

The Impact of Rising Soybean Prices to Tofu Industry Small Scale in Medan

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Abstract

Tofu industry in Medan has small-scale enterprises with limited budget so that when the price increases it will affect business conditions of tofu. This study aims to determine the impact of rising soybean prices to tofu industry small scale in Medan. This research use the case study method (case study). The analytical method used is descriptive method. The increase in soybean prices by 13% (2010-2014) led to price of tofu an increase of 15.97% and has an impact on tofu volume production decreased by 17.44%. The decreased in production volume led to receipts decreased by 4.26%. tofu industry revenue amounted to 40.12% or from Rp.2.015.199 be Rp.1.206.765. The tofu maker anticipate the increase of soybean prices by increasing selling prices to cover production costs and reduce the size of tofu in order to keep the customers. The rated of R/C on total costs decreased by 12.54% from 1.38 in the condition before the increase in soybean prices to 1.21 on the condition after the increase in soybean prices. Tofu enterprises are still possible to be run because the value of R/C is more than one, but the decreased in the value of R/C indicates that the income of tofu maker will decrease.

Keywords: soybean price, tofu industry, income analysis, R/C ratio.

1. Introduction

Agricultural commodities in general are easily damaged so it needs to be consumed directly or processed first. Called agro-industrial processing, can increase the added value of agricultural commodities. Agro-industrial activities is an integral part of the development of the agricultural sector. the agro-industry is able to transform primary products into refined products. Primary products that do not have added value, into products that have high added value.¹

Soybean (*Glycine max*) is a commodity that has long been cultivated in Indonesia and the prospect of its development

is still very bright. This gives a hint that soy has an economic and social value is high, and the increasingly strategic role in the order of human life. Soybean is an agricultural commodity that is urgently needed in Indonesia, both as an ingredient in human food, animal feed, industrial raw materials, as well as refresher material. Soybeans contain high levels of 40% protein and 10-15% fat. Until now soy is still a vegetable source of food protein most cheap so it is not surprising that soybean demand total for the food reaches 95% of the total demand of soybean in Indonesia.²

Table 1. Soybean Production Development of North Sumatra Province Years 2010-2014

Years	Harvested area (Ha)	Production (Ton)	Productivity (Kw/Ha)
2010	7.803	9.439	12,10
2011	11.413	11.426	10,01
2012	5.475	5.419	9,90
2013	3.126	3.229	10,33
2014	5.024	5.705	11,36

Source: The Ministry of Agriculture is processed in 2015

Table 2. Domestic Developments in the Production, Import and Supply 2010-2014 National Soybean

Years	Domestic Production		Import		Supply	
	Ton	%	Ton	%	Ton	%
2010	907.000	34,26	1.740.505	65,74	2.647.505	100,00
2011	851.000	28,95	2.088.616	71,05	2.939.616	100,00
2012	843.000	12,75	5.767.015	87,25	6.610.015	100,00
2013	780.000	12,74	5.341.159	87,26	6.121.159	100,00
2014	921.000	21,47	3.367.977	78,53	4.288.977	100,00

Source: Secretariat General Agricultural processed in 2015

In 2010, soybean production in North Sumatra Province reached 9.439 tonnes to 5.705 ton in 2014. The decline in harvested area in line with productivity and soybean crop production in Indonesia on the wane. This is due to the conversion rate of agricultural land in North Sumatra, which continues to increase, especially in the central area of soybean production. Conversion of land which led to reduced production of soybean in North Sumatra is certainly more difficult for the government to meet the demand of soybean that can not be covered by the existing supply that needs to increase soybean imports.

Soybean production continues to decline each year causes the level of dependence on soybean imports, Indonesia is likely to increase from year to year. 2014 Indonesian soybean imports reached 78.53 percent or 4,288,977 tons, while production in the country reached 21.47 percent, or 921,000 tons. soybean demand is high but can not be met by the availability of local soy as an

alternative cause of soybean import volume is increasing every year. Indonesian government's dependence on imported soybean increased, causing soybean as raw material for making business out also increased.

The study results showed that tofu of protein-rich high-grade, high-protein complementation properties, ideal for food diet, low in saturated fat and cholesterol free, rich in minerals and vitamins, natural foods are healthy and free of chemical compounds poisonous. Tofu is easily damaged or rotten.³

Soybean prices affect the manufacturers tofu, soybean price increase occurred due to import soybeans from other countries which are the raw material of tofu as one of the specialties in Indonesia. Rising soybean import tariffs pretty bad impact on the Indonesian economy rather than the terms of trade. Rising soybean prices caused by several factors, among others, domestic production is still minimal, the rupiah against the US dollar and the effects of erratic weather.⁴

Table 3. Local Soybean Prices in North Sumatra 2010-2014

Month	Unit	Years				
		2010	2011	2012	2013	2014
Jan	Rp/Kg	7.000	8.033	7.875	9.260	8.100
Feb		6.833	8.367	7.875	9.060	8.267
Mar		7.000	8.367	7.875	9.000	8.267
Apr		7.000	8.367	7.750	9.000	8.267
Mei		7.167	8.000	7.750	8.900	8.267
Jun		6.850	8.000	7.875	9.350	8.100
Jul		7.017	8.000	7.800	9.110	8.267
Agu		7.183	8.000	8.063	9.900	8.267
Sep		7.183	8.167	8.500	11.100	8.433
Okt		7.017	8.167	8.500	10.460	8.350
Nop		7.350	8.500	9.250	10.460	8.600
Des		7.417	8.167	9.300	10.460	8.767
Average		7.085	8.178	8.201	9.672	8.329

Source: BPS, Statistics Producer Price Processed in 2016

Based on the development of local soybean prices in North Sumatra from the year 2010 - 2013 is constantly increasing prices ranging from Rp. 7,085 / kg to Rp. 9672 / kg. Then declined in the following year is Rp. 8329 / kg. It is very impacting to smooth the business for manufacturers of tofu because this industry has a small scale with a small capital and access to loan funds are also limited. Medan city has several industrial centers tofu spread over several districts. One area is the famous district of Medan Deli and several other areas such as District of Medan Marelan, District of West Medan, District of Medan Petisah, District of Medan Polonia, and the District of Medan Selayang.

2. Research Methods

This method uses the case study method (case study) research that is used to look directly into the field, as the case study is a method that describes the type of research on a specific object during the period.

2.1 Methods Siting

Determination of the study area is purposive sampling .or intentionally, namely in the city of Medan. Medan is not a production center soybeans, but in Medan

there are many industrial businesses tofu that already run successfully for many years.

2.2. Sampling Methods

The sample in this study is the industrial business owners tofu that produce white tofu small scale in the city of Medan. and is willing to be interviewed. Selection of the samples used in the industry tofu this study using nonprobability sampling technique, namely snowball sampling.

2.3. Analysis Method

The analytical method used in this research is descriptive method.. The analysis was conducted in the form of profit analysis, receipt and analysis of R / C ratio. To determine the amount of profit-making business idea can be calculated using the formula (Kasim, 2004). Calculation analysis of the following advantages:

$$I - TR - TC$$

$$TC = FC + VC$$

I = Income

TC = Total Cost

TR = Total Revenue

FC = Fixed Cost

TC = Total Cost

VC = Variable Cost

Analysis of R / C ratio or the balance of receipts and expense analysis is a comparison between the number of admissions to the total outlay. The larger the value of R / C, the better the business. To generate success rate craftsmen, Mathematically it can be used the following formula:

$$RCR = \frac{\text{Total Revenue}}{\text{Total Cost}}$$

the decision-making criteria as follows:

- a. $RCR > 1$, the effort is worth it.
- b. $RCR = 1$, the business is not profitable but did not suffer losses.
- c. $RCR < 1$, the effort is not worth it.

3.Results and Discussion

Analysis of operating income is the difference between revenue and business expenses that occurred during the study. Then compared with a profit after the price increase soybean 2012-2013. How to calculate the costs and revenues are nominal approach does not take into account the time value of money. In this case the change is the price of soybeans, while other prices are considered fixed.

The increase in soybean prices affect business conditions, especially the industry of tofu in Medan, both directly and indirectly. These impacts include the use of raw materials, production volume, selling prices, business expenses, revenue and income craftsmen of tofu.

3.1 Impact on Use of Raw Materials

Table 4. Percentage Use of Raw Material Preparation Tofu/ Box

Componen	Before increase Soybean Prices	After Increase Soybean Prices	Percentage (%)
RawMaterial(kg)	575	492	-14,43
Production (box)	367	303	-17,43
Composition soybean(Kg/box)	1,56	1,62	3,84

Source: Primary Data processed in 2016

Table 5. Use of Total Production Costs Making Tofu

Soybean is the main raw material tofu and hold the largest percentage in the cost of production so that the increase in soybean prices led to the tofu and difficulties in running its business. Here are more details can be seen in Table 4.

According to the table 4 can be seen the condition before and after the increase in soybean prices. Prior to the increase in soybean prices, the average use of 575 kg of raw material. While the condition after the increase in soybean prices average use of raw materials decreased by 492 kg. The increase in soybean prices in 2012-2013 led to the reduction of raw materials amounted to 14.43%. Based on the weight of tofu or soybean raw material use to output per box tofu where the condition before increasing soybean prices was 1.56 kg / box, meaning that every production tofu perbox using soybean raw material of 1.56 kg. While at the time conditions after the increase in soybean prices, weights out an increase of 3.84% ie 1.62 kg/box.

3.2 Impact on Production Costs

The cost analysis is required by each business activity to determine the amount of funds that must be spent to make a product. Similarly, the industrial enterprises tofu in Medan. Soybean is the main raw material tofu and hold the largest percentage in the cost of production so that the increase in soybean prices led to the tofu impediment in running the business.

Component	Before increase Soybean Prices (Rp)	After increase Soybean Prices (Rp)	Percentage (%)
Variabel Cost (VC):	5.137.987	5.636.710	9,71
- Soybean	3.876.667	4.420.833	14,04
- Labor	789.167	789.167	-
- Chioko	39.700	33.300	-16,12
- Solar	86.870	76.160	-12,33
- Firewood	215.000	190.833	-11,24
- Plastic	30.583	26.417	-13,62
- Transport	100.000	100.000	-
Fixed Cost (FC):	125.525	125.525	-
- Electric	53.333	53.333	-
- PBB	3.300	3.300	-
- Building Rent	40.000	40.000	-
- Depresiasi	28.892	28.892	-
TC(VC + FC)	5.263.512	5.762.235	9,47

Source: Primary Data processed in 2016

The largest costs in the business of making tofu is the cost for the purchase of raw material soybeans. Costs incurred for raw material soybeans before the increase in soybean prices is Rp. 3.876.667 and after the increase in soybean prices for the raw material costs increased by 14.04% ie Rp. 4.420.833.

According to the table 6. can be seen that the cost of raw materials of soy per box before the price increase soybean Rp. 10.753. Meanwhile, after the increase in soybean prices, raw material costs increased 37.85% in the amount of Rp.14.574. The total cost of making tofu per box increased by 30.95% ie at the time before the rise in soybean prices the total cost per box is Rp. 14.355, then after the increase in soybean prices the total cost per box is Rp. 18,997. This makes the tofu anticipate by how far tofu per box size and increase the selling price per box tofu so as to cover increased production costs.

3.3 Impact on Production and Pricing

The increase in soybean prices in addition to impact on the use of raw material soybeans also affects the volume of production and the selling price of tofu. For more details can be seen in Table 6.

On average tofu produced in one production process is 367 boxes at a price of Rp. 19,833 per box, while the condition after the price increase average soybean tofu production during one process is 303 boxes at a price of Rp. 23,000 per box. The increase in soybean prices led to total production of tofu decreased by 17.43% while the price of tofu per box rose only 15.97%. The tofu and soybean prices rise anticipate that by increasing selling prices tofu to cover production costs and reduce the size of tofu with the aim of maintaining customers.

Table 6. Production and Pricing Tofu Before and After Price Increase Soybean

Component	Before increasing Soybean price	After increasing Soybean price	Percentage (%)
Production (box)	367	303	-17,43
Price (Rp/box)	19.833	23.000	15,97

Source: Primary data processed in 2016

Tabel 7. Industry Revenue Tofu Before and After Price Increase Soybean

Componen	Before Increase soybean prices	After Increase soybean prices	Percentage (%)
Production(box)(Q)	367	303	-17,43
Price (Rp/box) (P)	19.833	23.000	15,97
Revenue (P.Q)	7.278.711	6.969.000	-4,26

Sources: Primary data processed 2016

3.4 Impact of Revenue

Reduction in the number of production causes the reception average of tofu industry decreased. To more clearly seen in Table 7.

Based on the above table it can be seen that a decline in reception where the condition before the price increase soybean receipts of Rp. 7,278,711, while after the increase in soybean prices caused revenue to drop to 4.26% from Rp. 6.969 million

3.5 Impact On Income

Lower revenue caused income entrepreneurs also decreased. Income is the difference between revenue and total costs. The total income affect the amount of earned income entrepreneurs. Revenue to be one way of measuring the success of a business. A business that is run will always expect revenue or maximum profits earned. Based on the survey results in the study, tofu confessed

reduced revenue after the increase in soybean prices. It is more due to a production which also reduced. Soybean prices are constantly rising costs and craftsmen higher earned income decreases. To more clearly seen in Table 8.

According to the table 8. shows that with the increase in soybean prices will affect income earned tofu in Medan. Based on the above table shows that the income received craftsmen decreased. This is because the craftsmen reduce the amount of production, but the increase in selling prices slightly. On the condition before the price increase soybean industry revenue reached Rp. 2,015,199 each one of production but after the price increase revenues soybean industry knows decreased 40.12% in the amount of Rp. 1.206.765. To see revenue / profit per box of tofu industry can be seen in Table 9.

Table 8. Income of Tofu Industry Before and After Price Increase Soybean

Component	Before Increase soybean prices	After Increase soybean prices	Percentage (%)
Total Cost (TC)	5.263.512	5.762.235	9,47
TotalRevenue (TR)	7.278.711	6.969.000	-4,26
Income (TR-TC)	2.015.199	1.206.765	-40,12

Source: Primary data processed in 2016

Table 9. Income of Tofu Industry Before and After Increase Soybean Price per Box

Component	Before Increase soybean prices	After Increase soybean prices	Percentage (%)
Cost/box (Rp)	14.355	18.997	30,95
Price/box (Rp)	19.833	23.000	15,97
Income/box (Rp)	5.478	4.003	-23,31

Source: Primary data processed in 2016

Table 10. Analysis of R / C Ratio Industry Tofu

Component	Before Increase soybean prices	After Increase soybean prices	Percentage (%)
Total Cost	5.263.512	5.762.235	9,48
Revenue	7.278.711	6.969.000	-4,26
Analysis R/C	1,38	1,21	-12,54

Source: Primary data processed in 2016

According to the table 9. shows that with the increase in soybean prices will affect industry revenues tofu. Based on the above table shows that the tofu industry revenue to decline. This is because an increase in production cost per box is bigger (30.95%) compared to the sales price increase (15.97%). On condition before soybean prices increased revenue earned per box tofu Rp. 5478, however, after price increases soybean tofu industry revenue declined 23.31% in the amount of Rp. 4,003.

3.6 Feasibility Analysis of R / C Ratio

The feasibility analysis that is used is the analysis of admission fees or R / C ratio. Analysis of the balance between the total revenue with total cost of testing is a type of business profits. The criteria used in this analysis is that if the value of R / C is greater than one, then the business is said to be lucky and be eligible to run for the amount of revenue is greater than the costs incurred. Rated R / C is smaller than one, then the business is said to be losing money and is not eligible to run because of the amount of revenue is less than the costs incurred. R / C is equal to one then venture out to experience the break-even point or a break even venture because total income is equal to total costs. The following table analyzes the R / C ratio of the industry tofu.

Based on table 11 it can be seen that the value of R / C on total costs decreased by 12.54%. Prior to the increase in soybean prices the value of R / C on the total cost was 1.38, meaning that for Rp 1.00 cash cost incurred able to provide receipts amounting to

Rp 1.38. After the increase in soybean prices the value of R / C on total costs decreased to 1.21, meaning that for Rp 1.00 total costs incurred able to provide receipts amounting to Rp 1.21.

Conclusion

From the results of this study concluded:

1. The increase in soybean prices by 13% (2010-2014) led to price of tofu an increase of 15.97% and has an impact on the decline income of tofu industry amounted to 40.12% or from Rp.2.015.199 be Rp.1.206.765
2. the value of R / C ratio of the industry tofu decreased 12.54% from 1.38 to 1.21. Industry business idea is still in the category feasible to be developed and this led the industry still survive.

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