

**ANALYSIS OF THE APPLICATION OF MANDATORY  
NATIONAL STANDARDS OF INDONESIA (SNI):  
THE CASE OF SNI FOR WHEAT FLOUR**



**THESIS**

Submitted in partial fulfillment of the requirements for  
the Degree of Master of Economics

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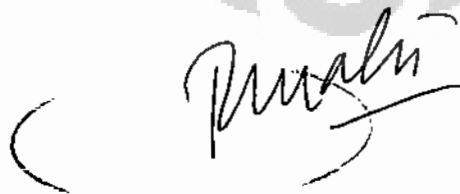
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**ABSTRACT**

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Analysis of the Application of Mandatory National Standards of  
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Nowadays, trade has become more liberalized, tariff has steadily fallen but many of non-tariff barriers (NTBs) to international trade remain or even increase. Regulatory measures such as technical standards on quality offering protection for human, animal, or environment. However, the purpose sometimes blur with the interest of domestic industry. Thus it can be the impediment of trade, which can decrease welfare. Indonesia also has its own standards, the National Standards of Indonesia (SNI).

One of the standards is SNI for wheat flour, which application has been mandatory by Government. The purpose of the regulation is to increase nutritious value of society, however to some extent it is intertwined with the purpose of protecting domestic industry by using SNI as technical barriers, even though it is equally imposed to both domestic and foreign producers.

This thesis shows that until 2006 the application of mandatory SNI for wheat flour in Indonesia did not act as technical barriers, although this thesis shows that the application of mandatory SNI has caused an increase in production cost and transaction cost of both local and foreign wheat flour producers.

The increase in domestic production cost with the raw materials approach calculates only 0.01 percent from total cost of raw material.

While the effect of increase in costs for foreign producer, by using quantity of export approach, shows that countries with high export to Indonesia are not strongly affected and they keep on exporting.

Increases in transaction costs come from the certification cost, certification procedures and quality control mechanism. There is around 380% difference in certification fee between domestic and foreign producer. There are also other potential transaction costs that might incur both to domestic producers or importers such as lobbying cost, queuing cost, information cost and even bribery cost

In average, the quantity of imported wheat after the implementation (2002-2006) increased for around forty percent, although during the first two years of the application it experienced a slight decrease. However, the increase in quantity of imported wheat flour did not very much influence its market share in domestic market. Data shows that the market share of imported wheat flour did not experience any increase during 2002-2006. On the other hand, the average productions of domestic industry has increased for around fifty percent during 2002-2006, while its market share still take a dominant position with more than eighty percent.

Finally, this research show that the increase in production costs and transaction costs due to the application of mandatory SNI is not significance in influencing domestic production, quantity of import and market share.

*Key words: wheat flours, technical barriers to trade, standards, SNI, transaction costs.*

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Last but not least, I believe that this research is way beyond perfect. Therefore, suggestions and critics are welcome to enhance this research.

Depok, January 2008

Danang Prasta Danial



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# CHAPTER I

## INTRODUCTION

### I.1. Research Background

The world's trade has become more liberalized nowadays. Since the Breton Woods convention in 1945 that resulted in an unofficial *de facto* international agreement known as the General Agreement on Tariffs and Trade (GATT) which followed by the establishment of the World Trade Organization (WTO), the industrial countries' tariff (customs duties) rates on industrial goods had fallen steadily to less than 4% (the WTO, 2000). GATT had provided the rules for the international trade system. Beside the reduction of tariffs, the elimination of quotas, subsidies, export taxes and other restrictions have also encouraged trade.

However, as tariffs and other restrictions decreased, many of non-tariff barriers (NTBs) to international trade are remained or even increased. Regulatory measures, such as technical standards and national regulations on quality, offer protection to human, animal, or plant life or health. This measure, however, sometimes is blurred with the interest of domestic industry protection and the reason of national-hood. They then become the main impediments to trade liberalization.

Mayer (1982) stated that most countries' trade authorities attempt to control the quality of imported commodities. Generally, commodities have to meet well-defined standards on ingredients, features, packaging, etc., before they are approved to be marketed in a given country. The publicly stated justification is the consumer protection. However, foreign competitors assert that protection of domestic industry is the real reason for import standards. It is claimed that imports

standards result in significant impediments to the free flow of international traded good.

The same matter was also pointed by Calvin and Krissoff (1998), they showed that the use of minimum standards somehow restricts trade more than what tariff does. Using tariff equivalent method they show that the use of standards is higher than tariff in protecting domestic industry. While Maskus, *et.al* (1999) stated that mandatory regulations is imposed by governments at the borders thus can produce serious distortions in commercial markets.

Although the existence of technical measures such as technical regulations, standards, and conformity assessment procedures can enhance the flow of goods by providing reassurance to potential foreign purchasers, more frequently, technical measures create additional hurdles for current and potential exporters to overcome by raising the costs of producing export-oriented goods. To the extent that such a measure or its application discriminates against foreign producers or it is more trade restrictive than is needed to fulfill a legitimate policy objective, which may constitute a TBT or Tariff Barriers to Trade (Popper, *et.al*. 2004).

One of the mechanisms that has recently acquired relevance is the use of minimum quality standards which is biased against imports. As norms and standards usually apply to both national and foreign production, they do not correspond to the classical forms of protectionism, which openly discriminate against imports. However, minimum standard may cloak protectionist intentions. Moreover, it is even possible that protection is the only goal of the standard (Fischer and Serra, 1999).

Nevertheless, article XX of the GATT 1947 allows governments to set their own standards and regulations on trade in order to protect human, animal, or plant life or health. The condition is that the governments do not discriminate among countries or use the standards and regulations on trade as concealed protectionism. Beside the GATT's article, other two more specific agreements that support standard and regulation are the WTO's agreements which deal with food safety and animal's and plant's health, or the Sanitary and Phytosanitary Measures (SPS) Agreement, and the one that deals with product standards, or Technical Barriers to Trade (TBT) Agreement.

The SPS and TBT Agreements are generated with the purpose to minimize unnecessary obstacles in regulations, standards, and testing and certification procedures. These agreements allow countries to set their own standards, but they require that the standards should not arbitrarily discriminate between countries with similar conditions. Although the core is non-discrimination, the standards can be different from internationally accepted levels only when there is scientific evidence supporting the decision.

Indonesia as a developing industrial country also has its own standards. The National Standard of Indonesia (SNI – *Standar Nasional Indonesia*) is a standard set by National Standardization Body (BSN – *Badan Standardisasi Nasional*), a government agency with the duties to set, develop and promote national standards on behalf of consumer and environmental protection, and to increase the national economic through improving industrial efficiency and output quality as to create economic competitive advantage and national welfare. Until now there are around six thousands standards that already set by BSN with only around sixty products that the application is mandatory.

The purpose of mandatory SNI as government policy is to protect human, animal and environment. Government tries to make sure that everything which distributed in domestic market whether it is domestically produced or imported is safe to be consumed and is not endangering animals and the environments. However, the policy might have other interest; the most common is domestic industries protection.

The application of mandatory SNI thus can be used to eliminate competition from foreign producers. The mandatory application of SNI regulations, which regarding to the compliance of SNI requirements sometimes is not imposed equally between domestic and foreign producers. Although legally it is equally imposed for domestic and foreign producers, sometimes there are other regulations related to the implementation which are different between domestic and foreign producers. Thus, the purpose of the regulation can be seen as protection to the domestic industry by limiting domestic market from imports.

In this research I intend to investigate the role and implication of the application of mandatory SNI for wheat flour in the perspective of industry and trade. I take the case of wheat flour since wheat flour has become an important commodity that can be considered as supplement and carbohydrate source which is able to replace the rice. Besides, studies show that there is a shift of consumption pattern from rice to wheat flour based food<sup>1</sup>. Thus any changes in policy might take effect to the stakeholders.

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<sup>1</sup> The decrease of per capita consumption of Indonesia's main staple and the increase of per capita consumption of wheat-based products showed in Pingali (2004), while the rise of income as well as urbanization that become the driving forces in the growth of wheat consumption as mentioned in Huang and David (1993), are some empirical studies that show the shift of consumption pattern.

The history of wheat flour started in the sixties. As the supply of domestic rice could not fulfill the local demand and supply of world rice was also very limited. The Government of Indonesian tried to shift the patterns of people's consumption from rice to wheat flour based foods to reduce the dependency of rice. The high supply of wheat flour from the world is also become one of the reasons of the policy. Other reason is the fact that the wheat market less volatile than the rice market.

Along with the wheat flour, domestic industry of wheat flour was established at the end of the sixties. At that time, the industry just took milling orders from the government as the wheat flour sector was fully regulated. Government took control of the productions and distribution of wheat flour, started from determining the quantity of wheat imports as raw material, the amount of productions as well as the allocation of distribution, and determining how much the quantity of the imported wheat flour.

The first established firm was Bogasari. As the first firm in the industry which founded in 1969 and started its operation in 1971, Bogasari has many privileges from the government throughout its long history. Bogasari took orders from government to produce and distribute wheat flour for the area of Java, Sumatera and some of mid part of Indonesia. Nowadays Bogasari becomes the biggest firm with its share of total domestic production of around 75%. This happen because it has been serving a big market in Indonesia for almost thirty years. Meanwhile Berdikari that was established in 1973 only served some of mid part of Indonesia and the east part of Indonesia. The other two firms were established in the nineties.



Since the first of the five years development planning, the government of Indonesia has more concerned on the problems of developing foods and nutrition sectors. That is the availability of providing affordable and nutritious foods to increase the quality of human resources and the living level as its goals. Government set minimum standard for commodity or product that is consumed by most of the people. Wheat flour is one of the products that are considered to be a media to increase people's nutrition.

Standard for wheat flour scope in SNI-01.3751-2000 (SNI for wheat flour), as the revision of the same SNI issued in 1995 with lower requirement to comply, requires to fortify wheat flour with supplementing micronutrients of iron (Fe), zinc (Zn), B1 vitamin (thiamine), B2 vitamin (riboflavin) and pholate acid. The use of this SNI has been mandatory since 1998 through the Ministry of Health's Decree Number 632/1998, which mandates domestic producers to comply with SNI. Latter on in 2002, the use of SNI for wheat flour is mandatory to all wheat flour distributed in Indonesia's market, domestically produced and imported wheat flour, through the Ministry of Industry and Trade Decree Number 153/2001.

However, the mandatory application of SNI for wheat flour, which is purposed to increase the nutrition value of the society and to create fair competition in industry and trade sectors, seems also containing some political interests. The domestic industry of wheat flour that has already applied the SNI since 1998, seems of being threatened by the imported wheat flour that coincidentally has privilege from the deregulation policy which open domestic market and free imports with zero percent duties. Besides, various news articles reported that there was a lot of cheap wheat flour came from imports flooding the domestic market during 2000-2004.

Due to that condition, the association of the industry asked the government to impose duties to imported wheat flour, such as 5% of most favor nation (MFN) duties and anti-dumping duties of imported wheat flour from certain countries. However, government did not fulfill the industry's requests. Although government want to protect domestic industry, imposing import duties to imported wheat flour might violate the government's commitment to the WTO which cores are the trade liberalization and non-protectionist policy. The policy that came up at that time and could be seen as an effort to protect domestic industry was the mandatory use of SNI for wheat flour.

As domestic industry has already applied the SNI since 1998, the mandatory application of SNI for wheat flour is expected to increase the production costs of foreign producers through the fortification cost, which finally increase in the price of imported wheat flour, therefore domestic producers can compete in domestic market. Thus, this can eliminate competition from foreign producers in domestic market.

However, despite the possibility of the political intents in the application of mandatory SNI for wheat flour, the use of SNI will affect the costs for producer. There is some possible effect that might happen due to the increase in costs, one of it is the decrease in production. Calvin and Krisoff (1998) show that rise in TBT will increase in costs of production and might reduce in productions. From the point of view of the import-substituting firm, a minimum standard that excludes the foreign firm has the favorable effect of eliminating competition in the local market (Fischer and Serra, 1999).

Other possible effect from the application of mandatory SNI is the decrease in the quantity of imports in domestic market. Fischer and Serra (1999) pointed out that foreign producers decide not to export when the cost of producing two standards is too high and exports represent a small fraction of the foreign firm's sales. It would be too expensive to either produce in two standards or to raise the quality of its whole production relatively to the benefits of exporting.

As application of mandatory SNI can affect producers, the investigation on whether the application of mandatory SNI affects the producers – which might increase the cost and price – and acts as non technical barriers to trade, thus protecting the local industry is the driven motif of this research.

## **I.2. Research Questions**

In order to investigate whether the application of mandatory SNI affects on producers and acts as technical barriers to trade, in which protecting the local industry, two research questions that become the focus of this study are:

1. Does the application of mandatory SNI for wheat flour affect domestic producers and foreign producers of wheat flour:
  - a. How is the application of mandatory SNI for wheat flour affecting domestic and foreign producers' cost;
  - b. Is the application of mandatory SNI for wheat flour affecting domestic production, market share and market structure of domestic industry;
2. Does the application of mandatory SNI for wheat flour significantly affect the quantity of imports and act as technical barriers to trade?

### **I.3. Research Objectives**

The objectives of this research are:

1. To analyze whether the application of mandatory SNI for wheat flour affect the domestic and foreign producers of wheat flour in:
  - a. Costs;
  - b. Production, market share and market structure of domestic industry;
2. To analyze whether the application of mandatory SNI for wheat flour is significantly affecting quantity of imports and acting as technical barriers on imports of wheat flour or not.

### **I.4. Research Methodology**

In this research I will use qualitative and quantitative analysis as follows:

#### **I.4.1. Qualitative Analysis**

The qualitative analysis will be done to analyze the increase in costs that must be borne by domestic and foreign producers, in order to see whether there are any significant changes in domestic production and its market share, and imports of wheat flour and its market share due to the compliance with the requirement of SNI and other regulation related to the mandatory application of SNI.

#### **a. Methodology**

The increase in cost will be seen through the approach of increase in production costs and transaction costs. This analysis will be done because the mandatory application of SNI is not only related to the increase of production costs, but also in the

increase of costs which related to transaction cost such as certification costs etc.

Meanwhile, to see if there are any changes in domestic production and domestic market share, I will use the approach by seeing whether there is a significant change before and after the application of mandatory SNI for wheat flour in domestic firms' production. Though, this analysis will be conducted only to the biggest firm, while for the other three firms will merely be observed on their average and total domestic production.

In analyzing whether the application of mandatory SNI for wheat flour is significantly affecting imports of wheat flour, I will examine the possibility of any significant changes in imports by comparing the period before the application of mandatory SNI (1998-2001) and after the application of mandatory SNI (2002-2006).

#### **b. Data Sources**

The data will be taken from the data published by the Ministry of Trade of the Republic of Indonesia, Central Bureau of Statistic (BPS - *Badan Pusat Statistik*), National Logistics Agency (BULOG - *Badan Urusan Logistik*), Product Certification Agency (LS-Pro - *Lembaga Sertifikasi Produk*), the United Nation of Commodity and Trade (UN-COMTRADE), the Bank of Indonesia and Association of Indonesia Wheat Flour Industry (APTINDO - *Asosiasi Pengusaha Tepung Terigu Indonesia*), and furthermore a library research will also be done.

#### **c. Assumption**

In this analysis I use some assumption to determine the level of significance for the change in domestic production, imports of wheat flour and its market share. I assume that if

there is a shock for more than 50% of change in the variables, the application of mandatory SNI for wheat flour is significantly affects domestic and foreign producers.

#### **d. Scope of Analysis**

The impact of production costs for domestic producers will be seen through the approach of raw material cost by comparing the costs of fortification and costs of raw material. While for foreign producers will be ranging to the impact of application of mandatory SNI.

The main analysis on transaction cost is only limited to costs that raises through the regulation, such as the certification costs, while others transaction costs that might raise which are not in the regulation will be only partially analyzed.

The process in analyzing the impact of the application of mandatory SNI for domestic producers is using the approach of domestic production, market share and market structure, while for the impact to the foreign producer is using the approach of quantity import of wheat flour and see if the application of mandatory SNI is acting as technical barriers to import or not.

#### **I.4.2. Quantitative Analysis**

The quantitative analysis will be done to analyze the market structure of domestic industry of wheat flours, to see whether there is any significance change in market structure of domestic industry and to see whether the application of mandatory SNI is significance in determining the quantity of imported wheat flours.

## **a. Methodology**

### **a.1. The Herfindahl Index**

In analyzing market structure of domestic wheat flour before and after the application of mandatory SNI, I use the Herfindahl Index to see whether there are any significant changes in the structure of domestic industry of wheat flour. The Herfindahl Index, an index that related to oligopoly models (Martin, 1994), is an index for measuring market concentration in an industry which calculated by summing of squares of market shares of the firms in the industry (Martin, 2000;336).

The interpretation is that, the greater the value of Herfindahl Index indicates the greater concentration of sales. Herfindahl Index value is between 0 and 1, if the market share is in a form of percentage, or can also be in a form of scale between 0 and 10,000. Where 1 is showing that there is only 1 firm in the market or in other word is monopolistic industry. Economist says that if Herfindahl Index value is less than 1,000 or 0.1 in the scale of 0-1, it means that there is no significant monopoly power, or the industry is not concentrated. If the value is between 1,000 and 1,800, or 0.1-0.18 in the scale of 0-1, means that the industry is well concentrated. However, if the Herfindahl Index is greater than 1,800, or greater than 0.18 in the scale of 0-1, means that the structure of the industry is highly concentrated (Sheperd, 1997).

#### **a.1.1 Formula**

The formula to calculate Herfindahl Index is:

$$H = S_1^2 + S_2^2 + S_3^2 + \dots + S_n^2$$

Where:

S<sub>1</sub> denotes market share of Firm 1

S2 denotes market share of Firm 2

S3 denotes market share of Firm 3

Sn denotes market share of Firm n

## **a.2. Econometric Model**

To analyze whether SNI acts as technical barriers to the imports of wheat flour, I simply use the approach of regression of econometric models to find the estimation of parameters and to see how strong the influence of independent variables to dependent variable is, when SNI is significantly influencing the imports quantity demand of wheat flour. I take SNI as dummy variable of independent variables, together along with price of imported wheat flour, gross domestic products (GDP) of constant price 1993 and exchange rate of rupiah in term of US dollar.

### **a.2.1. Regression Model**

The model that I use is a traditional aggregate import demand model with linier logarithm from Murray and Ginmann (1976), by adding the dummy variables of SNI as follows:

$$\ln Y_t = \beta_0 + \beta_1 \ln PM_t + \beta_2 \ln GDP_t + \beta_3 \ln XR_t + \beta_4 DSNI + \mu$$

Where:

- $\ln Y_t$  denotes the logarithm of quantity imports of wheat flour in time t;
- $\ln PM_t$  denotes the logarithm of CIF import price of wheat flour in time t;
- $\ln GDP_t$  denotes the logarithm of Indonesia's GDP of constant price 1993 in time t;



- $\ln XR_t$  denotes the logarithm of exchange rate of rupiah in term of 1US\$ in time t;
- DSNI denotes dummy variable of SNI for wheat flour;

While the Greek symbol of  $\beta_1 - \beta_4$  denote the estimators or the elasticity of each variables and  $\mu$  denotes the residuals or errors of the model. The dependent variable in this model is represented by  $\ln Y$  and independent variables are represented by the rest of the variables.

### **a.2.2. Hypothesis**

The null hypothesis ( $H_0$ ) in this econometric model are:

- $H_0: \beta_1 \geq 0$ ; price of imported wheat flour (PM) is not affecting or positively affecting the quantity of imported wheat flour;
- $H_0: \beta_2 \leq 0$ ; Indonesia's gross domestic products (GDP) is not affecting or not positively affecting the quantity of imported wheat flour;
- $H_0: \beta_3 \leq 0$ ; exchange rate of rupiah in terms of 1 US\$ (XR) or the depreciation of rupiah is not affecting or not positively affecting the quantity of imported wheat flour;
- $H_0: \beta_4 \geq 0$ ; National Standards of Indonesia for wheat flour (DSNI) is not affecting or positively affecting the quantity of imported wheat flour.

### **a.2.3. Regression Methodology**

On analyzing the data, the method of regression that I use is the Ordinary Least Squares (OLS), that is a method to find the smallest residual value by sums of squares the residual (Widarjono, 2005). In estimating the data, I use Eviews 4.1 software program.

#### **a.2.4. Regression Procedures**

Before analyzing the results of regression, some test that must be performed to see the good of fitness of the regression model as follows:

- **Test of Coefficient Determination (R-squared)**

The coefficient of determination,  $r^2$  (two-variable case) or  $R^2$  (multiple regression), is a summary measure that tells how well the sample regression fits the data (Gujarati, 2003). The  $R^2$  lies between 0 and 1, the more the value of  $R^2$  near to 1 means that the better the regression model in explaining the variation of dependent variable.

- **Test of Chi-Squared (F-statistic test)**

The f-statistic (f-stat) test or the f-test is the analysis of variance to evaluate the overall significance of the regression model, which means that to see whether the independent variables in overall fit in explaining the dependent variable. In multiple regressions the f-test can be used to test the significance of  $R^2$  (Widarjono, 2005). The f-test use f-stat value to evaluate  $H_0$  or the false hypothesis that is all independent variables cannot explain the variance of dependent variable, or in other word that independent variables are not influencing the determinant of dependent variable.

In deciding whether independent variables in overall fit in explaining dependent variable or reject the null hypothesis, we must compare the value of f-stat in certain level of significance/level of probability for rejecting the true hypothesis ( $\alpha$ ), with the critical value of f distribution table (f-table). If the f-stat  $\geq$  critical value of f-table than we reject  $H_0$ .

- **Test of t-statistic**

The t-stat test is used to analyze the significance of independent variable's estimator in individually to dependent variable by assuming that other variables are constant. The value of t-stat shows the significance of independent variables in explaining the dependent variable. If the value of t is higher than critical value of t-distribution table (t-table), with certain level of probability for rejecting the true hypothesis ( $\alpha$ ), it means that the independent variable is statistically significant in determining the dependent variable (Widarjono, 2005). If the value of t-stat is higher than the critical value of t-table, the null hypothesis ( $H_0$ ) of the regression model is rejected.

- **Test of non-Multicollinearity**

Multicollinearity means the existence of linear relation among some or all independent or explanatory variables in a regression model. Multicollinearity can be detected when the value of  $R^2$  is high, f-test is statistically significance, but only few independent variables are statistically significance, based on t-stat, to dependent variable (Gujarati, 2003). Another way to detect multicollinearity is to see the correlation value among independent variables in the correlation matrix that is usually provided by statistic software like Eviews. The correlation value is 0 to 1, with value near to 1 means the high correlation.

- **Test of non-Heterokedasticity**

Another assumption of the classical linear regression model is the assumption of Homokedasticity, which is the variance of each residual/error constant. However, not all regression models have constant variance in the residual

or heterokedasticity. If there is a heterokedasticity in the model, than the model will no longer Best Linear Unbiased Estimator (BLUE), but only Linear Unbiased Estimator and can mislead the conclusion.

To detect whether the Heterokedasticity exists in the model, there are some methods that can be used. In this research I use the White Method. The null hypothesis in this test is there is no heterokedasticity. This test is based on Chi-square statistical value or the number of observation ( $n$ ) multiply by  $R^2$  (Obs\*R-squared), which based on Chi-squares distribution with all independent variables as the degree of freedom. If Obs\*R-squared value is lower than critical value of Chi-squares distribution with certain probability ( $\alpha$ ) we accept the null hypothesis or there is no heterokedasticity, vice versa.

- **Test of non-Autocorrelation**

Autocorrelation is a correlation between residuals. One of the assumptions of OLS method regarding to residual is there is no correlation between residuals. If the autocorrelation exists than the estimators are no longer the best. However, the estimators are still linear and unbiased or in other word the estimator is no longer BLUE. The method that I use to detect autocorrelation is the Lagrange Multiplier (LM) developed by Bruesch and Godfrey at lag two. The null hypothesis in this method is that there is no autocorrelation. From the LM test result, if the value of Chi-squares statistic (Observation multiply by  $R^2$ ) smaller than the critical value from the Chi-squares table with certain  $\alpha$  and  $df$ , than we accept the null hypothesis which mean there is no autocorrelation in the model.

## **b. Scope of Analysis**

In the market structure analysis, I only analyze whether there are any significance changes in the Herfindahl Index, with the significance of change for around one thousands of changes in the index. While in the econometric analysis, the only variable that I analyze is the variable of SNI, which is to see whether it is affecting the quantity demand of imports, while other variables are just the interpretation of the regression result.

## **c. Data Source**

The source of data that I use in the Herfindahl Index method is the 1998-2006 annually data of production from each firm provided by the Wheat Flour Association. While for the regression I use a semi-annual time series data from 1998-2006 released by the Ministry of Trade, BPS and Bank of Indonesia. In this research I use the data of 1998 as the first data, since there was a shock of data before the period 1998 and after 1998.

Before 1998 the amount of import was still fully controlled by the government and domestic wheat flour market was not fully open. The government imposed such as import quota on wheat flour at that period. The 1990-2006 Ministry of Trade's data shows that the average of import of wheat flour before 1998 is around 44.8 metric tons and increase for around 386.3 metric tons after 1998. This means that there is a significance increase in the average of imports for around 761%.

## **I.5. Scope of Research**

Due to the limitation of data, I do not analyze the impact of the application of mandatory SNI in the increase of nutrition of the society as what the main purpose of the mandatory application of SNI policy; that is whether the application of mandatory SNI really significant in increasing nutrition of society or not. Beside that, I also do not analyze the impact of the application of mandatory SNI to overall welfare, such as the producers and consumers surplus, and how much each gain or loss from this policy. Here, I only discuss in general part of what consumer get from the application of mandatory SNI.

## **I.6. Research Framework**

The framework of this research in analyzing the application of mandatory SNI as follows:

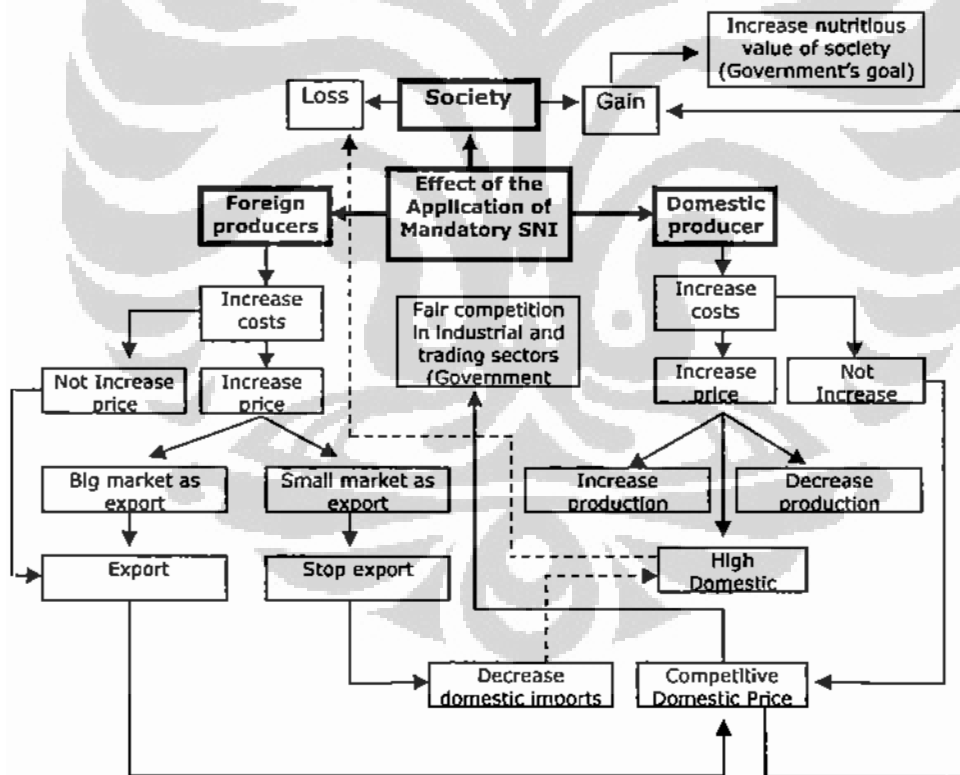
- **Domestic and Foreign Producers**

One of the impacts of the application of mandatory SNI for producers is the increase in costs. The increase in costs might happen in the production costs or other costs; this is one of the objectives of the research. The possibility results of the increase in costs are whether the firms decide to increase the price or not to increase it. The increase in costs also makes producers to increase or decrease their productions, as for foreign producers, they might increase the price or stay with the old price. If the price is increasing which is the result of complying with SNI, foreign producers might stop export to Indonesia if Indonesia is a small market for them, or vice versa. If the foreign producers stop exporting then the domestic imports of wheat flour will decrease and the application of mandatory SNI might be considered as technical barriers to trade.

- **Consumers**

If firms increase their price, then consumer will lose because it means that consumer bears the increase in costs. Consumer's losses will be much higher if the foreign firms decide not to export. This means that there will be no fair competition in trade sector which might lose the consumer because domestic producers can increase their price without worrying about the competition. However, consumers will gain if the price in domestic market is not increasing.

Figure 1.1  
Effect of the Application of Mandatory SNI for Wheat Flour



## **CHAPTER II**

### **LITERATURE REVIEW**

#### **II.1. Non Tariff Barriers to Trade**

##### **II.1.1. Definition of Non Tariff Barriers to Trade**

Non Tariff Barriers to Trade means all measures taken by a government other than tariffs that are used to protect domestic industry, while in this research I try to focus more on the Technical Barrier to Trade (TBT). TBT means that a country or regional organization adopts some mandatory or voluntary technical measures in order to, for example, safeguard the country or the area, ensure human health and security, protect the environment and the health of animals and plants, prevent fraud, and/or guarantee product quality, which can impact not only trade in goods and services, but also foreign investment by other countries or regional organizations (Lu Jian, 2007).

Non tariff barriers to trade or technical barriers such as standards of identity, measure and quality, Sanitary and Phytosanitary (SPS) measures, and packaging measures can be defined as any governmental devices or practices other than tariff which directly impede the entry of imports into a country and discriminate against imports, but do not apply with equal force on domestic production or distribution (Hillman, 1991).

Non tariff barriers to trade can be classified as regulations by policy instrument, scope of the barrier, regulatory goal, legal discipline, type of market restriction, product category, and geographical region (Roberts, *et.al.* 1998; Thornbury, 1998). This classification helps to identify differences in food safety and quality standards among countries that could have protectionist tendencies.



Non tariff barriers to trade can be difficult to distinguish because the legitimate of government regulation such as standards or SPS are for protecting consumers, where some authors emphasize that the term barriers should not be applied to measures that may have an incidental effect of restricting trade but which principal objective is to correct market inefficiencies.

Baldwin (1970) restricted the concept of non tariff barriers to trade only if the measures decreased the world global revenue, while regulations that restrict trade but have the overall positive welfare effects should not be considered as non tariff barriers to trade. The same definition given by Mahé (1997), whose defined non tariff barriers to trade as a restriction other than a tariff that leads to a decrease in world welfare.

Non tariff barriers to trade rely on the idea that a regulatory measure should be compared to the measure that would have been implemented if it had been designed for domestic purposes only (Maskus, *et.al.*, 2001).

Non tariff barriers to trade or technical barriers can also be defined as regulations and standards governing the sale of products into national markets that have, as their main objective, the correction of market inefficiencies stemming from externalities associated with the production, distribution, and consumption of these products (Roberts, *et.al.*, 1998). These externalities may also be in regional, national, trans-national, or global scope.

GATT 1947 emphasizes that technical barriers to trade may be adopted, in instances, when some circumstances occur such as:

1. A country regulators conclude that market mechanisms alone will fail to prevent or correct negative externalities that arise when imported goods may be accompanied by pests or diseases that may possibly reduce the domestic output and/or increase production costs;
2. Regulators or industry representatives believe that information about the health, hedonistic, or ethical attributes of agricultural products is either unknown or asymmetrically distributed between producers and consumers, and the transaction costs of obtaining this information are prohibitively high for consumers;
3. Coordination costs and free-rider behavior in an industry prevent development of compatibility standards that could increase firms' potential in realizing its economies of scale; or
4. Regulatory authorities judge that markets fail to provide optimal amounts of un-owned or commonly owned environmental resources.

#### **II.1.2. Forms of Technical Barriers to Trade**

According to the WTO "Agreement on Technical Barriers to Trade" (the TBT agreement) and International Trade Practice, the forms of TBT are as follows:

- a. Technological regulations are regulations made by a government's relevant department concerning a product's characteristics, the methods of its production and/or the occupations involved in its production.
- b. Technical standards are the production methods, guidelines and codes of practice, which are sanctioned by the particular industry and its organizations to support the product and relevant occupations.

- c. Conformity assessment procedures include any procedure used to confirm, either directly or indirectly, whether a technological regulation or technical standard has been met.
- d. Sanitary quarantine measures are plant-based product quarantine, testing systems and measures in a member territory which aim to protect the life or health of people, animals and plants. These are mainly related to agricultural products and food.
- e. Packaging and label requirements: each country provides information about the quality of goods and operation methods, and each forms laws and regulations about packaging and labels. These laws and regulations can exert strong influence on international trade.
- f. Green barriers are restrictions or prohibitive trade measures taken directly or indirectly for ecological environment protection.
- g. Information technology barriers include non-availability of information technology and operation standards, e-commerce, barcodes, etc. (Lu Jian, 2007).

### **II.1.3. Effect of Non Tariff Barriers**

Non tariff barriers to trade mainly have indirect effect to international trade, which take place through the additional cost of compliance that producers or traders face. These regulations, then, will affect production functions and consumption decisions and causing the import demand and supply curves shifted if the regulations are imposed (Roberts, *et.al.* 1998).

Import regulation that related to technical barriers to trade as consumers protection can give confidence to consumers in buying a product and thus can avoid the problems of unreliable goods bought by the unsuspecting consumers from foreign

producers who may not have to rely on the reputation for repeated business. If the regulations of technical barriers require the provision of information that does not inform consumers' choices, there is a welfare loss. However, informative regulations can correct market failures and add social welfare (Thilmany and Barrett, 1997).

Other effect of technical barriers regulations is that they can impose cost at different points in marketing chain; the result can affect foreign and domestic price levels and foreign exchange flows as well as quantities traded (Sumner and Lee, 1997).

#### **II.1.4. Model to observe Non-Tariff Barriers**

Some models to observe the effect of NTBs have been given by researchers in addition to know how big the impact of technical barriers to the economy and welfare is. While tariff can easily be observed and used to analyze the effect of NTB to the economy and welfare, technical barriers are rather difficult to measure.

One of the models is the regulatory protection model (Roberts, *et.al.* 1998). This model is the simple small-country model of regulatory protection that postulates a situation where the foreign supplier of good is required to comply with some forms of regulation as a condition of importation. In order to comply with the regulation, it is assumed to involve a cost which acts like a tariff on the quantity of trade only without tariff revenue.

With this regulation, the importing country suffers a loss for going some of the potential gain from trade. Domestic producers gain and resulting in consumer's loss because they do not get the opportunity to get lower price of product since imported

product must comply with regulation, which means there are increases in costs of foreign producers and in imports of price. This means that consumers pay for the producers' gain and the cost of the regulation. Distortion in consumption and production will result in forms of deadweight losses, which is indirectly paid by the consumers. The regulatory protection model can be used to examine the effect of different policy regimes. Compliance with a regulation involves a cost to foreign suppliers, which acts like a trade tax, resulting in a deadweight loss in the importing country as well as transferring from consumers to producers.

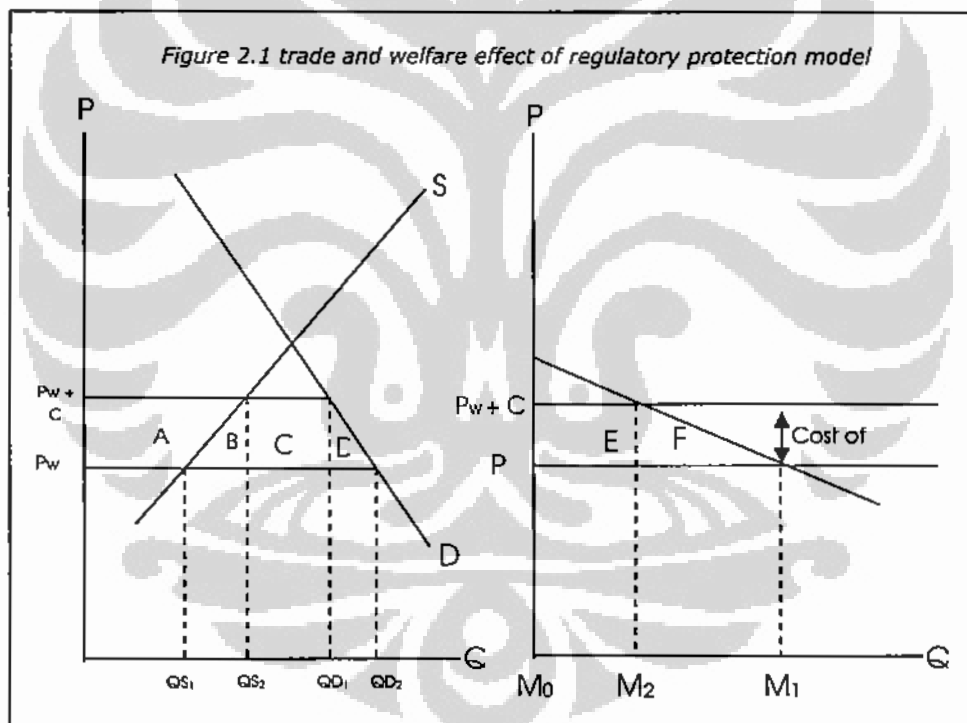


Figure 2.1 illustrates the trade and welfare effects in the regulatory protection model, viewed from the perspective of the importing country. Assume the "small-country" case for the importer, with domestic producers and consumers facing the world price,  $P_w$ . At this price, the quantity demanded by consumers is  $QD_1$ , the quantity supplied by domestic producers

is  $QS_1$ , and the difference between these two amounts is the quantity imported (seen as  $QD_1 - QS_1$  in the left panel and  $M_1$  in the right panel). When this importer alone adopts a universal border regulation intended solely to protect domestic's producers, the price in the importing country increases. In this scenario, imports fall to  $M_2$  (seen as  $QD_2 - QS_2$  in the left panel), determined by the intersection of the excess demand curve ED and the new compliance cost-inclusive product price  $PW + C$ . Consumer surplus also falls, by the area  $A + B + C + D$ , while producer surplus increases by A. The regulation therefore resulted in net welfare losses (or a reduction in the gains from trade relative to the free trade equilibrium at the intersection of ED and PW) equal to the area  $E + F$ .

## **II.2. Standards**

### **II.2.1. Definition of Standards**

Standards are documented consensus agreements containing safety or technical specifications or other precise criteria to be used consistently as rules, guidelines, or definitions of characteristics for materials, products, processes and services. In many cases, they provide uniformity which allows worldwide acceptance and application of a product or material (NPES, 2005).

Standard is technical requirement or rule that includes method which is made based on consensus by all related sectors that concern on the safety requirement, security, health environment and the improvement of science and technology, also experience, today and future development in order to get benefits as much as possible.

According to the origin, standards can be defined into two; those are *de facto* standards and *institutional* standards. The *de facto* standards are standards that emerge from a competitive market process, while institutional standards are standards that are produced by the coordinated efforts of standards setting bodies (Swann, et.al. 1990).

The purpose of standards can be classified into three categories. First, standards which allow product to work together called compatibility standards that use to support the growth of networks of complementary products (David and Greenstein, 1990); this kind of standards may also place constraints on product development and can be a monopoly power in the case of proprietary standards.

Second, standards that define a certain level of quality called minimum quality standards. These standards are used to limit the degree of product risk faced by the consumers, and distributional effect, and help to combat 'lemons' type market failure and also function as an efficiency effects (Akerlof, 1970; Leland, 1976).

Third, standards that may reduce the number of variants in a product range called variety reduction standard. Variety reduction standards can promote scale of economies (Caves and Roberts, 1975).

Standards and technical regulations are often portrayed as barriers to trade that restrict competition in the local economy by raising costs to foreign suppliers. The idea is that standards can constitute an anti-competitive and protectionist device seems obvious. Yet it is clear that they may also have benefits, not just to domestic consumers but also to foreign suppliers. If a standard certifies a product as safe, healthy, compatible with complementary inputs, for example the power supply, etc., such certification can raise consumer demand for the imports,

possibly result in increase of profits to foreign firms in spite of higher costs (Gandslant and Markusen, 2001).

However, in a global economy, they are critical to the survival and prosperity of companies marketing internationally. As more international trade agreements are implemented, domestic manufacturers will face growing competition from international concerns. Standardization provides a way to help shrink barriers to trade (Fisher and Serra, 1999).

The adoption of technical standards facilitates the expansion of both domestic and international markets. They also provide users with an assurance that products and services from various sources meet a recognized level of quality. To the extent that such products and services are interchangeable, technical standards promote competition among suppliers and offer increased prospects for cost efficiencies (Fisher and Serra, 1999).

In the purpose of consumer protection as the justification, most countries try to control the quality of imported commodities with minimum quality standards regulation. Commodities have to meet well-defined standard such as ingredients, packaging, features, etc., in that way the qualities which are consumed by the consumers will rise. However, it is not clear whether the regulation is effective in raising the qualities consumed. Some consumers' behaviors show that consumers who purchase qualities in excess of the standard in the absence of regulation will not change their quality selection in response to the standards regulation (Shapiro, 1983; Besanko, *et.al.*, 1988).

Another result of a minimum quality standards regulation is that some consumers might no longer purchase the product because the imposition of the standard may lead to an increase in prices and a reduction in variety. The increase in price either



because of the increased costs of producing higher qualities or because the market becomes less competitive as firms – which cannot meet the standard or do not expect their revenues to cover the increased costs of providing better qualities – decide to leave the market. In contrast, when production involves fixed costs and firms compete in price, an appropriate chosen standard will actually increase consumers' participation and will cause all participating consumers to select higher qualities (Ronnen, 1991).

Minimum quality standards regulation as a country policy has widely used; mostly it is designed for industries in different countries and potentially becoming major trade barrier. However, the impact of minimum quality standards depends on the foreign and domestic producers' ability to adjust output quality on domestic consumer to switch between commodities or products of different qualities (Ronnen, 1991).

Minimum quality standards regulation which is imposed by the government can be categorized as a protectionist and non-protectionist for domestic producers. Standard can be protectionist when it exceeds what government would impose if all producers were local and it can be non-protectionist if the minimum quality standards that used for imported commodity is the standard that government would use if all firms were domestic (Fischer and Serra, 1999). The argument of standards as protectionist is that government wishes to transfer rents to local producers, and they know that part of the costs of reducing the negative externality will be absorbed by foreign firms. It shows that the minimum standards chosen by the government are always protectionist.

From the point of view of the domestic firms or import-substituting firms, a minimum quality standard that excludes the foreign firm has the favorable effect on eliminating competition

in the local market, but tends to raise its own production costs, and as a consequence reducing the monopoly profits. Therefore, minimum quality standard desired by the domestic firm is not always higher than that chosen by the government (Fischer and Serra, 1999).

In particular, consider the case where the setup cost for producing a second standard is relatively high. Then there is a relationship between the relative size of the foreign market and the minimum standard that excludes the foreign firm from the domestic market. When the foreign market is relatively small and the foreign firm has few alternatives for its production, it requires a high minimum standard to exclude it from the domestic market.

The domestic firm desires the lowest minimum standard that keeps imports out, which in general is lower than the one set by the government. However, there might exist an intermediate size range of the foreign country for which the domestic firm prefers a higher standard than what government would impose.

However, due to the imposition of minimum quality standards, industries will face significant pressure by local producers for protectionist minimum standards. These will be the industries where foreign competition has significant alternative markets available and the cost of setting up production for the second standard is high.

Second, standards will be more effective in protecting relatively small countries. Third, when the fixed setup cost of setting production under two standards is high, large exporting countries are more likely to press for regulatory changes rather than adapt to unreasonable standards. On the other hand, small countries are more likely to adopt the standards of the export market.

### **II.2.2. Impact of Standards for Producers**

Minimum quality standards are adopted to increase the qualities produced and consumed. For firms that previously set the standards below minimum quality standards required by the government, their quality improvement may impact on the production cost of the firms which force them to increase their ability to achieve the quality requirement or they have to respond to a better quality input that lead to the input price change.

When firm increases their standards of production, there will be effects on cost, price, and output; among others the increases on cost of production or changes in price of its product, or the firm changes its output level to ensure that marginal cost of production remains equal to the price. Often, however, the product price changes at the same time that the prices of input change. The firm output decision changes in response to the change of price from one of its inputs (Ronnen, 1991).

The result of the minimum quality standards for producers is rather ambiguous. Uri Ronnen (1991) stated that the low-quality producers can be better off even though the standard constrains their action space, but it gives them a strategic advantage. While the high-quality producers are worse off because even though they would meet the standard in the absence of regulation, they suffer from the more intense price competition. Leland (1979) shows that the result of minimum quality standards will make low quality producers worse off because they cannot meet the standard and therefore are forced to leave the market, while high quality producers are better off because the market price goes up. Shapiro (1983) stated that all producers are indifferent because there are no abnormal returns.

The minimum quality standards regulation takes advantage of the fact that price competition intensifies as the disparity between the qualities shrinks. First, to alleviate the effects of more intense price competition on firms revenues, the high-quality seller raises his quality in reply to the low-quality seller's having raised his quality to the mandated minimum quality level (Ronnen, 1991).

However, by its very nature, a minimum quality standard limits the range in which producers can differentiate qualities. Hence, in the end, price competition intensifies despite the high-quality sellers' efforts to relax it. Consequently, if variable costs do not rise "too quickly" with quality, prices "corrected for quality change" fall. The combination of better qualities and lower hedonic prices account for the increase in market participation, the selection of higher qualities by all participating consumers, and the increase in the welfare of all participating consumers (Ronnen, 1991).

The measure's value is shown to depend on the foreign producers' ability to adjust output quality and on the domestic consumers' willingness to switch between commodities of different qualities.

Fischer and Serra (1999), analyze the effect of minimum quality standards imposed by domestic country to foreign producers. They assume that in order to produce under two standards the foreign firm must incur a fixed setup cost. Hence, an increase in the minimum standard demanded by the domestic country, over and above the worldwide standard, compels the foreign firm to choose between raising its standard (and, therefore, the costs of its entire production), incurring the setup cost for producing on two standards, or simply abandoning exports and concentrating on its own local market.

In the analysis, they derive the behavior of the foreign firm as a function of the minimum standard set by the home country.

Another thing is the conditions under which the domestic firms want to impose a minimum standard that excludes their foreign rival. They show that there is a threshold such that if the lowest minimum standard that excludes the foreign firm exceeds this standard, then the local firm prefers a duopoly without standard. Otherwise, it prefers the lowest minimum standard that excludes the foreign firm. The intuition is direct: raising standards as well as increasing costs for domestic firm.

As multilateral agreements lessen tariff barriers, more subtle forms of protection are becoming common. One of the mechanisms that have recently acquired relevance is the use of minimum standards which are biased against imports. As norms and standards usually apply to both national and foreign productions, they do not correspond to the classical forms of protectionism, which openly discriminate against imports. However, minimum standard may cloak protectionist intentions. Moreover, it is even possible that protection is the only goal of the standard. An example of this type of standards is *marketing orders*, which, as Bockstael (1984) points out, is usually applied to feature something that are visible to consumers. An illustrative case on this is the USA's imposition of a larger minimum size requirement on vine-ripened tomatoes, which normally imported from Mexico, than on green tomatoes that mainly produced in Florida (Bredahl et al., 1987).

Manufactures that produce this product will add more cost of production because they have to fulfill the SNI requirements which call for adding supplementing micronutrients, and this is happened both on domestic producers as well as imported wheat flour. The increase in production cost will usually lead to the increase of price or decrease in production (Leland, 1979).

The application of mandatory SNI on wheat flour as food stuff can affect trade performance of this product, because it can increase export if Indonesia promotes the quality of the product; act as barriers to imports that reduce imports and likely to reduce exports if domestic producers cannot fulfill the requirement; and promote intra-industry trade if the standards of this product are internationally accepted (Peter Swann et.al, 1996).

The application of mandatory SNI can also add transaction cost for producers. Transaction cost can rise due to the uncertainty and bounded rationality (Williamson, 1985). In the application of mandatory SNI, uncertainty might rise because of dealing with bureaucracy, while bounded rationality happen because of the limited information.

The term transaction cost is frequently thought that related to Ronald Coase. He used it to develop a theoretical framework for predicting when certain economic tasks would be performed by firms, and when they would be performed on the market. Coase discussed "costs of using the price mechanism" in his 1937 paper "The Nature of the Firm," in which he first discussed the concept of transaction costs. However, the term was actually absent from his early work up to the 1970s.

Arguably, transaction cost reasoning became most widely known through Oliver E. Williamson's Transaction Cost Economics. Today, transaction cost economics is used to explain a number of different behaviors. Often this involves consideration as "transactions" are not only the obvious cases of buying and selling, but also day-to-day emotional interactions, informal gift exchanges, etc.

The determinants of transaction costs are frequency, specificity, uncertainty, limited rationality, and opportunistic behavior. Transaction cost theory has been developed to

facilitate an analysis of the "comparative costs of planning, adapting, and monitoring task completion under alternative governance structures" (Williamson, 1985). The unit of analysis in transaction cost theory is a transaction which occurs when a good or service is transferred across a "technologically separated interface" (Williamson, 1985). Transactions costs arise for *ex ante* reasons such as drafting, negotiating and safeguarding agreements between the parties to a transaction, and *ex post* reasons such as mal adaption, haggling, establishment, operational and bonding cost. Decision makers must weigh up the production and transaction cost associated with executing a transaction within their firms versus the production and transaction costs associated with executing the transaction in the market.

The transaction costs arising are rooted from two human and three environmental factors (Williamson, 1985):

The two human factors are:

1. Bounded rationality: Humans are unlikely to have the abilities or resources to consider every state-contingent outcome associated with a transaction that might arise.
2. Opportunism: Human will act to further their own interests.

The three environmental factors are:

1. Uncertainty: uncertainty exacerbates the problems that arise because of bounded rationality and opportunism;
2. Small numbers trading: If only a small number of players exist in a market place, a party to a transaction may have difficulty disciplining the other parties to the transaction via the possibility of withdrawal and use of alternative players in the market place;
3. Asset specificity: The value of an asset may be attached to a particular transaction that it supports. The party who has

invested in the asset will incur a loss if the party who has not invested withdraws from the transaction. The possibility (threat) of this party acting opportunistically leads to the so-called "hold-up problems".

At least two definitions of the phrase "transaction cost" are commonly used in literature. Transaction costs have been broadly defined by Steven N. S. Cheung as any costs that are not conceivable in a "Robinson Crusoe economy", in other words, any costs that arise due to the existence of institutions. In his opinion, regarding the use of phrase of transaction costs, if the term is not so popular in economics literatures, should be called "institutional costs". However, many economists seem to restrict the definition to exclude costs internal to an organization (Demsetz, 2003). The latter definition parallels Coase's early analysis of "costs of the price mechanism" and the origins of the term as a market trading fee.

Starting with the broad definition, many economists then ask what kind of institutions (firms, markets, franchises, etc.) minimizes the transaction costs of producing and distributing a particular good or service. Often these relationships are categorized by the kind of contract involved. This approach sometimes goes under the rubric of New Institutional Economics.

### **II.3. Market Power, Monopoly and Vertical Mergers**

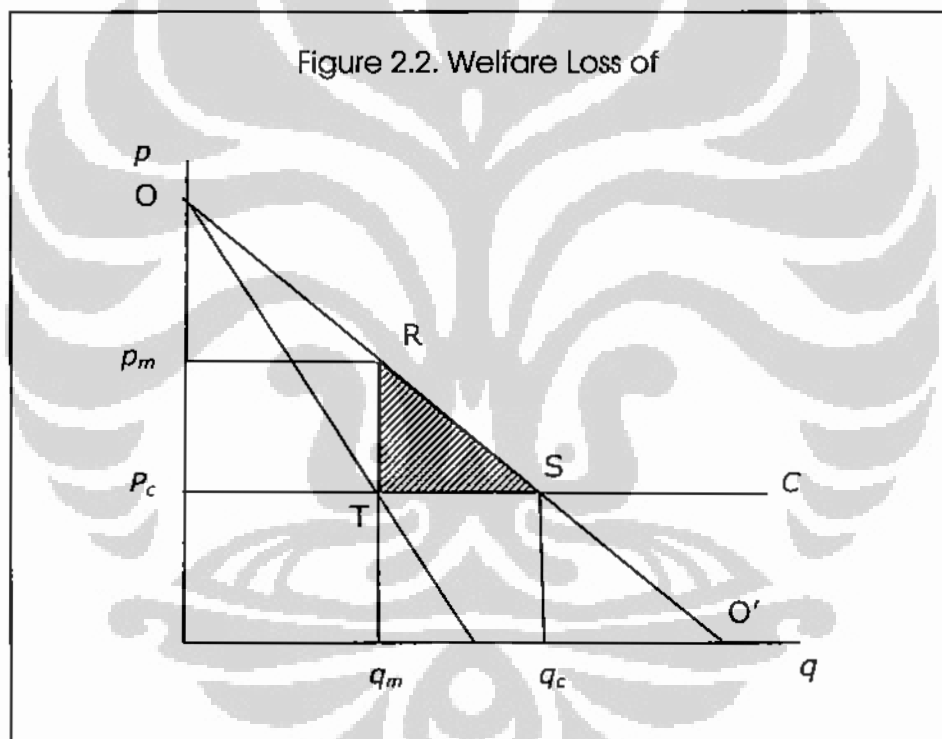
Market power is a crucial concept in the economics of competition law. As what in Motta (2004), it refers to the ability of a firm to raise the price above some competitive level and the benchmark price in a profitable way. Since the lowest possible price a firm can profitably charge is the price which equals to the marginal cost of production, while the market power is



usually defined as the difference between the price charged by a firm and its marginal costs of production.

Market power is related to monopoly, since it refers to the ability of firms to charge prices above the marginal costs. It can reduce consumers' welfare as the prices are above the marginal costs, which entails higher producers' surplus but it is not higher enough to compensate for the lower consumers' surplus caused by the higher prices.

A simple graphical analysis can be illustrated as follows:



Assume that there exists a linear market demand that described by the line  $OO'$  and a constant return to scale of technologies represented by constant marginal costs line of  $P_c - C$ . In the competitive case, the benchmark price is  $P_c = c$  and the quantity sold to consumer is equal to  $q_c$ . The welfare in economics is given by  $O P_c S$  or equals to the consumer surplus. If market power is maximum, or in other word industry is monopolized, than the price is  $p_m$  and the quantity sold is  $q_m$ .

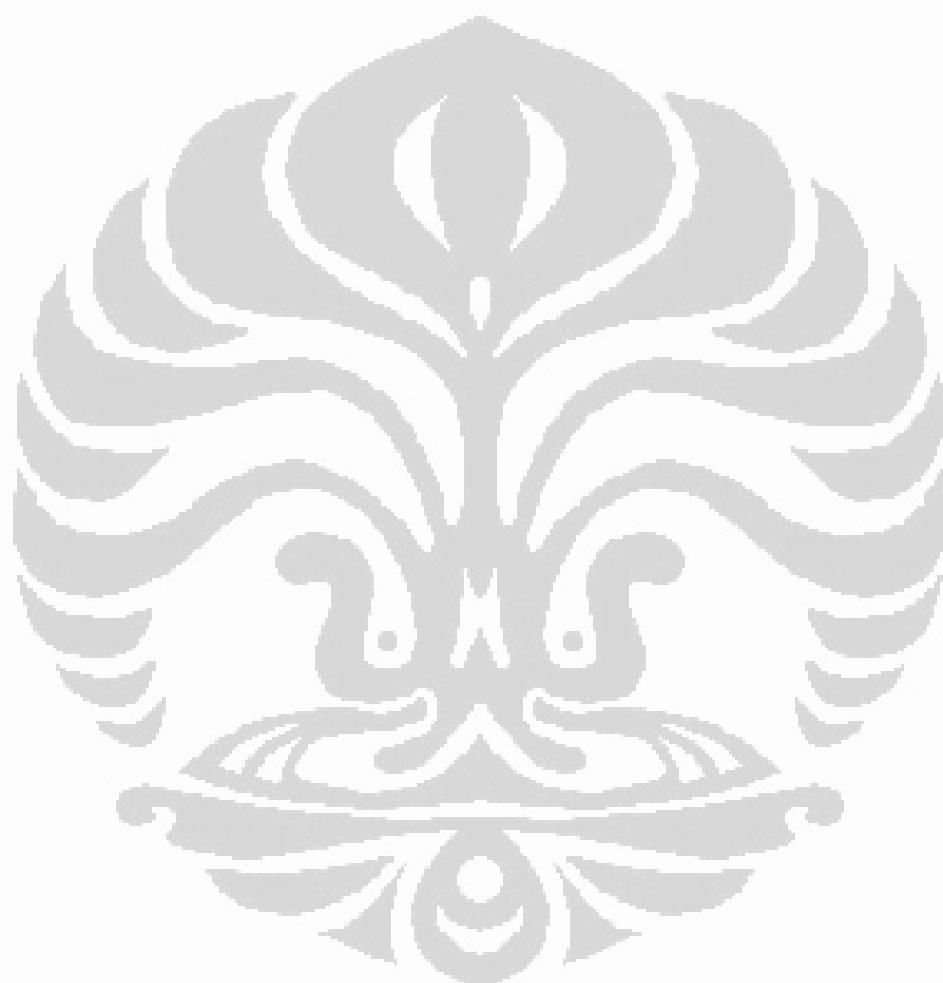
Thus, consumer's surplus decreases to  $O p_m R$  and the economy lose for  $T R S$ , which is the deadweight loss of the economy. The monopoly profit for producers thus given by  $p_m - p_c$ , which is the marginal revenues, is higher than marginal costs.

A natural solution for producers to commit to high prices is to merge with one on downstream firms. It would internalize the profit made by its downstream affiliates, and therefore would not have any incentives to offer better terms to other downstream firms, since this would diminish the profit made by its affiliates, and there for by itself. Foreclosure of the rival downstream firms would then be likely to arise, as the upstream unit would not have incentives to supply the input to the rival retailers. Indeed, to restore monopoly power it might be optimal to supply only to affiliates and avoid making inputs available to its rivals. It can be shown that a vertical merger would not always result in complete foreclosure of rival downstream firms. If there were other substitute inputs, the upstream firm would prefer to supply the downstream rivals itself, rather than letting them to be supplied by an upstream competitor.

It is interesting to note that in the absence of competing upstream suppliers, a vertical merger would be maximally detrimental, because it would lead to complete foreclosure of downstream and would determine a price rise up to the monopoly level. When upstream suppliers exist, a vertical merger will increase prices but not to the same extent to the retailers' threat of switching to alternative suppliers which limit the exercise for market powers of the vertically integrated more efficient firm.

The existence of vertical merger in the monopolistic market thus will cause the upstream firm has more power in the market which can be seen from the increase of its market share within domestic market. The upstream firm's production is seemed being guaranteed to be sold to the downstream firm since the

downstream firm is under its line of production. This condition finally makes the upstream firm's position in the market becomes stronger which is shown by the market share that is not significantly changed in the presence of a new competing upstream firm or production.



## **CHAPTER III**

### **INDONESIA'S WHEAT FLOUR INDUSTRY AND RELATED GOVERNMENT POLICIES**

#### **III.1. Wheat Flour Industry in Indonesia**

The establishment of Indonesian wheat flour industry is triggered by several factors, among other, increase in awareness of the fact that flour is healthy and nutritious food, increase in flour-based food consumption, food diversification, and awareness of the fact that it is better to produce wheat flour domestically to maintain quality and nutritional value.

The first wheat flour company that established in Indonesia was Bogasari flours mills in 1969 and started its operation in 1971. Before the establishment, the Government of Indonesia fulfilled the domestic demand by imports and grants from developed countries. With the purpose of increasing people's nutrition and fulfilling domestic needs of food, Indonesia imported all of its wheat flour averaging 337 thousand metric tons annually. During this period, it was often reported that because of the long shipment time from source countries, the imported flour reaching Indonesian ports was already in degraded quality, infected by lice and musty in odor. The degraded quality of wheat flour thus can affect the nutritional value of wheat flour and finally cannot increase the people's nutrition.

One year after the establishment of Bogasari, Berdikari Sari Utama flour mill, which formerly named as PT. Prima Indonesia was established with its factory located in Ujung Pandang and started to operate in 1973. During the periods of 1970's and 1980's, there were only two wheat mills in Indonesia. As domestic demand of wheat flour increases from year to year, in

the 1990's established other two wheat flour industry. Currently there are four national wheat flour industries that operate in Indonesia, those are Bogasari located in Jakarta and Surabaya, Panganmas Inti Persada in Cilacap, Sriboga Raturaya in Semarang and Berdikari Sari Utama in Makasar. These factories increase their capacities and facilities from time to time.

Table 3.1  
Capacities and Facilities of Indonesian Wheat Flour Industry

Remarks	BS Jkt	BS Sby	BSU	SBR	PM
Establish (year)	1971	1972	1982	1994	1997
Plant Size (Ha)	29	13	4	2.6	6
Port Length (m)	185-200	187	150	180	120
Unloading (unit)	2-3	3	3	1	1
Unloading Capacity (mt/hour)	1800-2000	1800	500	300	400
Milling Capacity (mt/day)	10.000	5.900	2.900	1500	1000
Silo Capacity (mt)	404.000	216.000	118.000	66.000	75.000
Production Capacity (mt/year)	3.600.000		1.110.000	363.000	300.000

Note: BS Jkt & Sby: Bogasari Jakarta and Surabaya  
 BSU: Berdikari Sari Utama  
 SBR: Sriboga Ratu Raya  
 PM: Panganmas Inti Persada  
 Source: APTINDO

The wheat flour industry was further strengthened with the establishment of Indofood in 1994. Indofood is the largest instant noodles manufacturer in the world, with installed capacities of approximately 13 billion packs per annum. However, the need of wheat flour as raw materials for instant noodles mostly supplied by Bogasari as one of the Indofood's firms. Until now, Bogasari is the biggest wheat mill in Indonesia with more than 70% of market share in the industries.

Since the establishment of wheat flour industry, imports of wheat flour are declined and replaced by imports of wheat as raw material for wheat flour that processed domestically. By producing wheat flour rather than imports, Indonesia gets an

additional value from the process such as increasing the employment. The wheat flour productions show an increasing trend since the establishment of domestic wheat flour, and the growth of wheat flour productions in the last 30 years overall shows an increasing trends although it is declined in some years.

Table 3.2  
Indonesia's Wheat Flour Production Growth  
1975-2005

Year	Volume (000mt)	Growth (%)
1975	592	-
1980	998	68.48
1985	1,190	19.27
1990	1,285	7.97
1995	2,812	118.72
1997	2,823	0.39
1998	2,408	-14.67
1999	2,254	-6.39
2000	2,846	26.25
2004	4,140	45.47
2005	2,724	-34.20

Source: BPS

The development of wheat flour industry can be seen as the reflection that wheat flour consumption in Indonesia increases from year to year. Data from BPS show an increasing trend of wheat flour consumption from year to year. The Food Stuff Balance data shows that per capita consumption of wheat flour based foods increases around 90% in 6 years, from 6.59 kilograms in 1988 to 12.58 kilograms in 1994. The increasing trends continue with 14.74 kilograms in 2000 and 16.16 kilograms in 2004. However, the trends do not continually increase, where in some years the per capita consumption of wheat flour decrease although the percentage of the decrease does not too significant.

The increase of per capita consumption of wheat flour based foods shows a diversification of consumption pattern in Indonesia from rice based foods to wheat flour based foods. The increasing pattern of wheat flour based consumption also indicates the success of government of Indonesia for a taste engineering process because from the beginning wheat flour is the only product that handled by the government, starts from the introduction to the society as an alternative based food, imports, raw material imports for domestic productions and the distributions.

Table 3.3  
Per capita wheat flour consumption  
1988, 1994, 2000, 2004

Year	Wheat Flour Consumption (Kg/capita)
1988	6.59
1994	12.58
2000	14.74
2004	16.16

Source: food stuff account, BPS

Wheat flour is also become an important input material for foods industry. The user of wheat flour in Indonesia as in 2001 by end product category are 5% used by house hold, 5% used by fried food, 15% by biscuit industries, 20% by instant noodle industries, 25% for bread industries, and 30% by wet noodle industries. While the users of wheat flour by end user category are 4.6% used by household, 4.0% by household industries, 31.8% by modern large scale industries and 59.6% by small and medium enterprises.

Table 3.4  
Profile of National Wheat Flour User Industries  
2001

TYPE OF INDUSTRY		Modern Large Scale Industry	Traditional Industry		House Hold	Total
			SME's*	House Hold Industry		
Noodle	Instant Noodle	45	-	-	-	45
	Dry Noodle	23	273	-	-	296
	Wet Noodle	7	5,205	-	-	5,210
	# of Co's	73	5,478	-	-	5,551
	Wheat Flour (mt)	69,461	61,989	4,156	-	135,606
Biscuit	Cookies	32	10,318	-	-	10,350
	Wafer & Crackers	22	-	-	-	22
	Marie	15	-	-	-	15
	Snack	10	30	-	-	40
	# of Co's	79	10,348	-	-	10,427
	Wheat Flour (mt)	7,718	24,983	1,675	-	34,377
Bakery	Sweet & Plain	31	11,655	-	-	11,686
	Bakery	17	35	-	-	52
	Cake & Pastry	-	2,748	-	-	2,748
	Other	-	-	-	-	-
	# of Co's	48	14,438	-	-	14,486
	Wheat Flour (mt)	2,358	62,182	4,169	-	68,709
House Hold	Wheat Flour (mt)	-	-	-	11,500	11,500
Numbers of Company		200	30,263	10,000	-	30,463
Total Wheat Flour Consumed (mt)		79,537	149,154	10,000	11,500	250,191
		31.8%	59.6%	4.0%	4.6%	100%

Note: Est. wheat flour consumption of modern industry >75 mt / month

\*SME's (Small and middle scale enterprises)

Est. wheat flour consumption of house hold <1.5 mt / month

Source: APTINDO

The improvement of wheat flour industries also can be seen from the value added of industries related to wheat flours. According to 5 digits International Standards Industrial Classification (ISIC), wheat flour industry and its derivatives classified as ISIC 15321; bakery, cookies, crackers industries classified as ISIC 15410; and instant noodle, dry noodle, wet noodle, macaroni, spaghetti industries classified as ISIC 15440. Based on 1997 BPS' middle and big scale industries statistical data, ISIC 15321 gave 1,222.8 million rupiah of value added and absorbed 3,161 employments; while ISIC 15410 gave 635.1 million rupiah value added and absorbed 28,118 employments,



ISIC 15440 gave 247.4 million rupiah of value added and absorbed 46,740 people.

While based on 2004 data, ISIC 15321 gave 785,682.1 million rupiah of value added and absorbed 4,463 employments; ISIC 15410 gave 915,354.4 million rupiah value added and absorbed 47,746 employments, while on ISIC 15440 gave 968,057.1 million rupiah of value added and absorbed 30,076 people. Totally, wheat flour industry and its derivatives gave 2,105,361 billion rupiah of value added and employed 78,019 people. This mean that wheat flour industry and its derivatives contribute around 18.58% from total value added of foods industries and 14.47% of employment in foods industries.

### **III.2. Government's Policies on Wheat Flour**

Government's policy related to wheat flour has been started before 1970s. At that time all domestic demand of wheat flour came from commercial imports, and grant from the United State of America's aid through PL 480 Title I and II, which was the law that issued by the US Congress in 1954 with the purpose of increasing US trade and gave grant of agriculture products to developing countries. In that periods, although imports and distribution of wheat flour done by private sector, government had full control in determining the quantity of imported wheat flour.

One of the government policies on wheat flour was the foods diversification program, which tried to shift the consumption patterns from rice based foods to wheat flour based foods, and supplied wheat flour with a cheap price for the society. The reason for this policy was to substitute rice as staple food with wheat flour, because at that time the supply of rice could not fulfill domestic demand, and to increase the

nutrition of the society. Latter on the closing of land frontier for rice plantation also became the major reason.

Government intervention related on imports and distribution of wheat flour has started since the issue of Ministry of Trade Decree Number 47/1970, with the purpose of foods price stabilization and increasing government finance. It regulated that only government can import wheat flour, and through the Ministry of Trade set handling agents in 7 areas to distribute the imported wheat flour in domestic market. In the next year, government issued the Ministry of Trade Decree Number 217/1971, which regulated that the procurement and the distribution of wheat flour done by National Logistic Agency (BULOG – *Badan Urusan Logistik*) with the purpose of price stabilization.

Based on the 217 decree, BULOG had full authorization to import the wheat flour and determine the quantity of domestic productions. BULOG's authorizations which regulated in that decree were: determine the quantity of imported and domestically produced wheat flour, control the volume and the distribution area, determine the distributors, set domestic prices, control the supply, and the profit margin from distributors to agents, and conduct market operation.

The 217 decree also gave authority to BULOG to manage the marketing area for domestic producers based on location of the factory. BULOG set that market for west part of Indonesia fulfilled by wheat mills which factory located in Jakarta, for middle part of Indonesia fulfilled by Surabaya factory, and the east part of Indonesia fulfilled by Makassar factory. However, this regulation seemed resulting in captive market and made Bogasari strong because it served two regional markets in the west and middle part with more high demand compare to the east market.

On the periods of 1970's and 1980's, Indonesia experienced economic boom due to the increase of world price oil that result in the increase of government budget. Government gave subsidies for imported wheat flour with the amount of subsidy around 3 billion rupiah in fiscal year of 1976/1977. The amount of subsidy was increased to 17 billion rupiah in the fiscal year of 1978/1979 and 67.3 billion rupiah in 1980/1981. In these periods, the price of domestic wheat flour was declined and cheaper than the world price. The effect of cheap wheat flour price was that the per capita wheat flour consumption increased significantly. In 1966 per capita wheat flour consumption was 0.43 kg/year while in 1969 increased to 3.2 kg/year, or in other word had grown for 32.5% a year.

The subsidy as government's instrument of wheat flour policy does not continue in the periods of 1980-1990. With a tight government budget policy, the subsidies for wheat flour reduce and result in the increase of wheat flour price. However, in the periods of 1990-1997, with the purpose of reducing inflation, Government controls the price of wheat flour. Subsidy policy once again continued and results in decrease of wheat flour price. The policy of controlling the price in line with wheat flours based food industry growth, that result in the increasing of wheat flour demand to 15% a year.

In 1997, Indonesia was hit by a macroeconomic crisis, giving a big problem to the local flour milling industry, which forced the government to import all of major raw material inputs. As part of the International Monetary Fund structural loan package during this crisis, the Government of Indonesia agreed to liberalize the wheat and wheat flour market. Through the Ministry of Industry and Trade Decree Number 21/1998, started on February 2<sup>nd</sup> 1998, wheat mills and other wheat flour users were then permitted to import wheat or flour directly from foreign suppliers and they could also sell their wheat flour

products directly to the market. With the liberalization of wheat and wheat flour market, BULOG's monopoly power was eliminated, and forced both domestic millers and foreign suppliers to adjust in order to seize new market opportunities.

The wheat and wheat flour markets in Indonesia have changed significantly because of major changes in policy. As mentioned above, prior to the liberalization of the wheat and wheat flour market in 1998, BULOG was the sole legal importer of wheat. BULOG bought the wheat and owned it throughout the milling process, and paid only the milling fees to the mills. Wheat mills were not involved in direct selling or distribution to consumers. Even if BULOG did not take possession of the flour, it directed the distribution of wheat flour to distributors through the Association of Sugar and Flour Distributors (APEGTI – *Asosiasi Penyalur Gula dan Tepung Terigu*), cooperatives, and food industries. While wheat stocks were in the hands of mills, wheat flour stocks were managed by distributors and traders.

BULOG's primary policy instrument was to administer the price both on the wheat price and the ex-factory wheat flour price. Although it also set retail prices of flour it did not have any other way to enforce its set prices other than influencing the delivery of flour to particular markets. Ex-factory wheat flour prices were 25% higher than the world price because of several charges included in the administered price calculation such as VAT, other taxes, and BULOG fees. The mills received milling fees, mark-up, and sale of by-products. This amounted to earnings that were 2% higher than their counterparts in the United States.

The main drawback of this pricing policy was the lack of consistent product quality and quality differentiation in the market. Lavoie (2003) reported that countries which import wheat through a state-trading enterprise were less sensitive to

quality issues compared to countries with private traders who import wheat. With mills' income depended only on quantity milled, wheat input quality and wheat flour output quality were not the major operational considerations of mill manufacturers. Instead, the incentive structure encouraged the mills to maximize profit by increasing the milling recovery, which resulted in lower-quality flour.

Due to the liberalization of wheat market, wheat flour imports increased from 0.34% of total imports in the early stage of the liberalization (i.e., 1998) to 18% in 1999. This proportion has gone down to 10% in the most recent period. Nowadays, the wheat sector is currently governed by a "tariff-only" regime. In the Uruguay Round, the tariff for both wheat and wheat flour are reduced from 30% to 27%. However, the current applied import tariff of wheat is zero, and based on Ministry of Finance Decree number 444/1998; the applied of wheat flour tariff is 0% plus 10% VAT and 2.5% of sales tax.

In 1998, the Ministry of Health's Decree Number 632/1998 established the mandatory fortification of wheat flour. Wheat flour produced and distributed in Indonesia must be fortified with iron, zinc, thiamine, riboflavin and folic acid. With the support from UNICEF and the United States Agency for International Development (USAID), wheat fortification with iron was initiated in Indonesia. From January 1999 to January 2000, a grant of US \$850,000 from USAID through UNICEF was given to the Indonesian Government to purchase 340 metric tons of iron premix, which has been distributed for wheat flour fortification (60 ppm of iron) to Bogasari, Berdikari and Sri Boga Flour Mills.

### **III.3. Regulation of The Application of Mandatory SNI of Wheat Flour**

SNI is a minimum quality standards set by BSN for every product that produced and distributed in Indonesia market with the purpose of consumer protection in safety, security, health and environmental protection. The existence of SNI is also to support national products to face free trade era, to ensure fair trade and to support the development of national products so it can compete in international market. SNI can also be used as one of government public policy tools in making the economic structure better and increasing the safety, security and health for the society.

The need for national standards that can compete or equal with international standard for the success of strategic goals, such as the increase of exports of goods and services, competitiveness as well as in supporting inter-relation between economic sector and other sectors. However, the application of SNI still needs more attention from the government. From around 6300 SNI, only 449 SNI have been implemented by domestic producers and only 74 of them that have been determined to be mandatory by the government. That is for all products that domestically produced or imported and distributed in domestic market which have to apply the requirements of SNI.

As mention above, the Minister of Health Decree Number 632/1998 mandated that all wheat flour produced and distributed in Indonesia must be fortified with iron, zinc, thiamine, riboflavin and folic acid. The requirement of adding micronutrient was adapted from SNI of wheat flour, which has not been mandatory.

In May 2001, Minister of Industry and Trade issued Decree Number 153/2001 that mandating all wheat flour, domestically produced or imported, that is distributed in Indonesia's market to comply with SNI number 01.3751-2000 (SNI for fortified wheat flour) to fortify wheat flour with minimum micronutrient of 50 ppm of iron (Fe), 30 ppm of zinc (Zn), 2.5 ppm of B1 vitamin (thiamine), 4 ppm of B2 vitamin (riboflavin) and 2 ppm of pholate acid. It is stated in the decree that the purpose of this decree is for consumer protection in safety, security, health and environmental protection, and further to boost the creation of fair competition in the industrial and trading sectors. This decree came into force in January 2002. As SNI is a mandatory according to Government Regulation, SNI is categorized as an institutional Standard, which standards that are produced by the coordinated efforts of standards setting bodies (David and Greenstein, 1990; Swann, 1990).

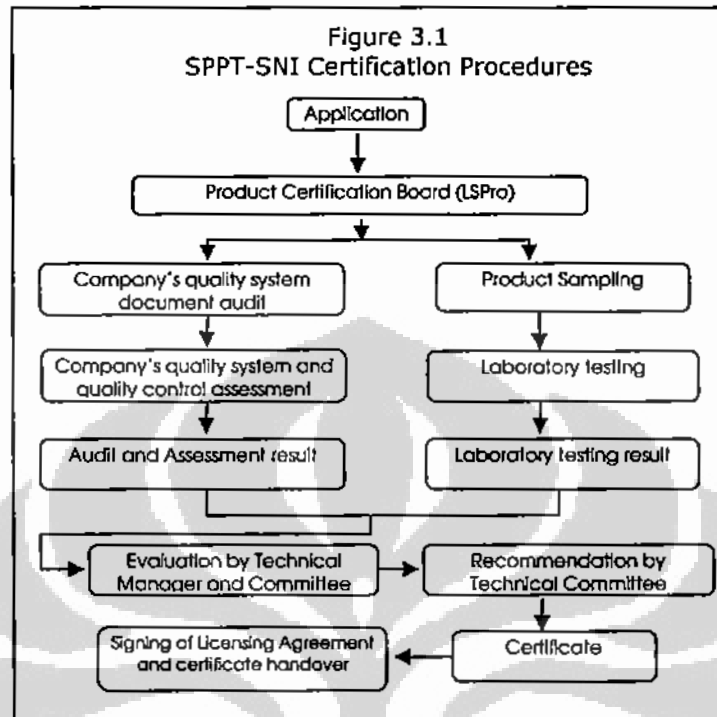
Related to Minister of Industry and Trade's Decree above, in November 2002 Minister of Industry and Trade issued Decree Number 753/2002 about mechanism of quality control for domestic and imported wheat flour. This Decree regulates the quality control mechanism, which mandating every products distributed in domestic market that has mandatory SNI application must put SNI label on the products. This decree also regulates the obligation of importers of wheat flour to have SPB and NPB in order to pass the Customs procedures and be able to be distributed in domestic market. The purpose of this decree is to control the quality of imported wheat flour that distributed in domestic market.

One of the acts from Decree Number 753/2002 is the mandatory obligation of all wheat flour that traded in domestic market must have SNI label on the package, with the purpose of giving information to the consumers that the products have already complied with minimum standards of SNI. In order to

have the right for using SNI label on the product, domestic producers and foreign supplier, that usually represented by the Indonesian importers who want to sell wheat flour in domestic market must apply their products to Product Certification Board (LS-Pro – *Lembaga Sertifikasi Produk*). This Product Certification gives rights for using SNI label (SPPT-SNI – *Sertifikat Produk Pengguna Tanda SNI*) on the products. The company or the factory will be assessed by assessors from LS-Pro or foreign Product Certification Board of a country which, already has MRA (Mutual Recognition Agreement) with Indonesia, and already accredited and authorized by National Accreditation Committee (KAN – *Komite Akreditasi Nasional*) to issue Certificate of Conformity.

The assessors than will assess the quality system of the factory and the quality of the product. The assessment of the factory quality system will be done by field auditor in production process division or the critical point of production with the standards of system of SNI 19-9001-2001 or ISO 9001:2000. While the evaluation of the product quality is done by taking the product sample from the factory or the foreign market of imported wheat flour, to be tested at the laboratory to confirm that the product has fulfilled the requirements of the mandatory SNI. The use of SNI label will be evaluated every year to make sure the consistency of factory quality system and product quality under the surveillance of auditors. The use of SPPT-SNI and SNI label are valid for 3 years and can be extended.



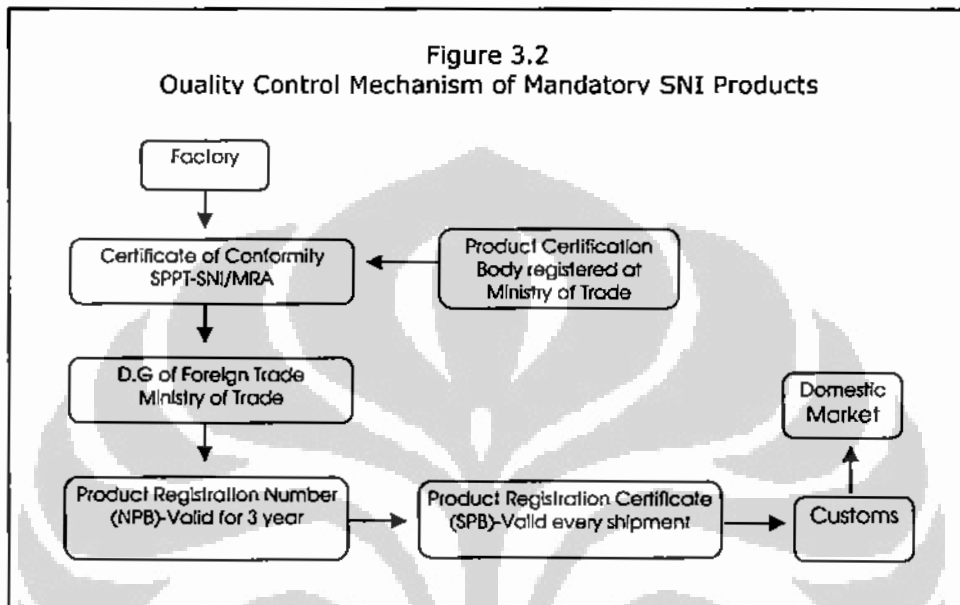


Source: LS-Pro PPMB

Importers, who want to enter Indonesia's market, must fulfill some requirements of importation. One of the requirements regarding to the application of SNI is that they have to have what so called Certificate of Product Registration (SPB - *Surat Pendaftaran Barang*) that include in it the Product Registration Number (NPB - *Nomor Pendaftaran Barang*). The importers must have SPB as one condition for Customs administration inspection in every shipment. According to the regulation, the registration of SPB is free of charge.

The procedures to get SPB are started with the application letter from importer to Director General of Foreign Trade cq. Director for Quality Control (Director of PPMB - *Direktur Pengawasan dan Pengendalian Mutu Barang*), attached with the requirements, such as Importers Identification Numbers, SPPT-SNI or Certificate of Conformity, Bill of Lading, Invoice and packing list, etc., importer then will receive a registration receipt. In maximum of 10 days of working day, Director of

PPMB will issue SPB if the application can fulfill the administrative requirements and on the contrary will issue rejection letter if the application cannot fulfill the requirements.



Source: LS-Pro PPMB

## **CHAPTER IV**

### **ANALYSIS OF THE EFFECT OF THE APPLICATION OF MANDATORY SNI FOR WHEAT FLOUR**

#### **IV.1. Background of Analysis**

As I have explained before, the application of mandatory SNI will increase costs for producers and somehow might act as TBT. In this chapter I will try to analyze the impact of the application of mandatory SNI for domestic producers and foreign producers/importers as they are the representatives in domestic market. In the application, mandatory SNI policy increases production costs through fortification cost, capital cost of fortification machine and other production costs such as electricity cost which is related to the machines. Beside the increase in production cost, the increase of cost also comes from the increase of transaction costs.

The increase in transaction costs comes from the certification costs, quality control mechanism and other transaction costs, for example queuing cost, lobbying cost, and etc. I find that the increase in costs is higher for foreign producers; however it does not affect imports in a significant way. The increase in costs also not to affect domestic producers; which can be seen from the absence of significant change in the production, market share and market structure of domestic industry.

In analyzing the impact of the application of mandatory SNI, first I will try to analyze whether there is an increase in production and transaction cost for producers. Second, I will also try to see the impact of the application of mandatory SNI with the approach on the productions, market share and market structure of domestic industry. Third, I will try to analyze the impact of the application of mandatory SNI on quantity of

imports, market share in domestic market, and whether the application of mandatory SNI statistically can be considered as technical barriers to trade for imported wheat flour or not.

#### **IV.2. Domestic Firms' Productions and Import of Wheat Flour before the Application of Mandatory SNI**

Before observing the effect of mandatory SNI application, first let see the condition of domestic firms' production and import of wheat flour before the application of mandatory SNI. For domestic wheat flour industry, I try to see the condition of Bogasari alone as the biggest firm, since the other three firms are smaller in size and having a difference in scale of productions, which also will be different in facing the application of mandatory SNI.

The period of years that I try to see is the period of 1998-2001. I choose this period because before 1998 domestic industry and import of wheat flour was fully regulated by the government. Government determined the quantity of imported and domestically produced wheat flour, controlled the volume and the distribution area, determined the distributors, set domestic prices, controlled the supply as well as the profit margin from distributors to agents, and conducted market operation. Thus, before 1998 anything that related to wheat flour industries and imports were regulated by the government.

##### **IV.2.1. Domestic Firm's Productions before the Application of Mandatory SNI**

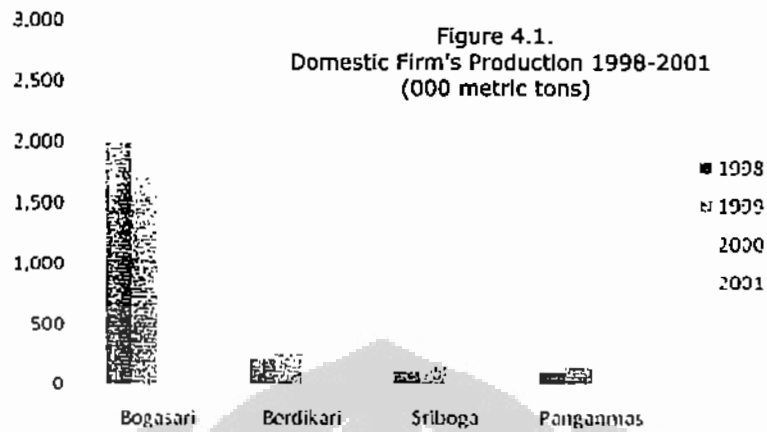
As mentioned in Chapter III, there are four wheat flour producers in Indonesia; Bogasari Flour Mills, Berdikari Sari Utama, Panganmas Inti Persada and Sriboga Raturaya. Bogasari is the biggest firm with 87.4% shares of production from total

domestic productions in 1997, experienced a 19.5% decrease in production in 1998, from 2.4 million metric tons in 1997 to 1.9 million metric tons in 1998. Bogasari's production continued to decrease in 1999 with the dropped-off to 13.7%. The decrease of production might happen as the effect of economic crisis in the middle of 1997 and the wheat flour policy deregulation in 1998 that allowed the freely imports of wheat flour. In these two years, the share of Bogasari production to total domestic production decrease to 5.76% in 1998 and 7.86% in 1999.

In 2000, Bogasari's production increased 30.75% from 1.7 million metric tons to 2.2 million metric tons and kept increasing in 2001 for 11.24%. In average, Bogasari's productions from 1998-2001 were 2.1 million metric tons with average growth rate of 2.16% per year. While the average share of Bogasari's productions to total domestic productions was 78.69%.

While Bogasari have more than 75% shares of productions to total domestic productions; Berdikari, Sriboga and Panganmas contribute only less than 25% of the shares. However, from 1998-2001 the growth of productions of these three firms was showing a positive trend. With total productions of 422.9 thousand metric tons in 1998, in just two years these three firms increased their productions to 714.9 thousand metric tons in 2001, or an increase of 69.02%.

In 2001 productions, Berdikari contributed 43.99%, Sriboga 29.64% and Panganmas 26.37% from the total productions of the three firms. The average productions of these three firms before the application of mandatory SNI was 571.1 thousand metric tons, with 19.4% of average growth of productions per year, while average share of productions to total domestic productions is 21.31%.



The overall domestic wheat flour productions in 1998 were 2.4 million metric tons and decreased for 6.39% to 2.2 million metric tons in 1999. In the next two years, domestic productions increased 26.25% in 2000 to 2.8 million metric tons and 12.62% in 2001 with 3.2 million metric tons. In average, domestic production in the period of 1998-2001 or before the application of mandatory SNI was 2.6 million metric tons with per year average production growth rate of 4.45%.

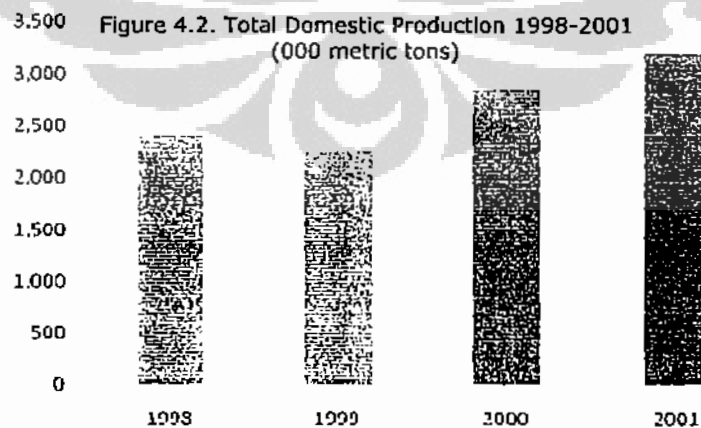


Table 4.1  
Domestic Production, Exports and Imports of Wheat Flour  
1998-2001  
(000 Metric Tons)

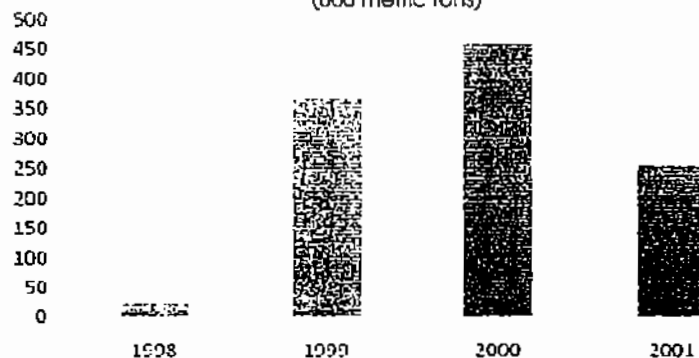
Years	Domestic Firm's Productions				Domestic Production	exports	Imports
	Bogasari	Berdikari	Sriboga	Panganmas			
1998	1,986	220	104	99	2,409	-	23
1999	1,713	252	146	144	2,255	-	367
2000	2,239	284	167	156	2,846	3	459
2001	2,491	315	212	189	3,207	2	256

Source: BPS, APTINDO, Ministry of Trade.

#### IV.2.2. Quantity of Imported Wheat Flour before the Application of Mandatory SNI

From the import side, total imports in 1998 were 22.6 thousand metric tons or increased 48.9% from the previous year. In 1999, imports increased significantly to 366.9 thousand metric tons or increased of 1,518%. The increase in 1999 might happen due to the deregulation policy in 1998 that allowed import freely. The increasing of imports continued in 2000, total import of wheat flour was 459 thousand metric tons with the increase of 25% from the previous year and decreased for 44.2% to 255.7 thousand metric tons in 2001. The average import of wheat flour in the period of 1998-2001 or before the application of mandatory SNI was 276.1 thousand metric tons.

Figure 4.3. Import of Wheat Flour 1998-2001  
(000 metric tons)



### IV.3. Domestic Produced and Imported Wheat Flours' Market Share before the Application of Mandatory SNI

Besides seeing the condition of domestic productions and imported wheat flour before the application of mandatory SNI, we can also see the market share of domestic production and imported wheat flour in domestic market. If we see from the share of wheat flour in domestic market, both domestically produced and imported wheat flour show less than 10% increase or decrease before the application of mandatory SNI. From the data of production and import, we notice that domestic production's market share in domestic market was 99.07% in 1998, which was almost 100%. This condition happened because before 1998 imports of wheat flour were regulated and limited with some quotas by BULOG, and this policy was implemented until 1997.

Table 4.2  
Share of Domestic Production and Import of Wheat Flour in Domestic Market  
1998-2001  
(Percents)

Years	Domestic productions	Imports
1998	99.07	0.93
1999	86.05	14.00
2000	86.11	13.89
2001	92.61	7.39

Source: BPS, APTINDO, Ministry of Trade;  
Data Processed

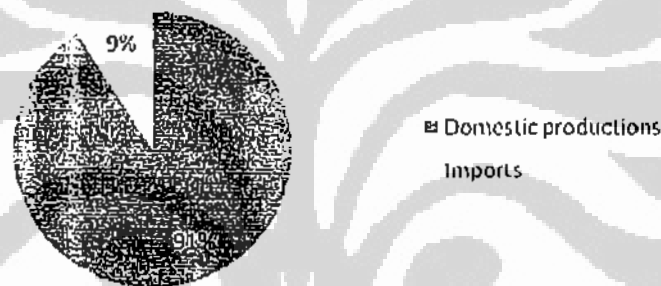
Contrast with the domestically produced wheat flour, imported wheat flour's share in domestic market in 1998 was only 0.93%. In 1999, market share of domestic produced wheat flour was decreasing to 86.05%, while imported wheat flour market share was increasing to 14% or increasing in share by around 13%. In 2000 market share of imported wheat flour



slightly decreased by 0.10% from 14% to 13.89% and domestic production increased from 86.05% to 86.11%. In 2001, domestic wheat flour production increased its market share from 86.11% to 92.61%.

In average, market share of domestic wheat flour production in local market in the period of 1998-2001 or before the application of mandatory SNI was around 90.96% and the rest of it or around 9.05% was the market share for imported wheat flour.

Figure 4.4.  
Average Market Share of Domestic Production and Imports  
1998-2001



#### **IV.4. Domestic Firms' Productions and Imports of Wheat Flour after the Application of Mandatory SNI**

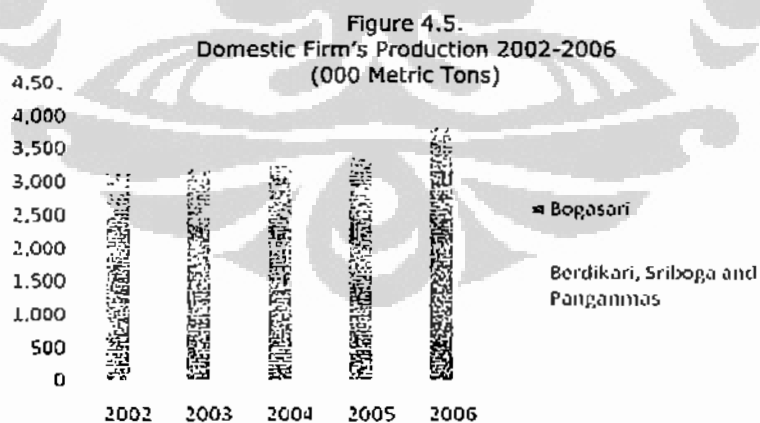
##### **IV.4.1. Domestic Firm's Production**

From domestic firm's production, in the first year of the application of mandatory SNI in 2002, Bogasari as the biggest firm increased its productions to 3.1 million metric tons or grew for 25.26%.

The increase in production continued to happen in 2003, although the percentage of the increase was not as big as the previous years, where Bogasari experienced 2.61% increase of production. Its production in this year was 3.2 million metric

tons or 78.38% of share from total of domestic productions. As the previous year, productions in 2004-2005 were also showing increasing trends. Although the increase of production in this two years were still below 5%, the production in 2004 increased 1.22% and 4.61% in 2005, with the share of Bogasari's production to total domestic productions was 78.26% in 2004 and 79.70% in 2005. The production of Bogasari in 2004 was 3.2 million metric tons and 3.3 million metric tons in 2005. After 3 years in a row Bogasari experienced an increase in production of above 5%; that was in 2006 when the production grew for 12.69%. The production in 2006 recorded the highest production since 1997 with 3.8 million metric tons. However, the share of production was still below 85%.

In average, Bogasari's production of wheat flour in the period of 2002-2006 or after the application of mandatory SNI was 3.3 million metric tons with the growth rate of 9.28% per year. The average of production during the 2002-2006 periods grew 59.9% from 1998-2001 periods.



While for the other three small firms, which are Berdikari, Sriboga and Panganmas, the 2002 production grew 12.27% with total production of 802.6 thousand metric tons. Berdikari still led the productions with 357.7 thousand metric tons or 44.57% from total three small firms' productions, followed by Sriboga with 261.2 thousand metric tons or 32.55% of share, and Panganmas with 183.5 thousand metric tons or 22.87% of share.

One year after the application of mandatory SNI, the overall productions of the three small firms increased of 10.03%. However, the increase of production was only happened to Berdikari and Panganmas. Production of Berdikari increased 34.84% or the highest increase in the productions since 1997, while Panganmas only increased 3.68%. Sriboga was the only firm that experienced decrease in production in 2003, where its production's decrease was 19.48% from the previous year.

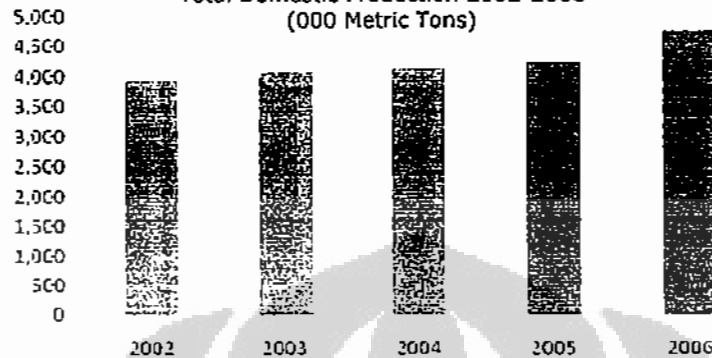
In 2004, total production of the three small firms increased for only 1.93%. Between these three firms, only Berdikari increased in production with 16.82%, while Sriboga and Panganmas decreased in productions for 29.34% and 1.24% respectively. Total production of the three small firms in this year was 900.2 thousand metric tons with 21.74% share of production compare to total domestic production. The increase of production in 2004 did not continue in 2005. In this year, the total production for three small firms decreased 4.06% to 863.7 thousand metric tons. All of the firms experienced decrease in production. Berdikari's production decreased 3.9%, Sriboga 8.4% or the highest decrease between the other two firms, while Panganmas was the lowest firm in decrease of production with only 1.1%.

The production in 2006 increased 7.7%. In this year only Panganmas had decreased in production with 6.53%, while Berdikari and Sriboga increased in production of 13.34% and 5.29%. The productions of Berdikari and Sriboga were 613.5 thousand metric tons and 143.3 thousands metric tons. The productions of the three small firms were 931 thousand metric tons with the share of production of 19.60% from total domestic productions.

In average, total production of the three small firms in 1998-2001 or before the application of mandatory SNI was 571.7 thousand metric tons and total production in 2002-2006 or after the implantation of mandatory SNI was 876.1 thousand metric tons, or grew 53.2% from the previous period. While the average growth of production in 1998-2001 was 19.40% per year and the decrease in 2002-2006 periods was only 5.6% per year.

The overall domestic production after the application of mandatory SNI was showing a positive growth. Production in 2003 grew 4.13% from 3.9 million metric tons to 4 million metric tons, followed by 1.37% of growth in 2004 with 4.1 million metric tons of total domestic production, 2.73% of growth in 2005, and 11.70% in 2006 which was the highest growth since the application of mandatory SNI, with the total domestic production of 4.7 million metric tons which was the highest productions in the last 10 year.

Figure 4.6.  
Total Domestic Production 2002-2006  
(000 Metric Tons)



The average production in the period of 2002-2006 or after the application of mandatory SNI were 4.2 million metric tons, which increased 57.92% from period 1998-2001 or before the application of mandatory SNI, that was 2.6 million metric tons, with the growth rate of productions of 8.46% per year.

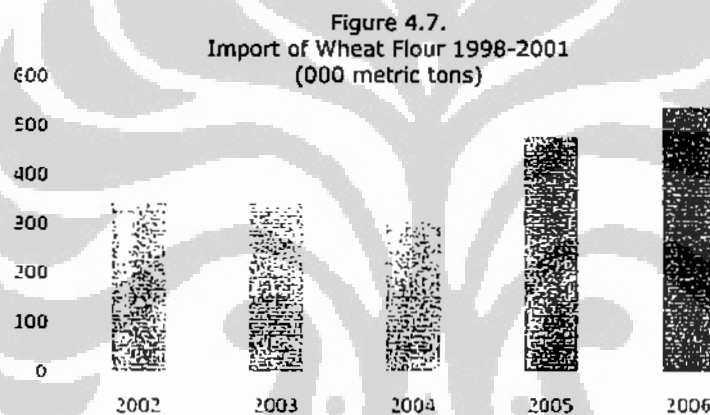
Table 4.3  
Domestic Production, Exports and Imports of Wheat Flour  
2002-2006  
(000 Metric Tons)

Years	Domestic Firm's Productions				Domestic Production	exports	Imports
	Bogasari	Berdikari	Sriboga	Panganmas			
2002	3,120	358	261	184	3,923	8	343.3
2003	3,202	482	210	190	4,084	15	343.1
2004	3,241	564	149	187	4,141	62	307.3
2005	3,390	542	136	186	4,254	63	477.9
2006	3,820	618	143	174	4,755	47	537.0

Source: BPS, APTINDO, Ministry of Trade.

#### IV.4.2. Imports

The first year of the application of mandatory SNI, imports increased 34.28% to 343.3 thousand metric tons. While in 2003 and 2004, imports decreased 0.07% to 343.1 thousand metric tons and 10.42% to 307.3 thousand metric tons. In 2005 and 2006, imports increased 55.5% to 477.9 thousand metric tons and 12.35% to 537 thousand metric tons which was the highest import of wheat flour since the deregulation policy.



Overall, although the import decreased for two years in a row, after the application of mandatory SNI, the average import of wheat flour was increasing from the period before the application. As mentioned above, the average amount of wheat flour's import in period of 1998-2001 was 276.1 thousand metric tons. This amount was increased in the period 2002-2006 or after the application of mandatory SNI with the average of import of 401.7 thousand metric tons. This mean that in average the import increased 45.52% compare to the previous period. The increase in average of imported wheat flour can be one of the indicators that until 2006 the application of mandatory SNI was not affecting the wheat flour's imports performance.

At least two reasons are qualified to explain why the application of mandatory SNI does not have any effect to imported wheat flour. First, the increase of costs due to complying with SNI is not too high, thus it does not require significant increase in foreign producers' production costs. Second, Indonesia is a big export market for foreign producers, thus increase in production cost or other related cost will not be a concern for foreign producers.

#### **IV.5. Domestically Produced and Imported Wheat Flours' Market Share after the Application of Mandatory SNI**

In the first years of the application of mandatory SNI the market share of domestic production in domestic market decreased to 91.95% then increased to 92.25% in 2003. The trends of imported wheat flour were definitely the opposite, although the share decreased by around 6% in 2001. The first year of the application of mandatory SNI does not have significant effect to the market share. Despite the decrease in market share, the share of imported wheat flour in domestic market increased to 8.05% in 2002, however, the share of imports decreased to 7.75% in 2003.

Table 4.4  
Share of Domestically Produced and Imported Wheat Flour in Domestic Market  
2002-2006  
(Percents)

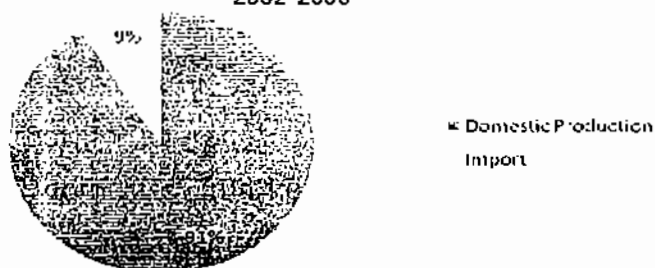
Years	Domestic productions	Imports
2002	91.95	8.05
2003	92.25	7.75
2004	93.09	6.91
2005	89.90	10.10
2006	89.85	10.15

Source: BPS, APTINDO, Ministry of Trade;  
Data Processed

In 2004, the share of domestically produced wheat flour increased by less than 1% from the previous year to 93.09%. However, the share of domestically produced wheat flour decreased by around 4% in 2005 and less than 1% in 2006. The decrease in domestic market share in 2005 and 2006 happened because in these years, imports increased its market share from 6.91% in 2004 to 10.10% in 2005 and 10.15% in 2006. Although the increase of market share was not too significant, the increase in market share indicated that the application of mandatory SNI does not have any effect on the market share of imported wheat flour in domestic market.

In average, market share of domestically produced wheat flour in domestic market from 1998-2001 or before the application of mandatory SNI was around 90.96% and the average market share for 2002-2006 was around 91.41%, which means that in average share of domestic wheat flour production in domestic market after the application of mandatory SNI was increasing by less than 1%. In other word, average market share for import after the application of mandatory SNI decreased with the same amount from 9.05% before the application of mandatory SNI to 8.59% after the application of mandatory SNI. The decrease in average does not mean that the application of mandatory SNI is significantly affecting imports.

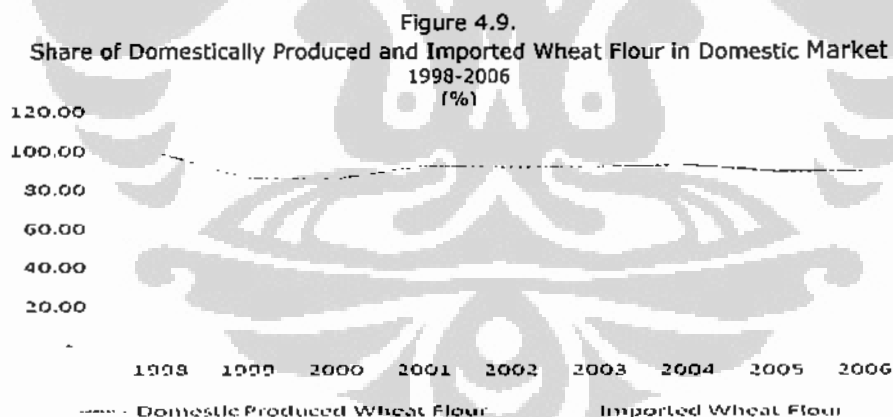
Figure 4.8.  
Average Market Share of Domestic Production and Imports  
2002-2006





Although the average market share for domestic wheat flour production was reduced for around 2.85% after the application of mandatory SNI, and the import increased with the same amount, the gap of market share between domestic wheat flour production and imported wheat flour were still large. The average gap of domestically produced and imported market share of 1998-2001 was around 81.89% and the average gap of domestically produced and imported wheat flour of 2002-2006 was around 76.69%.

Picture 4.1 shows that the gap of market share between domestic wheat flour production and imported wheat flour do not show a significant change from year to year. However, the large average gap shows that domestic industry of wheat flour that is dominated by Bogasari still in the high concentrated market.



#### **IV.6. The Impact of the Application of Mandatory SNI on Domestic Producers and Foreign Producers/Importers**

The application of mandatory SNI for wheat flour as minimum quality standards (MQS) will increase producer's costs. If it is related to technical barriers to trade, it takes place through the additional cost of compliance that producers or traders face. These regulations than will affect production

function and consumption decisions and cause the import demand and supply curves shifted if the regulation are imposed (Roberts, *et.al.*, 1999).

In complying with the requirement of SNI, there are two possibilities for foreign producers in response to the application of minimum quality standards. First, foreign producers will raise their standards, which mean increase the costs of their entire productions; second, they produce under the two standards and incur setup cost or just simply abandon exports and concentrate on their own local market (Fischer and Serra, 1999).

In price, the possibility due to the application of mandatory SNI as minimum quality standards is price, which is expected to go up; either because of the increased costs of production are having higher qualities or because the markets become less competitive as firms – which cannot meet the standard or do not expect their revenues to cover the increased costs of providing better qualities – decide to leave the market (Ronnen, 1991).

In response to the adoption of the MQS policy, low-quality suppliers raise their qualities to meet the standard and thus become closer substitutes to the high-quality suppliers. If the high-quality sellers do not raise their qualities, price competition will intensify, so their revenues will fall. To alleviate this effect, the high-quality sellers also raise qualities in an effort to differentiate themselves from the low-quality sellers. However, by its very nature, a minimum quality standard limits the range in which producers can differentiate qualities. Hence, in the end, price competition intensifies despite the high-quality sellers' efforts to relax it. Consequently, if variable costs do not rise "too quickly" with quality, the prices – "corrected for quality change" – fall (Ronnen, 1991).

#### **IV.6.1. Increase in Domestic Producers' Production Costs**

As mentioned before, one of the effects of mandatory SNI of wheat flour application is the increase on production cost which has to be borne by producers in order to fulfill the minimum quality standards requirement. Due to the limitation of the data, to see how much the fortification adds the production cost, I use the approach of fortification cost compares to raw materials cost, which is the cost of imported wheat. The cost of fortification to fulfill the requirement of SNI is around 0.15 US cents per kilograms or 1.5 US\$ per metric tons of wheat flour (Philips, 2002 and Soekirman and Wijaya, 2007). Taking the sample of domestic production in 2000, the production of wheat flour is 2,846,676 metric ton.

The cost of fortification is calculated simply by multiplying the production with cost of fortification, which is 2,846,676 metric tons x 1.5 US dollar per tons that is equal to 4,270,014 US dollar. With the rate value of exchange rate for 8,534 rupiah per 1 US dollar in this year, the total fortification cost for domestic production in 2000 will be more than 36.4 billion rupiah or 12.80 rupiah per kilogram of wheat flour.

If we compare it with the raw material cost of wheat flour in the same year, total cost of raw material used in the industry is 4,249,593 million rupiah, with the usage of wheat 3,588,729 metric tons and wheat rate price of 1,184 rupiah per kilogram. From the simple calculation above we can compare the cost of fortification and raw materials. It can be seen that the amount of fortification cost that domestic producers have to bear is only 0.01% which is less than 0.5% from total cost of raw materials. However, if we compare to the domestic price rate in 2000, the cost of fortification per kilogram of wheat flour is around 0.5%.

Other cost that producers has to bear regarding to the fortification is capital cost of dosimeter, that is a machine to fortify the flour with the micronutrient. The cost of dosimeter is around 1,000-5,000 US Dollar. The additional of new capital is not too affecting the cost of productions because it is a sunk cost and it needs only to be installed one time, and most of modern mills have already been equipped with the dosimeter. However, assume that all four mills use the 5,000 US dollar dosimeter, so the cost of fortification will increase 20,000 US dollar. The additional cost of fortification machine does not overly affect the cost of fortification. The percentage of fortification cost to raw material in 2000 after adding the calculation of fortification machines was still 0.01% and total fortification cost was 12.86 rupiah per kilogram of wheat flour.

Table 4.5  
Production, Cost of Raw Material and Fortification Cost for Domestic Producers  
2000

Wheat Flour Production in tons (a)	2,846,676
Wheat Usage in tons (b)	3,588,729
Average Wheat price, Rp./kg. (c)	1,184
Wheat Cost, millions Rupiah. (b)x(c)	4,249,593
Fortification cost US\$ per ton (d)	1.5
Total Fortification cost, US\$. (a)x(d)	4,270,014
Total Fortification cost, millions Rupiah (e)	36,440
Fortification cost, Rupiah per Kg (e)	12.8
Percentage of fortification cost to wheat-cost (e)/ (b)x(c)	0.01

Source: BPS, BI, Ministry of Trade, APTINDO, processed  
Rp. 8,534/1US\$ (rate of 2000 exchange rate)

Off course the calculation of the additional of production cost not only from the fortification cost and fortification machine, there are other production costs that increase which cannot be calculated due to the limitation of data, such as the increase in electricity cost because the use of fortification machine, cost of labor to operate the fortification machine, cost of laboratory testing at the factory, and some costs that are related to production. However, the increase of production cost for domestic producers has already happened since 1998, because as mentioned before, the domestic producers have already fulfilled the SNI requirement as governed in the Ministry of Health Decree.

#### **IV.6.2. Increase in Foreign Producers' Production Costs**

In this analysis, due to the limitation of data, I cannot construct foreign producers' increase of costs due to the fulfillment of SNI. However, I will try with the approach of foreign producer's exports to Indonesia. The previous study stated that the foreign firm decides not to export when the cost of producing two standards is too high and exports represent a small fraction of the foreign firm's sales. It would be too expensive to either produce in two standards or to raise the quality of its whole production relatively to the benefits of exporting (Fischer and Serra, 1999). So, it can also be assumed that if cost of complying with SNI is relatively not too expensive, countries which take Indonesia as a small export market are also still willing to produce under Indonesia's standard.

Taking the sample of Australia as a big supplier of imported wheat flour to Indonesia, which prior to the SNI application was the second big suppliers and post the application of mandatory SNI was the biggest supplier. Table 4.2 shows that Indonesia is a quite big market for its export destination for Australia.

I exclude year 2002 because the unreliable data. Australia's export of wheat flour in 1999 was 52.8 thousand metric tons which was 24.15% from total Australia's exports to the rest of the world. The increasing trend of export was continually happened in 2000 and 2001, with total export of wheat flour to Indonesia was 53.7 thousand metric tons in 2000 or 29.65% from total Australia's export.

The highest trend before the application of mandatory SNI was recorded in 2001 with 73.70% from total Australia's exports. In 2003, Australia's export to Indonesia was 66.2 thousand metric tons or 41.81% from its total exports. The trend of share of Australia's Export to Indonesia was increasing in the next three years. In 2004 its export to Indonesia was 59.20% from Australia's total exports and increased to 76.24% in 2005. The highest share of Australia's export to Indonesia was recorded in 2006, although total export decreased around 6% from the previous year, where Australia's wheat flour export to Indonesia was 78.17% from total Australia's exports of wheat flour.

Table 4.6  
Australia's Export of Wheat Flour  
1999-2006  
(Metric tons)

Year	Indonesia	World	% of Export to Indonesia
1999	52,808	218,688	24.15
2000	53,761	181,346	29.65
2001	62,378	84,640	73.70
2003	66,219	158,369	41.81
2004	143,296	242,067	59.20
2005	187,541	245,976	76.24
2006	176,214	225,420	78.17

Source: UNCOMTRADE, Ministry of Trade; processed  
Exclude 2002

From the example of Australia's case, it can be assumed that the application of mandatory SNI is not really affecting the production cost of foreign producers, even if the producers must produce in two standards or increase all the standards. This is because Indonesia is a big export destination market and Australia will still produce under Indonesia's standards. However, this condition will not happen if the cost to comply with SNI is relatively expensive and Indonesia as export destination market is relatively small. Foreign producers from this category will simply abandon the SNI and will not export to Indonesia.

#### **IV.6.3. Increase in Producers' Transaction Costs**

From the production side, the cost to comply with SNI requirement can be seen from simple calculation of fortification cost with the approach of raw material cost and the cost of fortification machine above. Nevertheless, besides adding the products with some micronutrient which increase the production costs, there are other costs that must be borne by producers, namely the costs of transaction. Costs of transaction or transaction costs are costs that rise due to the process of business which mostly are not accounted in the financial report.

I use the analysis of transaction costs because in the neo-classical economics the cost that arises as what described above is less calculated. The transaction costs that exist sometimes do not put into account to measure the cost and benefit in analyzing a policy. Thus this can result in an inaccuracy of the analysis and furthermore can be misleading in the policy implication.

The costs of transaction that rise due to the application of mandatory SNI are:

**a. The Cost of Certification**

The increase in transaction costs happens because the regulation requires domestic producers and foreign producers, which in the case of certification procedures are represented by Indonesian importers, to have Product Certificate for Using SNI Label (SPPT-SNI – *Sertifikat Produk Pengguna Tanda-SNI*). This Certificate aims to certify products so that they can use the SNI Label on their product which is used to show that the products have already complied with SNI requirements and can be distributed in domestic market.

The certification procedures to get SPPT-SNI that domestic producers and importers must pass however will add more costs. If the fortification increases production cost, then the certification procedures, yet, will increase domestic producers' and importers' transaction costs. In this research the increase of producers' transaction costs which is derived from the certification procedures comes in forms of registration, company quality system document audit, company quality system assessment, company quality control assessment, commodity sampling and quality control, evaluation by certification technical committee and certificate issuance. These certification procedures are applied both to domestic producers and importers who want to use SNI label on their products for the first time.

The certification procedures can be divided into two parts. First, certification procedures to those who, for the first time, want to use the SNI label on their products; and the second, certification procedures to those who have already had SPPT-SNI and wanted to continue of using it when the time period has expired. The certification fees for domestic producers and



importers are not the same. For first time users, total cost of certification procedures for domestic producers is 16 million rupiah while for importers the cost is 8,550 US dollar or around 76.9 million rupiah. While certification procedures fees for those who want to continue of using the SNI label is 5.5 million rupiah for domestic producers and 2,550 US dollar or around 24.7 million rupiah for Importers.

For importers, besides the certification fees they also have to pay for the transportation and accommodation to the assessors. Although the certification cost for importers is the same, does not matter from which country the imported wheat flour is coming from, but the transportation and accommodation fees are different between one country to another. The transportation and accommodation fees depend on the destination country and how expensive is the living cost there. These fees are valid both for those who use the SNI label for the first time and those who already have the right of using SNI label and want to continue of using it when the time period is expired.

**Table 4.7**  
**Cost Structure of Certification Procedures on the Rights of Using SNI Label**  
**(For first time user)**

No	Cost Structure	Domestic (Rp.)	Imported (US\$)	Imported (Rp.)
1	Registration	1,000,000	500	4,500,000
2	Supplier's quality system document audit	1,000,000	500	4,500,000
3	Supplier's quality system assessment	6,000,000	2,500	22,500,000
4	Supplier's quality control assessment	2,400,000	2,500	22,500,000
5	Commodity sampling and quality control	1,600,000	1,500	13,500,000
6	Evaluation by certification technical committee	2,500,000	550	4,950,000
7	Certification Issuance	1,500,000	500	4,500,000
	<b>TOTAL COST</b>	<b>16,000,000</b>	<b>8,550</b>	<b>76,950,000</b>

Source: LS Pro  
 Assumption: Rp 9000/1US\$

**Table 4.8**  
**Cost Structure of Certification Procedures on the Rights of Using SNI Label**  
**(For extended user)**

No	Cost Structure	Domestic (Rp.)	Imported (US\$)	Imported (Rp.)
1	Company quality system assessment	1,800,000	1,250	11,250,000
2	Company quality control assessment	1,200,000	750	6,750,000
3	Certification technical evaluation	2,500,000	750	6,750,000
	<b>TOTAL COST</b>	<b>5,500,000</b>	<b>2,550</b>	<b>24,750,000</b>

Source: LS Pro  
 Assumption: Rp 9000/1US\$

## **b. Cost of Quality Control Mechanism**

Besides the certification procedures for having SPPT-SNI, another transaction cost that importers have to bear is the cost of imported goods quality control mechanism. The differences between quality control mechanism and the SPPT-SNI requirements are SPPT-SNI needs only one time procedural registration and valid for the next three year, while in quality control mechanism it requires the importers to register their imported wheat flour every time they imports and enters Indonesia's jurisdiction. Importers must register the product to Directorate for Quality Control (Directorate PPMB), a government agency which main duty is to control the quality of imported goods under the SNI that has been a mandatory. The purpose of this mechanism is to control the quality of imported wheat flour that will be distributed in Indonesia's market by making sure that the imported wheat flour which enters Indonesia's territory have already had SPPT-SNI and complied with the SNI requirements.

As mentioned above, for domestic producers the costs for complying with SNI basically come from the increase in production cost, like fortification cost, and the increase in transaction cost that comes from certification procedures. While for foreign producers and importers, besides enduring the increase in two costs for around 380% more expensive in certification cost comparing to domestic producers, they also incurring an increase in transaction cost from the quality control mechanism for imported goods.

The quality control mechanism will increase their transaction costs due to the administration procedures. For example, before the imported wheat flour can exit from the Custom Office and enter domestic market, one of the conditions that the product has to have is the SPB. The administration

procedures of SPB will take of maximum 10 days until the issuance of SPB. This condition will result in some conditions. If the imported wheat flour is already at the docks, it means that importer must wait for 10 days to get it out and incur extra cost of 10 days of handling fee to rent the docks as the storage place.

If the application is not approved, than importers must re-export the product that will add another transaction cost for the procedures, or it will be terminated and importers will lose more. However, usually importers will apply for SPB before the shipment from the supplier, if that so by the time that the cargo arrives at the docks, the SPB is already issued.

In the new regulation of quality control mechanism for goods that are traded in Indonesia's market, which is issued in early 2007, the procedure for SPB registration until it is issued only takes the maximum five days of working day. This regulation also regulates about the domestic quality control mechanism, which previously requires the domestic producers only need to have SPPT-SNI, but now they need to have Product Registration Number (NRP - *Nomor Registrasi Produk*) as well. The scheme of NRP registration is almost the same with SPB. The only difference is that NRP valid for three years. The new regulation seems will reduce the importers transaction cost because it cuts the procedures for SPB from the maximum ten days to five days of issuing. However, the new regulation seems will increase the domestic producers' transaction costs, because previously there are not any obligations for domestic producers to have NRP for quality control mechanism.

However, the increase in transaction costs due to the application of mandatory SNI does not just come from the certification procedures and quality control mechanism as what mention above. There are other potential transaction costs that

might incur both to domestic producers or importers, such as lobbying cost, queuing cost, information cost, and even the bribery cost. This kind of transaction cost is somehow hard to detect but the existence is also unquestionable.

The example of lobbying cost which increase the transaction cost is that during the process of issuing the SPPT-SNI or SPB, producers or importers sometimes try to make sure that the certification process works as it should be. Even though the procedures of the certification, such as the process, period of certificate issuance, fees etc., are clearly mentioned in the regulation, due to some reasons, for instance they want to make sure that their businesses are not bothered by little mistakes of the procedures, and even the bad image and reputation of the public servant; they will lobby the authority that is in charge of issuing the certificate and give some services to guarantee the issue of the certificate.

Other transaction costs which incur due to the certification procedures are the queuing cost and the information cost. The queuing cost simply raises the costs because within the certification procedures, producers must spend extra time of their businesses to pass the procedures. This cost can be reduced if some of the certification procedures can be done through the on-line internet system, where the producers as the applicants can save their times which can be used for other business transactions.

As for the information cost, the essence is almost the same as queuing cost, which is in time. Information cost can incur when producers or importers have less information regarding to procedures of certification. Producers have to search any information related to the certification procedures, such as how is the procedure itself, how much for the fee, and what administrative papers that are required etc. However, the

existence of information cost can be reduced if the government has a well-socialized certification procedure.

Another possible transaction cost is the bribery cost. As not all producers can always fulfill the requirements of certification procedures and not all the certification agency officials have high integrity, some producers might spend some amount of money to bribe the officials in order to make the certificate issued, even though they cannot fulfill the requirements. In this case, the one who suffer from loss is not only the producers, but also the whole societies since the products cannot be guaranteed because of flaw procedures. However, in the recent years, this transaction cost tends to reducing due to the increase of officials' integrity and bureaucracy reformation.

The use of mandatory SNI application influences the increase in costs of domestic and foreign producers. The increase of costs is higher on foreign producers, which is mostly within their transaction costs, although most of the increase in the transaction costs is inexplicit. As what Roberts, *et.al.*, (1999) stated in their regulatory protection model where the imposition of regulatory minimum standards or any technical measures which involve a cost will act like a tariff on the quantity of trade, but only without tariff revenue for the government. Thus in some extents, the inexplicit increase in transaction costs for foreign producers is acting as if the government imposes tariffs to them though only without any revenues.

#### **IV.7. Analysis of Market Structure of Domestic Industry**

The result of Herfindahl Index calculation for wheat flour industry before the application of mandatory SNI is 6,915.46 in 1998, and then the index decreases to 5,977.51 in 1999 which is probably as the result of wheat flour deregulation policy that was implemented in 1998. In 2000, the index increases to 6,353.06 and goes down for a small number to 6,211.79 in 2001. In the first year of the application of mandatory SNI, the Herfindahl Index increases to 6,476.04, which is indicated that domestic industry gets a positive impact from the application of mandatory SNI due to the adjustment of imports to new regulation. However, few years after the application of mandatory SNI or from 2003-2006 the Herfindahl Indexes are showing a lower index than the one in 2002. The Herfindahl indexes respectively are 6,331.41 in 2003; 6,343.36 in 2004; 6,542.86 in 2005 and 6,654.35 in 2006.

The application of mandatory SNI that requires producers to insert some micronutrient means that producers must add more production costs while other certification procedures mean adding more transaction costs, though in overall they are not very affecting the wheat flour industries' performances. The calculation of the Herfindahl Index above shows that the domestic industry market structure does not change significantly after the application of mandatory SNI in 2002. Although the Herfindahl Index decreases after the application of mandatory SNI, the average Herfindahl Index before the application of mandatory SNI is 6,364.46 and increase to 6,469.55 after the application of mandatory SNI.

In overall, the Herfindahl Index from 2002-2006 are far above 1,800, which is the minimum number for categorizing the industry into a very concentrated market structure. This means that the domestic industry of wheat flour market structure still in a highly concentrated industry and the application of

mandatory SNI is not affecting too much on the market structure of wheat flour industry.

Table 4.9  
Herfindahl Index of Domestic Producers of Wheat Flour  
1998-2006

Year	Index
1998	6,915.46
1999	5,977.51
2000	6,353.06
2001	6,211.79
2002	6,476.04
2003	6,331.14
2004	6,343.36
2005	6,542.86
2006	6,654.35

Source: BPS, APTINDO. Data Proccesed

As mentioned before, the wheat flour industry in Indonesia only consists of four firms, Bogasari as the biggest firm with its market share of around 75% and the other three firms with the rest of the market share. The high concentrated industry that can be mirrored from the Herfindahl Index shows that the wheat flour industry in Indonesia is a monopolistic industry before and after the application of mandatory SNI, with Bogasari as the major player.



## IV.8. Analysis of Regression Result

The results of regression are as follow:

Dependent Variable: LOG(Y)

Method: Least Squares

Sample: 1998:1 2006:2

Included observations: 18

Variable	Coefficient	Std. Error	t-Statistic	Prob.	Sig.
C	-113.7898	31.22364	-3.644347	0.003	Sig.
LOG(PM)	-6.464366	1.778308	-3.635122	0.003	Sig.
LOG(GDP)	13.58396	2.40426	5.649955	0.0001	Sig.
LOG(XR)	8.725543	2.584506	3.376098	0.005	Sig.
DSNI	-0.08078	0.662066	-0.122012	0.9048	ns.

R-squared: 0.814011

F-statistic: 14.22415

Prob.(F-statistic): 0.000112

Sig. : Significance

ns. : Not significance

- **Test of coefficient of determination (R-squared)**

The regression result shows that the value of the  $R^2$  is 0.814011, means that 81.4% variations of demand for imported wheat flour (Y) can be explained by price of imported wheat flour (PM), Gross Domestic Products of Indonesia (GDP), exchange rate (XR) and the application of mandatory SNI (DSNI). While 18.6% is explained by other variables that are not included in the models or known as errors.

- **Test of f-statistic**

The value of f-stat in regression result is 14.22415 with the probability of 0.000112. The critical values from f-table with df of numerator 4 and df of de-numerator 13 are 5.21 for  $\alpha$  of 1% and 3.18 for  $\alpha$  of 5%. This means that  $H_0$  is rejected and indicated that the independent variables price of imported wheat flour, Indonesia's Gross Domestic Products, exchange rate of rupiah in term of US\$ and the application of mandatory SNI

altogether influence the dependent variable of import of wheat flour.

- **Test of t-statistic**

In this t-test, I use one tailed test with the degree of freedom (df) of 13 and the probability of rejecting the true hypothesis ( $\alpha$ ) of 5%. From the t-table the critical value of t is 1.771. From the regression result we can see that all statistical values of t (t-stat) from all independent variables are higher than 1.771, neglecting the positive or negative sign, except the variable of DSNI with t-stat value of 0.283993.

This means that all  $H_0$  are rejected except for DSNI. This result can be interpreted that statistically, in individual, price of imported wheat flour, Indonesia's Gross Domestic Products and exchange rate of rupiah in terms of 1 US\$, significantly influence in defining the quantity of imported wheat flour. While the application of mandatory SNI does not significantly influence in defining the quantity of imported wheat flour or in other word that it is not affecting the quantity of imported wheat flour.

The method of OLS with certain assumption will be resulted in Best Linear Unbiased Estimators (BLUE). The method with BLUE depends whether the regression model meet the assumption of non-multicollinearity, homokedastic, and non-autocorrelation. Thus, the test needs to be conducted as follows:

- **Test of Non-Multicollinearity**

The regression result shows a high  $R^2$ , with statistically significance f-stat and also significance t-stat in most of independent variables. So, in the early stage we can conclude that there is no multicollinearity in the model. However, the matrix correlation table shows that there are high values of correlation of price of imported wheat flour and Indonesia's GDP with the application of mandatory SNI.

Table 4.10  
Independent Variables Correlation Matrix

Variables	In PM	In GDP	In XR	DSNI
In PM	1.000	0.589	0.250	0.872
In GDP	0.589	1.000	-0.499	0.766
In XR	0.250	-0.499	1.000	0.003
DSNI	0.872	0.766	0.003	1.000

However, multicollinearity will not cause the estimator become not-BLUE, because the BLUE estimator does not require the assumption of non correlation between independent variables or non-multicollinearity. In this analysis I will not overcome the multicollinearity problem, because as to overcome the problem it must be done by eliminating the variable that consists of multicollinearity, or to add more data. The variable of SNI is the major variable that I want to analyze, so it is unlikely to be eliminated. While adding more data seems not possible because there is a shock in data due to the deregulation policy.

- **Test of Homokedastic/Non-Heterokedastic**

The result of white test is shown as follow:

Table 4.11  
The White Heterokedasticity Test (no-Cross Terms)

F-statistic	1.62275	Probability	0.235056
Obs*R-squared	9.572737	Probability	0.214106
R-squared	0.531819		

The White Heterokedasticity test result shows that the  $R^2$  value is 0.531819, Chi-square statistical value is 9.572737, while the critical value of Chi-squares with df 7 and  $\alpha$  5% is 14.0671. As the condition to accept the null hypothesis is the value of Chi-squares statistic lower than the critical value of Chi-

squares, than we accept the null hypothesis and conclude that there is no heterokedasticity exist in the model.

- **Test of Non-Autocorrelation**

Table 4.12  
Breusch-Godfrey Serial Correlation LM Test

F-statistic	1.20149	Probability	0.33733
Obs*R-squared	3.22716	Probability	0.19917
R-squared	0.17929		

From the Breusch-Godfrey serial correlation test result we can see that the Chi-square statistic is 3.227158. The critical value of the Chi-squares table with  $\alpha$  at 10% and df of 6 is 10.6446. Thus we can accept the null hypothesis and conclude that there is no autocorrelation in the model.

- **Standard of Errors**

The standard of errors (se) is used to measure the persistence of the coefficient estimators. The lower value of standard error than the estimators value means the smaller the variability from the estimators value. This means that the estimators value is trustable. The regression result shows standard errors of all independent variables, except DSNI variable, is lower than the value of estimators, which means the coefficient estimator is trustable in explaining the dependent variable.

- **Interpretation of regression estimators**

From the value of coefficient estimators of the regression, it can be analyzed as follow; the coefficient value of price of imported wheat flour variable is negative 6.464366. This can be interpreted that 1% increase in the price of imported wheat flour will result in 6.46% decrease in quantity demand of imported

wheat flour. The coefficient value of GDP is positive 13.58396, which can be interpreted that 1% increase in Indonesia's GDP will increase quantity demand of imported wheat flour for 13.58%.

The coefficient value of exchange rate is positive 8.725543 that can be interpreted 1% of appreciation of Rupiah to US\$ will increase the quantity demand of imported wheat flour for 8.72%. While the coefficient value of the application of mandatory SNI is negative 0.08078 this means that the application of mandatory SNI decreases the quantity demand of imported wheat flour for 0.08%. However, as mention in the t-test above that the application of mandatory SNI is not significant in determining the quantity demand of imported wheat flour.

## CHAPTER V

### CONCLUSION AND POLICY IMPLICATION

#### V.1. Conclusion

The application of mandatory SNI for wheat flour can be seen as consumer protection in one side and as technical barriers to trade in the other side, thus become a protection for domestic industry. The analysis result shows that the application of mandatory SNI for wheat flour increases producers' costs through production and transaction costs. The increase in domestic production cost with the raw materials approach calculates only 0.01% from cost of raw material. While the effect of increase in costs for foreign producer, by using quantity of export approach, shows that countries with high export to Indonesia are not strongly affected and they keep on exporting.

Other than the increase in production costs, there are some increases in transaction costs which come from the certification cost, certification procedures and quality control mechanism. There is around 380% difference in certification fee between domestic and foreign producer. Besides the more expensive certification fee, another transaction cost that foreign producers have to bear is the cost of quality control mechanism. There are other potential transaction costs that might incur both to domestic producers or importers such as lobbying cost, queuing cost, information cost and even bribery cost.

In overall, the average production of firms and domestic productions increase after the application of mandatory SNI for around 50%. While the average market share of domestic production increase by less than 1%. Also, the average calculation of Herfindahl Index is approximately six thousand which indicates a still high concentrated industry. The analysis result signifies that the application of mandatory SNI policy does not strongly affect the domestic industry of wheat flour.

While, for imported wheat flour the average imports after the application of mandatory SNI increase for around 45%. This also indicates that the application of mandatory SNI policy does not strongly affect imports of wheat flour. This result is in line with the regression result which shows that the application of mandatory SNI statistically is not significantly affecting imports.

### **V.1.1. Political Economy of SNI**

As mention in the first part of this research, the application of mandatory SNI for fortified wheat flour is not merely to increase nutritious value in the society as what stated in the decree. There is also political reason behind this policy, which is to hold imports of wheat flour that flooding the domestic market after the deregulation policy. One of the efforts in limiting the imports of wheat flour can be seen from the cost of certification. Even though the application of mandatory SNI is imposed uniformly between domestic and foreign producers, but there are around three hundred percent difference in certification fee and other transaction costs that borne only by foreign producers which are not explicitly stated in the regulation.

However, it seems that the intention behind this regulation does not come to the fact. Import is not significantly affected by the regulation although in the first two year of the application the imports of wheat flour are decreased. But in overall, the regulation does not affect import, as we can see in chapter IV that average of import in the period after the mandatory SNI application has increased for around 40%, and the regression result shows that the application does not significantly affect imports.

So, if there is a purpose behind the application of mandatory SNI policy, which is to make it as technical barrier for imported wheat flour, at least until 2006, the purpose did not come to reality. Although there are some increases in costs for foreign producers which are relatively higher than domestic producers, the import does not significantly affect. Perhaps, there is a question why the application of mandatory SNI, which in some perspectives can be seen as technical barriers to trade, do not have a strong impact on import.

There are some possibilities for answering this question. First, the additional production cost of fortification is 0.15 US cents per kilograms and the fortification machines for producers, and higher transaction cost through the certification procedures and quality control mechanism looks like not become a major problems for foreign producers. The fact that the foreign producers are still exporting to Indonesia shows that the profit they gain might higher than the increase of costs.

Second, the price of imported wheat flour is much cheaper than the domestic wheat flour production. If we compare the wholesale price of domestically produced and imported wheat flour as what show by table 6.1, except in 1998, the average difference between price of domestic and imported wheat flour is around 40%. This difference is taking into account for wheat flour based food industry, especially for the small and medium enterprises (SMEs).



Table 5.1  
Price of Domestic and Imported Wheat Flour in Domestic Market  
1998-2006

Years	Price rate (Rp.)		Differences (%)
	Domestic	Imports*)	
1998	2,448	2,572.07	(5.93)
1999	2,671	1,750.23	64.44
2000	2,532	1,852.27	44.97
2001	2,905	2,379.44	27.08
2002	3,134	2,284.70	45.56
2003	3,429	2,313.53	59.07
2004	3,659	3,059.80	24.00
2005	4,169	3,214.93	36.37
2006	4,400	3,029.09	55.43

\*) imports price: C.I.F price+10% VAT+2.5% sales tax+10% sales profit  
Source: BULOG, Ministry of Trade; Data Processed

There are at least two possibilities factors that causing the large different in price. First, the production of domestic industry might be less efficient than the foreign production. Second, as Indonesia fully import the raw materials of wheat flour, Indonesia then get more expensive price when it is comparing to imported wheat flour. As mention before almost 50% of Indonesia's imports come from Australia and around 30% from total import of wheat also comes from Australia. As in Australia every export of wheat must pass through the Australian Wheat Board (AWB), which makes the price more expensive comparing to domestic price in Australia. The local wheat flour producers in Australia have more advantages in raw materials rather than the Indonesian domestic producers.

Table 5.2  
Share of Supplier of Wheat for Indonesia (%)  
1996-2006

Years	Australia	Canada	USA
1996	55.91	27.94	13.14
1997	55.93	32.22	1.84
1998	59.83	29.40	4.75
1999	53.74	21.48	22.16
2000	64.34	22.49	9.48
2001	48.16	15.32	27.80
2002	53.20	17.29	6.29
2003	37.32	10.20	7.61
2004	65.39	15.07	2.40
2005	55.09	20.09	2.68
2006	64.81	22.45	4.85

Source: Ministry of Trade; data processed

While the rest of imports come from Belgium, which also produces wheat of around 11%, China of around 17%, Sri Lanka of around 9%, United Arab Emirates of around 8% and the remains are coming from the rest of the world with the share for around 2% or less. For China and Sri Lanka, the advantages might come from their cheap labor. However, for those countries, the trends of imports tend to decrease, while Australia shows an increase in trend after the application of mandatory SNI.

### V.1.2. SNI for Wheat Flour and Technical Barriers to Trade

As the average of imports after the application of mandatory SNI increases and the result of the regression shows that the variable of SNI is does not influence demand of quantity

wheat flour significantly, thus I can conclude that up until 2006 the application of mandatory SNI does not act as technical barriers to trade for imported wheat flour. However, besides the facts above, there are some references that can support the conclusion.

According to Fischer and Serra (1999), a standard can be protectionist when it exceeds what government would impose if all producers were local, and it can be non-protectionist if the minimum quality standard that is used for imported commodity is the standard that government would use when all firms were domestic. The application of mandatory SNI is imposed equally both to domestic and foreign producers with the same technical requirements.

The same thought is also pointed out by Hillman (1991). Non tariff barriers to trade or technical barriers, such as standards of identity, measure and quality, Sanitary and Phytosanitary measures, and packaging measures; can be defined as any governmental devices or practices other than a tariff, which directly impedes the entry of imports into a country as well as discriminates against imports, but does not apply with an equal force on domestic production or distribution.

From the point of view of Multilateral Agreement on Technical Barriers to Trade, the application of mandatory SNI on wheat flour also does not act as technical barriers to trade. The General Agreement on Tariffs and Trade (GATT) 1994, in the Agreement on Technical Regulation and Standards Article 2.1 regarding to technical regulation and standards, stated that members shall ensure that in respect of technical regulations, products imported from the territory of any member shall be accorded treatment no less favorable than that accorded to like products of national origin and to like products originating in other country (the legal text of WTO, 1999).

Based on Fischer and Serra (1999), Hillman (1991), and the perspectives of multilateral agreement, the application of mandatory SNI for wheat flour is not categorized as technical barriers to trade. Besides that, there is another GATT's Article concerning the conformity assessment of the application of mandatory standards which shows that the application of mandatory SNI is not categorized as technical barriers to trade, the Article 5.

Article 5 of GATT stated that conformity assessment procedures are prepared, adopted and applied so as to grant access for suppliers of like products originating in the territories of other members under conditions no less favorable than those accorded to suppliers of like products of national origin or originating in any other country (the legal text of WTO, 1999). The application of mandatory SNI that requires wheat flour which is traded in Indonesia to fulfill the SNI requirements is treating the domestic's produced wheat flour and imported wheat flour equally. Both are implied with the same technical standards and standards testing procedures, which is the SNI-01.3751-2000.

Besides the SNI technical requirement which ruling to fortify wheat flour with some micronutrients, the application of mandatory SNI on wheat flour also requires a quality control mechanism by a government body to ensure that the quality of wheat flour has already met the SNI, and the factory's quality system in producing the wheat flour has completed the standards regulation in order to have the certificate of rights for using SNI label. Domestic and imported wheat flour has the same procedures for product testing and quality system assessment, and there is not any difference in the procedures for both.

Another GATT regulation that concerns about the assessment fee, Article 5.2.5, stated that any fees imposed for assessing the conformity of products originating in the territories of other members are equitable in relation to any fees chargeable for assessing the conformity of like products of national origin or originating in any other country. Taking into account; communication, transportation and other costs arising from differences between location of facilities of the applicant and the conformity assessment body (the legal text of WTO, 1999).

### **V.1.3. Import, Price and Its Market Share in Domestic Market**

Despite the quantity of import that is not affected by the implementation of mandatory SNI and the trends of imported wheat flour that tend to increase, the share of import in domestic price is not signing an increase. After the deregulation policy and up until now, the share of imported wheat flour in domestic market is only around 20%. The result of the regression also shows the same. As the regression result for variable price interprets that every 1% increases in price will result a decrease in the quantity of imported wheat flour for around 6.4%. This means that the increase in price is not very affecting the quantity demand of wheat flour or in other word that the price elasticity is elastic.

There are three possible explanations in explaining why the imports share in domestic market is relatively small. First are the monopolistic industry and vertical integration. As it is mentioned in the previous chapter that domestic industry of wheat flour only consists of four firms with one firm, Bogasari, has more than 75% of share. The characteristic of domestic industry, or we can say domestic firm as Bogasari which

dominates the industry, is near to the monopolistic industry. A monopoly firm can have a high profit because of the high range between the marginal costs and marginal revenue. The high profit, with a long period of time, that Bogasari earns make this firm become strong which eventually can compete with the cheap-price-imported wheat flour in domestic market.

Besides its high profit in a long period, Bogasari is also acting as suppliers of raw materials for Indofood, the largest instant noodle producer which belongs to the same company. Vertical integration between Bogasari and Indofood thus make Bogasari have more power in domestic market because a vertical merger would be maximally detrimental, since it would lead to complete foreclosure of downstream and would determine a price rise up to the monopoly level (Motta, 2004). Other fact that has similar characteristic with vertical integration is that more than 50% of wheat flour is consumed by SMEs of wheat based food industry that most of them are under the monitoring of Bogasari, which means it is also acting as supplier of wheat flour for them.

Second possible explanation is the consumer behavior. As the domestic industry of wheat flour has a long history in controlling domestic market, which was started in the sixties, the consumers seem already have a "brand-minded" of domestic wheat flour production. Besides that, because SNI has been implemented to domestic producers since 1998, some of consumers do not change their preferences from domestic wheat flour. This characteristic of the consumer behavior is mentioned in Shapiro (1983) and Besanko, *et.al.* (1988), they show that consumers who purchase qualities in excess of the standard in the absence of regulation will not change their quality selection in response to the standards regulation.

Third explanation are related to consumer behavior is product diversification. Bogasari does not only produce one brand of wheat flour, but many brands with different quality and price, which make consumers have more varieties to choose. This makes Bogasari's products have strong position in domestic market. Strong position in domestic market thus makes the imported wheat flour hard to penetrate the domestic market. However, the mandatory application of SNI brings other new regulations that need some adjustments for imports to comply with. Nevertheless, the questions of why import does not decrease and why market share of import in domestic market remains small is beyond the scope of my research. The brief explanation above might be used for the next research.

#### **V.1.4. Application of Mandatory SNI and Gain for Consumer**

Although at the beginning there might be a political background on the policy, in overall, the application of mandatory SNI is benefiting consumers since the consumers get the nutritious wheat flour from the wheat flour based food. Besides getting nutritious wheat flour, consumers also benefited from the reduction of risk of low quality wheat flour, and consumers' information costs because consumers are no longer have to search for qualified wheat flour by trying it, but only searching for wheat flour with SNI label which guarantees the quality.

Philip Nelson (1970) stated that the quality of some goods and services can be evaluated readily by inspection prior to a purchase (search goods) or it can only be established by the experience of using or consuming the product (experience goods). While Akerlof (1970) and Leland (1976) show that the minimum quality standards is used to limit the degree of products' risks faced by the consumers as well as the

distributional effect, and help to combat 'lemons' type market failure and also function as an efficiency effects.

The fact that domestic production and import of wheat flour are not significantly decreased show that the application of mandatory SNI for wheat flour does not reduce consumers' willingness to consume the product. This condition is not supporting of what Ronnen (1991) found, he said that some consumers might no longer purchase the product because the imposition of the minimum quality standards regulation may lead to an increase in price and a reduction in variety. In the case of SNI for wheat flour, consumers are automatically participating to select higher quality of wheat flour because all wheat flour distributed in domestic market has already complied with the SNI.

The fact of consumers' participation shows the level of minimum quality standards that chosen by the government is suitable for the consumers. The application of mandatory SNI is supporting what Ronnen (1991) stated, that in contrast, when production involves fixed costs and firms compete in price, an appropriately chosen standard will actually increase consumers' participation and will cause all participating consumers to select higher qualities.



## V.2. Policy Implication

The policy implication in this part is taken from the case of the application of mandatory SNI for wheat flour through the perspective of domestic industry along with monopolistic characteristic and vertical integration background. The application of mandatory SNI that does not affect much in domestic producers and imports are partly because of these reasons.

As the purpose of the application of mandatory SNI increases the nutritious value of the society and boost the creation of fair competition in the industrial and trading sectors, SNI than becomes one of the government's tools to protect the society from low quality and even bad quality wheat flour. This is to limit the degree of products' risks faced by the consumers and help to combat 'lemons' type market failure, as in Akerlof (1970) and Leland (1976). Than the consumers are no longer worried, or at least can reduce their worries with the uncertain quality of wheat flour in the market.

However, as multilateral agreements lessen the tariff barriers, more forms of protection are becoming common. Standardization issues continue to grow more complex. The interest of countries to protect their societies from the threats of secure, health, and environmental protections as the purpose in imposing standards can be blurred with the interest of domestic industry. Standards can be used as political device and capitalistic institution in protecting certain domestic industry, which perhaps as a return for contributing in the political process to the governmental position. Thus, it can be used as a vehicle in certain interest of capitalist that in the end can distort trade and reduce welfare.

So, minimum quality standards that set and controlled by the government must be run in a good institution to achieve the purpose of welfare enhancement. High integrity officials and high quality human resources, well prepared infrastructures and supporting facilities such as high technology testing laboratory, at least will ensure the goals of the application. The good institution will be used to control the quality on the borders and domestic market, prevent smuggling as well as bribery, high accuracy of product testing, and to ensure that the purpose of application of mandatory SNI is reached.

In addition, before imposing the standards regulation, government needs to consider the cost and benefit of the imposition. When imposing SNI as mandatory standards for certain products government has to involve all stakeholders and prevent conflict of interests. Studies need to be done before imposing standards thus the losses can be eliminated, industry does not lose its competitiveness, the trade is not distorted and the societies achieve gains by getting high quality products with competitive price. In the end, government will achieve its goals of which increasing the society' welfare, creating fairness in industrial and trading sectors, and increasing the overall welfare.

For the next research, more discussions about the possibility of transaction costs that risen from the existence of inefficient bureaucracy, the cost and benefit of imposing mandatory standards in the context of international trade, and cost and benefit to overall welfare, will be beneficial to understand the complexity of the application of mandatory SNI.

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