therefore, if carried simulations together, the impact remains the same, but the change level was much greater. Simultaneous simulations of the increase China imports and the decline in U.S. production in trade liberalization era (simulation 4), resulting the Indonesia soybean price increases of 7.98% and Indonesia soybean imports decreased by 3.25%.

From production aspect, because Indonesia soybean prices increase, the price of soybeans at producer level rose. Therefore, the domestic soybean production rose. From the aspect of consumption, the increase in Indonesia soybean prices lead to lower Indonesia soybean demand (both for raw materials soybean and tofu) and the tempeh and tofu prices rose.

For the government, the tendency of soybean prices rise in trade liberalization era, if not well anticipated, it will take more foreign exchange. Therefore, agricultural extension efforts, through expansion and intensification of soybean land farming through the use of proper cultivation techniques and use improved seed, should be promoted.

CONCLUSION AND RECOMMENDATION

Conclusion

The main producers and exporters of soybeans are the U.S., Brazil, and Argentina. While the main soybean importer are China, Japan, and Germany. Full liberalization implementation of world trade cause the increase of world soybean imports and the decrease of world's soybeans exports, so the world soybean prices increase. For Indonesia, although the world soybean prices rise, but due to the implementation of full trade liberalization the price of imported soybeans become cheaper, resulting in falling prices and rising imports. The increased China imports and the decline in U.S. soybean production increased world soybean prices. For Indonesia, rising the world soybean prices led to rising soybean import prices so domestic prices of soybean rises and soybean imports decline.

Recommendation

The soul of trade liberalization was to create a more efficient and fair trade. Trade distortions must be reduced, but only up to an agreed stage, not at the lowest possible point. In addition, the justice aspect was also a vital spirit for trade liberalization. Therefore, Indonesia must play an active role to encourage developed countries to remove all subsidies to the farmers. World soybean prices that tend to increase was an indication of soybean inventories tend to be thinner. Therefore, in order to maintained the continuity and the availability, and reduce the burden of foreign exchange to import soybeans, then the government should seriously increase domestic production, through a policy in optimizing productivity and soybean fields extensification.

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