



UNIVERSITAS INDONESIA

**THE DETERMINANT FACTORS OF INDONESIA'S
LEATHER AND LEATHER PRODUCTS INDUSTRY
EXPORT PERFORMANCE**

THESIS

WASIYANTO

NPM. 0806430670

**FACULTY OF ECONOMICS
MASTER OF PLANNING AND PUBLIC POLICY
JAKARTA
JANUARY 2010**



UNIVERSITAS INDONESIA

**THE DETERMINANT FACTORS OF INDONESIA'S
LEATHER AND LEATHER PRODUCTS INDUSTRY
EXPORT PERFORMANCE**

THESIS

A thesis submitted in partial fulfillment of the requirements for the degree of
Master of Economics in Planning and Public Policy
University of Indonesia

WASIYANTO

NPM. 0806430670

**FACULTY OF ECONOMICS
MASTER OF PLANNING AND PUBLIC POLICY
ECONOMIC GLOBALIZATION
JAKARTA
JANUARY 2010**

STATEMENT OF AUTHORSHIP

“I certify that the attached material is my original work. I declare that no other person’s work has been used without due acknowledgement”

Except where I have clearly stated that I have used some of this material elsewhere, it has not been presented by me for examination in any other course or unit at this or any other institution.

I understand that the work submitted may be reproduced and/ or communicated by the University or third party authorized by the University for the purpose of detecting plagiarism.

Name : Wasiyanto

Student Register Number : 0806430670

Signature :

Date : January 2010

ENDORSEMENT

This thesis is proposed by : Wasiyanto
Name : Wasiyanto
Student Register Number : 0806430670
Program : Master of Planning and Public Policy
Title of Thesis : The Determinant Factors of Indonesia's Leather
and Leather Products Industry Export Performance

It has been defended to board of examiners and submitted in partial fulfillment of the requirements for the degree of Master of Economics in Master of Planning and Public Policy, Faculty of Economics, University of Indonesia.

BOARD OF EXAMINERS

Supervisor : Pos M. Hutabarat, Ph.D (.....)

Examiner : Dr. Maddaremmeng A. Panennungi (.....)

Examiner : Dr. Ir. Widyono Soetjipto, MSc. (.....)

Stipulated in : Jakarta

Date : January 2010

ACKNOWLEDGEMENTS

I would like to thank to the only Almighty Allah, because of His blessing, I could complete this research that be entitled of: “The Determinant Factors of Indonesia’s Leather and Leather Products Industry Export Performance”.

This research is a partial fulfillment of the requirements for the degree of Master of Economics in International Trade Policy Program, Faculty of Economics University of Indonesia. With the completion of this research, I would like to express my gratitude to the following people who made this research possible:

1. Mr. Pos M. Hutabarat, Ph.D, my supervisor for his guidance, patience, constructive criticism, and recommendation that made this study a valuable learning process for me;
2. Mr. Arindra A. Zainal, Ph.D, Head of the program of Master of Planning and Public Policy, Faculty of Economics University of Indonesia;
3. Mr. Dr. Andi Fahmi, Secretary of the program of Master of Planning and Public Policy, Faculty of Economics University of Indonesia;
4. All of the Teachers, Secretariats staffs and University staffs who have been very helpful during the class;
5. My parents who have been the greatest partners with unlimited loves during the time in finishing this research
6. My wife, Siti Qomariyah for patience advices, and my son, Muhammad Radhiyya Rifqy with their cute smiles which gave additional energy for me in completing this research;
7. All of friends in MPKP-ITP batch three who have helped and inspired me in finishing this research.

Last but not least, I believe that this research is still imperfect. Therefore, suggestions and critics are welcomed to enhance this work.

Jakarta, January 2010

Wasiyanto

**PAGE OF ASSERTION AGREEMENT ON THESIS PUBLICATION FOR
ACADEMIC INTEREST**

As civitas academia of University of Indonesia, I who signed on below:

Name : Wasiyanto
Student Register Number : 0806430670
Program : Master of Planning and Public Policy
Department : Economics
Faculty : Economics
Kind of Opus : Thesis

For development in science, I agree to give to University of Indonesia a Non exclusive Royalty – Free Right on my thesis entitled:

“The Determinant Factors of Indonesia’s Leather and Leather Products Industry
Export Performance”

along with the available of sets of equipment (if needed). By a Non-exclusive Royalty – Free Right, University of Indonesia has right to save, format, manage in the form of database, maintain and publicize my thesis without asking the permission from me as long as mentioning my name as writer / creator and as the owner of the copyright.

Thus this statement I made truly.

Made in: Jakarta

Date: January 2010

Wasiyanto

ABSTRACT

Name : Wasiyanto
Study Program : Master of Planning and Public Policy
Title : The Determinant Factors of Indonesia's Leather and
Leather Products Industry Export Performance

Leather industry plays important roles in Indonesian economy. The industries contribute to increase domestic economic activities such as foreign exchange earnings and labor intensive industry. There is export tax policy on raw leather become central issues in the context of international political economy. It is interesting enough to find the determinant factors that affect on export supply of Indonesian leather and leather products industry.

The objective of this research is to identify and analyze determinant factors of export performance of leather and leather products Industry, and also to identify the impact of the implementation of government regulations mainly export tax on raw leather to export performance of leather and leather products industry. The factors that will be analyzed are variables of real Gross Domestic Product (as proxy of output), relative price of export, nominal exchange rate, dummy export tax policy on raw leather and dummy economic crisis. The research covers period of the study during 1980 – 2008 and uses Ordinary Least Square (OLS) multiple regression.

Econometric validity test in this research is absence of multicollinearity, heteroscedasticity, and autocorrelation. From the regression result, the adjusted R Squared coefficient of determination is 0.85 which indicates that about 85 percent variation of export supply of leather and leather products explained by all independent variables in the model, which means that this form is a good fit for the data. On the other hand, around 15 percent variation of dependent variable cannot be explained by all independent variables in the regression model.

Variables such as relative price of export, nominal exchange rate, and dummy export tax on raw leather had a statistically significant influence on export supply of leather and leather products industry. Meanwhile, real gross domestic product as proxy output and dummy economic crisis had not a significant influence on export supply.

This research found that over the period of the study, the export performance (export supply) of leather and leather products industry is more influenced by relative price of export, nominal exchange rate and the policy of export tax on raw leather. Thus, the export tax policy on raw leather may encourage the increased export of leather and leather products industry with the availability of raw materials in the country.

Keywords: leather and leather product industry, export tax policy, multiple regressions model

ABSTRAK

Nama : Wasiyanto
Program Studi : Magister Perencanaan dan Kebijakan Publik
Judul : Faktor-Faktor Yang Mempengaruhi Kinerja Ekspor Industri Kulit dan Produk Kulit Indonesia

Industri kulit berperan penting dalam perekonomian Indonesia. Industri ini memberikan kontribusi untuk peningkatan kegiatan ekonomi domestik seperti penerimaan devisa dan penyerapan tenaga kerja. Terdapatnya kebijakan pajak ekspor kulit mentah menjadi isu sentral dalam konteks ekonomi politik internasional. Hal ini cukup menarik untuk mencari faktor-faktor yang mempengaruhi penawaran ekspor industri kulit dan produk kulit Indonesia.

Tujuan dari penelitian ini adalah untuk mengidentifikasi dan menganalisis faktor-faktor yang mempengaruhi kinerja ekspor industri kulit dan produk kulit, serta untuk mengidentifikasi implikasi dari implementasi peraturan pemerintah terutama pajak ekspor kulit mentah terhadap kinerja ekspor industri kulit dan produk kulit. Faktor-faktor yang akan dianalisis adalah variabel Produk Domestik Bruto riil (sebagai proxy produksi), harga relatif ekspor, nilai tukar nominal, dummy kebijakan pajak ekspor kulit mentah dan dummy krisis ekonomi. Penelitian meliputi periode 1980 - 2008 dan menggunakan Ordinary Least Square (OLS) regresi ganda.

Hasil uji validitas ekonometrik dalam penelitian ini adalah ketiadaan multicollinearity, heteroscedasticity, dan otokorelasi. Dari hasil regresi, koefisien determinasi (adjusted R Squared) adalah 0,85 yang menunjukkan bahwa sekitar 85 persen variasi penawaran ekspor industri kulit dan produk kulit dijelaskan oleh semua variabel independen dalam model. Di sisi lain sekitar 15 persen variasi variabel dependen tidak dapat dijelaskan oleh semua variabel independen dalam model regresi.

Variabel seperti harga relatif ekspor, nilai tukar nominal, dan dummy pajak ekspor kulit mentah secara statistik berpengaruh signifikan terhadap kinerja ekspor industri kulit dan produk kulit. Sementara itu, produk domestik bruto riil sebagai pengganti produksi dan dummy krisis tidak berpengaruh signifikan terhadap penawaran ekspor.

Studi ini menemukan bahwa selama periode penelitian kinerja ekspor (penawaran ekspor) industri kulit dan produk kulit lebih dipengaruhi oleh harga relatif ekspor, nilai tukar nominal dan adanya kebijakan pajak ekspor pada kulit mentah. Dengan demikian kebijakan pajak ekspor pada kulit mentah ini dapat mendorong peningkatan ekspor industri kulit dan produk kulit dengan ketersediaan bahan baku di dalam negeri.

Kata kunci: industri kulit dan produk kulit, kebijakan pajak ekspor, regresi ganda

LIST OF CONTENTS

PAGE OF TITLE	i
STATEMENT OF AUTHORSHIP	ii
ENDORSEMENTS.....	iii
ACKNOWLEDGEMENT	iv
PAGE OF ASSERTION STATEMENT	v
ABSTRACT OF THESIS	vi
LIST OF CONTENTS	viii
LIST OF TABLE	x
LIST OF FIGURE.....	xi
LIST OF ANNEX	xii
1. INTRODUCTION.....	1
1.1. Background.....	1
1.2. Research Objectives.....	3
1.3. Research Coverage	3
1.4. Research Methodology	3
1.5. Structure of Thesis	5
2. THEORITICAL BACKGROUND.....	6
2.1. Theory of International Trade.....	6
2.2. Theory of Supply	8
2.3. Mechanism of Export Import.....	9
2.4. Trade Barrier.....	11
2.5. Gross Domestic Product	14
2.6. Exchange Rate Concept.....	15
2.7. Price Theory.....	16
2.8. Previous Research.....	17
3. AN OVERVIEW OF INDONESIA’S LEATHER AND LEATHER PRODUCTS.....	22
3.1. An Overview of Leather Commodity	22
3.2. Technology of Leather Tanning Process	24
3.3. Performance of Indonesia’s Leather and Leather Products Industry.....	26
3.4. Performance of Indonesia’s Leather and Leather Products in the World Market.....	30
3.5. Government Policy on Leather and Leather Products	34
3.5.1. Policy of Development of Leather Products Industry.....	34
3.5.2. Policy on Export of Leather	35
3.5.3. Policy on Import of Leather.....	37
4. RESEARCH METHODOLOGY	38
4.1. Model Specification	38
4.2. Expected Sign	39
4.3. The Characteristic of the Data	40

4.4. Methodology	41
4.4.1. Test of Economic Sign	41
4.4.2. Test of Econometric	41
4.4.2.1. Autocorrelation	42
4.4.2.2. Heteroscedasticity	42
4.4.2.3. Multicollinearity	43
4.4.2.4. Stability Test	44
4.4.2.5. Normality Test	44
4.4.3. Test of Statistic	45
4.4.3.1. Coefficient Determination (Adjusted R Squared).....	45
4.4.3.2. F Statistic	46
4.4.3.3. t-test and p-value.....	46
4.5. Research Framework	47
5. RESULT AND ANALYSIS.....	48
5.1. Descriptive Analysis	48
5.1.1. Economic Growth and Export Performance of Leather Industry..	48
5.1.2. Nominal Exchange Rate and Export Performance of Leather Industry	49
5.2. Ordinary Least Square Estimation	50
5.2.1. Test for Autocorrelation	51
5.2.2. Test for Heteroskedasticity	51
5.2.3. Test for Multicollinearity	51
5.2.4. Stability Test.....	52
5.2.5. Normality Test.....	52
5.3. Analysis of Determinant Factors of Leather and Leather Products Industry Export Performance	52
5.3.1. Real Gross Domestic Product.....	54
5.3.2. Nominal Exchange Rate	55
5.3.3. Relative Price of Export	57
5.3.4. Dummy Export Tax Policy on Raw Leather	58
5.3.5. Dummy Crisis.....	60
6. CONCLUSION AND RECOMMENDATION	61
6.1. Conclusion	61
6.2. Recommendation	61
REFERENCES	62
ANNEX.....	65

LIST OF TABLE

Table 2.1. Summary of Previous Research.....	21
Table 3.1. Domestic Production of Raw Leather	22
Table 3.2. Performance of Medium and Large Leather and Leather Products Industry	27
Table 3.3. Export Share of Leather and Leather Products Industry to the Total Non-Oil Indonesia's Export	29
Table 3.4. Export Performance of Indonesia's Leather and Leather Products	32
Table 4.1. Expected Sign.....	39
Table 5.1. Regression Result	50

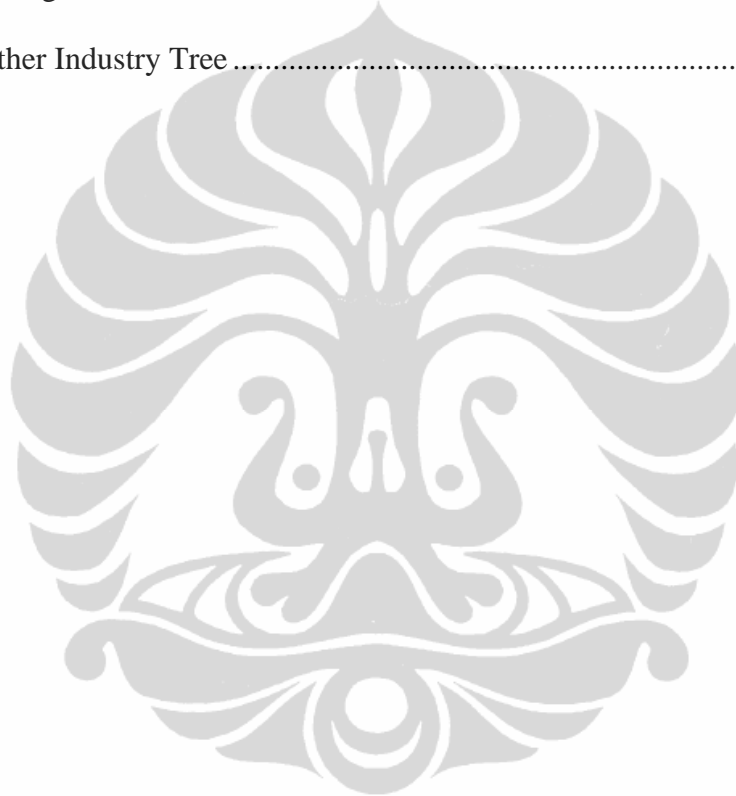


LIST OF FIGURE

Figure 2.1. Shift of the Supply Curve for Good X	9
Figure 2.2. Deriving Foreign Export Supply Curve	10
Figure 2.3. Deriving Home's Import Demand Curve	11
Figure 2.4. The Effect of Export Tax by a Small Country	12
Figure 3.1. Industrial Area of Leather and Leather Products	30
Figure 3.2. World Export and Import of Raw Leather	31
Figure 3.3. Main Countries Destination of Indonesia's Export of Leather and Leather Products Industry in Period 2004-2008	33
Figure 4.1. Research Framework	47
Figure 5.1. Indonesia's Economic Growth in Period 1981-2008	48
Figure 5.2. Indonesia's Exchange Rate in Period 1980-2008	49

LIST OF ANNEX

Annex 1. Time Series on Leather and Leather Products Export Performance, and the Explanatory Variables, 1980-2008	65
Annex 2. Ten Main Countries Destination of Indonesia's Export Leather and Leather Products in period 2004-2008	66
Annex 3. The Regression Result.....	67
Annex 4. Leather Industry Tree	71



CHAPTER 1

INTRODUCTION

1.1. Background

Leather industry plays important roles in Indonesian economy. The industries contribute to increase domestic economic activities such as foreign exchange earning and labor intensive industry. It is a labor-intensive undertaking as the processing and manufacturing industries dominated by small and medium scale industries. These industries are able to absorb many labors to produce various products. According to Ministry of Industry, in 2006 finished leather products industries employ 142,847 workers; meanwhile semi finished leather products industries employ 6,050 workers. Furthermore, this sector is very attractive for investors. The leather processing industry consists of leather tanning industry and the leather manufacturing industry, producing various finished leather products such as footwear, bags, suitcases, belts, purse, gloves and jackets.

Indonesia leather industries started to develop in 1970s. At first, there were 37 upstream firms in 1975 and grew to 112 medium and large firms in 1995. Indonesia has many leather industry centrals namely in Magetan, Garut, Madiun, Tanggulangin and Banten. In period 1998 until 2000 the number of firm (small and medium scale) decreased significantly due to raw material shortage. During that period, the domestic raw leather price was far below the international price and there was abolition of export tax on raw leather, thus suppliers of raw leather prefer to export their product rather than selling to the domestic leather industries or manufacturers. Therefore the leather industries were forced to import the raw material. Wanasuria (2001) mentioned that leather industries experience shortage of raw leather, thus makes them do import from several countries.

To make high quality leather products, firms need high quality of raw material. Indonesia has good quality raw leather. This makes foreign leather manufactures interested to buy Indonesian raw leather. This commodity can be exported in several forms such as raw leather; semi finished products, and finished products. Based on statistic data from ITC, export value of raw leather in

2004 was US\$ 1,073 million, and then declined to US\$ 569 thousand in 2005. Meanwhile, according to BPS data, total export value of leather and leather products industry in 2006 was US\$ 177.6 million then increased to US\$ 226.9 million in 2007.

Indonesia's raw leather has relative small market share in world market around 0.3 percent. The main destination countries of export of raw leather are Hong Kong, China, Thailand, Vietnam, Germany and Singapore. Meanwhile Indonesia semi finished leather products and finished leather products have good market share in world market. The world total export of leather products is inclining year to year. Based on WITS data, ten main countries destinations of Indonesia's export leather and leather products are the United States of America, Hong Kong, China, Italy, Malaysia, Singapore, Japan, Thailand, India and Vietnam. Thus, it offers a great opportunity to develop this sector.

There are several efforts conducted by government to increase export value of leather products. The government has been developing leather downstream industries. The development aims to increase value added and export value of leather products. The other effort is development of centralization leather industries such as footwear, bag and jackets products in Mojokerto, Tanggulangin and Magetan (East Java), Pulogadung (Jakarta), Cibaduyut, Garut, Bandung, Tajur-Bogor (West Java), Yogyakarta, and Bali; management training, production technique development, friendly production process adoption and revitalization of several leather technical service units.

Another policy taken by government is export tax imposition. In 1996, government issued decree No. 666/KMK.017/1996 about tariff export tax for several commodities include raw leather as much as 30 until 50 percent. In 1998 Minister of Finance issued decrees No. 74/KMK.01/1998 and No 241/KMK.01/1998 to abolish the export tax or put zero percent tariff to several commodities including raw leather commodity. The liberalization of raw leather has impact on increasing the export of raw leather. In 2005, government released rule No 35 about export tax imposition for several commodities include raw leather as much as 25 percent. The objectives of this regulation were to secure domestic necessity or demand, to protect natural resources, to anticipate effect of

increasing price which significant from certain export goods in international market, and to stabilize domestic price for certain products or commodities. The availability of raw leather becomes important to support domestic production of downstream industries.

Indonesian leather manufacturers dominate by small and medium scale industries with limited resources on capital, market and product design. Development of leather industries as part of export-oriented industry is needed to compete with other competitor in the leather world markets. The export performance of Indonesian leather and leather products industry could be studied by supply side analysis of export. It is interesting enough to find the determinant factors that affect on export supply of Indonesian leather and leather products industry.

1.2. Research Objectives

There are two objectives of this research:

1. To identify and analyze determinant factors of export performance of leather and leather products Industry.
2. To identify the impact of the implementation of government regulations mainly export tax on raw leather to export performance of leather and leather products industry.

1.3. Research Coverage

The observation will only focus on the leather and leather products manufacture by using International Standard Industrial Classification (ISIC) 3 digits that is 191, namely tanning and dressing of leather manufacture which also include manufacture of luggage, handbags, saddler, harness and packing from leather. To analyze the determinant factors of Indonesia's leather products export performance, this research focus on export supply to the world market. This research use annually time series data in the period of 1980 until 2008.

1.4. Research Methodology

Source of data which are used in this research are secondary data from Central Bureau of Statistic (BPS), Ministry of Trade (from World Integrated

Trade Solution / WITS), Ministry of Industry, Indonesian Tanners Association (APKI), International Financial Statistic, and International Trade Center. The data will be classified into two categories, the first is main data which is used in the process regression or econometric analysis, and the second is supporting data to encourage in the explanation of the research.

The research use econometric analysis as research methodology. In the model formulation, export value of leather products is assumed to be determined by real gross domestic product as proxy of output, relative price of export, nominal exchange rate, dummy export tax policy on raw leather and dummy economic crisis. Equation of export performance of leather and leather products industry has been modified from previous research by including dummy export tax on raw leather and dummy crisis. This research assumes that government regulation of export tax on raw leather influences on export performance of leather products. Export performance function is given in the following form

$$\text{Log(EX)}_t = \alpha_0 + \alpha_1 \text{Log(RGDP)}_t + \alpha_2 \text{Log(RP)}_t + \alpha_3 \text{Log(NER)}_t + \alpha_4 D_{1t} + \alpha_5 D_{2t} + \varepsilon_t$$

Where:

EX_t : Export value of leather and leather products industry, in year t (US\$)

$RGDP_t$: Real Gross Domestic Product (Indonesia), in year t (as proxy of output)

RP_t : Relative price (export price / domestic Wholesale price index), in year t

NER_t : Nominal exchange rate, in year t (Rp/US\$)

D_{1t} : Dummy export tax policy on raw leather

1 : There is an export tax policy on raw leather in year t

0 : There is not any export tax policy on raw leather in year t

D_{2t} : Dummy economic crisis

1 : Economic crisis occurs in year t

0 : Economic crisis does not occur in year t

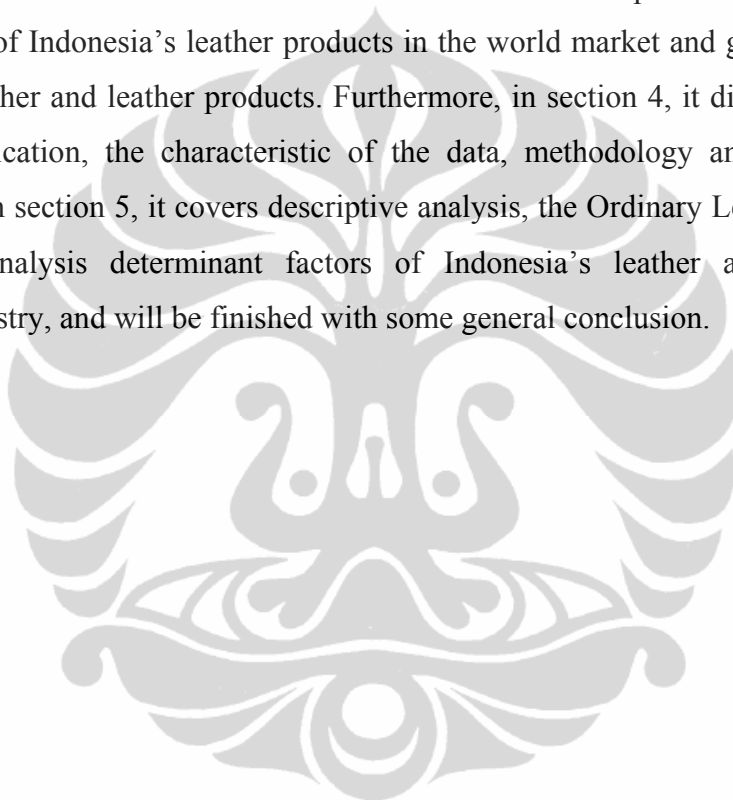
α_0 : Constanta

$\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5$: Regression coefficient

ε_t : Error standard

1.5. Structure of Thesis

In the next section, this study attempt to clarify the theoretical background which covers international trade theory, export import mechanism, supply theory, and trade barrier. It also covers concept of export tax policy, gross domestic product, exchange rate, price theory and some previous research. Then, in the section 3, it discusses an overview of Indonesia's leather and leather products industry. It covers overview of leather commodity, technology of leather tanning process, performance of Indonesia's leather and leather products industry, performance of Indonesia's leather products in the world market and government policy on leather and leather products. Furthermore, in section 4, it discusses the model specification, the characteristic of the data, methodology and research framework. In section 5, it covers descriptive analysis, the Ordinary Least Square estimation, analysis determinant factors of Indonesia's leather and leather products industry, and will be finished with some general conclusion.



CHAPTER 2

THEORITICAL BACKGROUND

2.1. Theory of International Trade

International trade has increased in the last decade. International trade has caused the exchange of goods and services, the movement of resources and capital across the boundaries or territories. The most important single insight in international trade is that are gains from trade, that is when countries sell goods and services to each other, this exchange is almost always to their mutual benefit.

Krugman and Obstfeld (2006) mention that there are two basic reasons countries engage in international trade, each of which contributes to their gains from trade. First, countries trade because they are different from each other. Nations, like individuals, can benefit from their differences by reaching an arrangement in which each does the things it does relatively well. Second, countries trade to achieve economies of scale in production. That is, if each country produces only a limited range of goods, it can produce each of these goods at a large scale and hence more efficiently than if it tried to produce everything. In the real world, patterns of international trade reflect the interaction of both these motives.

International trade theory has been developed by many economists. Several different models have been proposed to predict patterns of trade and to analyze the effect of trade policies. The first is the absolute advantage theory which is developed by Adam Smith. According to Salvatore (2007), this theory assume that when one nation is more efficient than (or has an absolute advantage over) another in the production of one commodity but is less efficient than (or has an absolute disadvantage with respect to) the other nation in producing a second commodity, then both nations can gain by each specializing in the production of the commodity of its absolute advantage and exchanging part of its output with the other nation for the commodity of its absolute disadvantage. By the process resources are utilized in the most efficient way and the output of both commodities will rise.

The second theory is the comparative advantage theory which is developed by David Ricardo. This approach, in which international trade is solely due to international differences in the productivity of labor, is known as the Ricardian Model. This postulates that even if one nation is less efficient than the other nation in the production of both commodities, there is still a basis for mutually beneficial trade. The assumption of this theory is only two nations and two commodities, free trade, perfect mobility of labor within each nation but immobility between two nations, constant costs of production, no transportation costs, and no technical change. A country has a comparative advantage in producing a good if the opportunity cost of producing that good in terms of other goods is lower in that country than it is in other countries. Trade between two countries can benefit both countries if each country exports the goods in which it has a comparative advantage.

The third theory is Heckscher-Ohlin theory which is developed by two Swedish economists, Eli Heckscher and Bertil Ohlin. The Heckscher-Ohlin theory can be presented in a nutshell in the form of two theorems: H-O theorem (which deals with and predicts the pattern of trade) and the factor price equalization theorem. The H-O theorem describe that a nation will export the commodity whose production requires the intensive use of the nation's relatively abundant and cheap factor and import the commodity whose production requires the intensive use of the nation's relatively scarce and expensive factor. In short, the relatively labor-rich nation exports the relatively labor intensive commodity and imports the relatively capital intensive commodity.

The H-O theorem isolates the difference in relative factor abundance or factor endowments, among nations as the basic determinant of comparative advantage and international trade. For this reason the H-O model is often referred to as the factor-proportions or factor-endowment theory. According to the factor price equalization (H-O-S) theorem, international trade will bring about equalization of relative and absolute returns to homogenous factors across nations. It means, international trade will cause the wages of homogenous labor (labor with the same level of training, skills and productivity) to be the same in all trading nations. Similarly, international trade will cause the return to homogenous

capital (capital of the same productivity and risk) to be the same in all trading nations. International trade keeps expanding until relative commodity price are completely equalized, which means that relative factor prices have also become equal in the two nations.¹

2.2. Theory of Supply

The supply curve shows the quantity of a good is available for sale by its producer at received prices in the market. In this curve also shows how the quantity of a good offered for sale changes as the price of the good changes. The curve has up word sloping, it means the higher the price so the more firms are able and willing to produce and sell. If production costs fall, firms can produce the same quantity at a lower price or a larger quantity at the same price.

The quantity supplied can depend on other variables besides price. For example, the quantity that producers are willing to sell depends not only on the price they receive but also on their production costs, including wages, interest charges, and the costs of raw materials. Lower raw material costs-indeed, lower costs of any kind-make production more profitable, encouraging existing firms to expand production and enabling new firms to enter the market. If at the same time the market price stayed constant, this expected a greater quantity supplied (Pindyck and Rubinfeld, 2005).

A change in the quantity supplied is a movement along the supply curve due to a change in the price of the good supplied. A change in supply or shift of the supply curve is not only caused by a change in the price of the good being supplied but also caused by other factors, including:

1. Changes in the prices of other goods: Suppliers are frequently able to switch their production processes from one type of good to another. For example, farmers might decide to grow less wheat and more corn on the same land if the price of corn rises relative to the price of wheat. In this case, the supply curve for wheat would shift to the left, as in Figure 2.1 (a), as a consequence of the higher price for corn.

¹ Salvatore, Dominick. International Economics, 9th Edition. USA: John Wiley & Sons, Inc, 2007.

2. Changes in the prices of inputs: The prices of inputs used to produce a good also because the supply curves to shift. An increase in the prices of a good's inputs will raise costs to suppliers and cause suppliers to supply less of that good at all prices. Therefore, an increase in the prices of a good's inputs leads to a leftward shift of the supply curve for that good, as in Figure 2.1 (a). A decrease in the prices of a good's inputs reduces costs and allows suppliers to supply more of that good at all prices. Therefore, a decrease in the prices of a good's inputs leads to a rightward shift of the supply curve for that good, as in Figure 2.1 (b).
3. Changes in technology: Advances in technology often have the effect of lowering the costs of production, allowing suppliers to supply more goods at all prices.

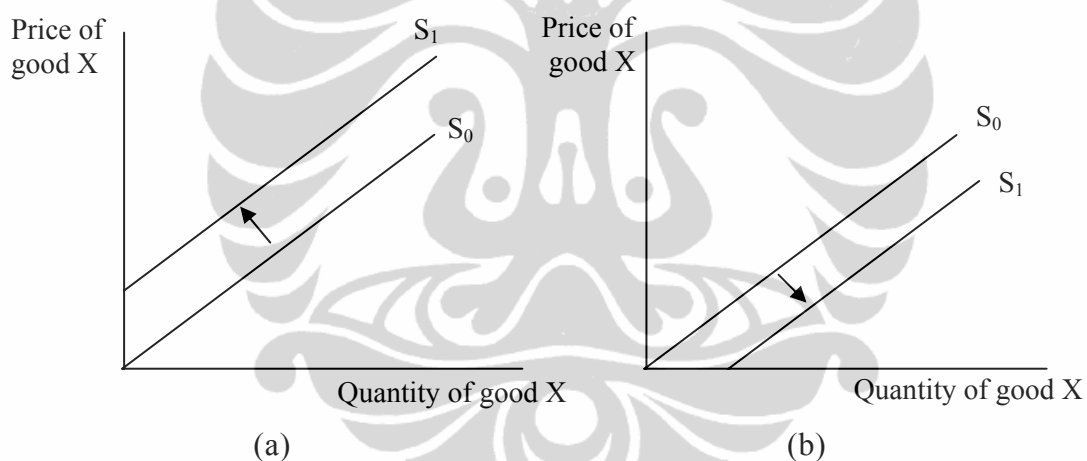


Figure 2.1. Shift of the Supply Curve for Good X (Pindyck and Rubinfeld, 2005)

2.3. Mechanism of Export and Import

Theoretically, suppose there are two countries, Home (H) and Foreign (F), both of which consume and produce commodity A. In each country, commodity A is a simple competitive industry in which the supply and demand curves are functions of the market price. Normally home supply and demand will depend on the price in terms of home currency, and foreign supply and demand will depend on the price in terms of foreign currency. Country H will export commodity A to country F if domestic price of commodity A in country H is relatively lower than

domestic price of the similar commodity in country F, country H will experience excess supply because domestic production is bigger than consumption. It means in country H occur excess production then tend to sell to another country. Meanwhile, in country F is occurred excess demand because production is lower than consumption rate. Due to this fact, country F willingness to buy (import) commodity A in which commodity A from country H is relatively lowers (Krugman and Obstfeld, 2006).

An illustration mechanism of export within international trade is as follow

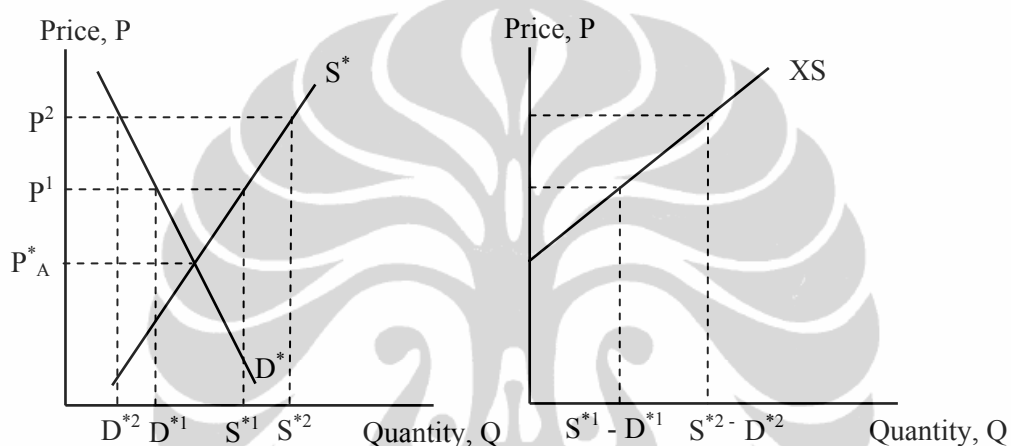


Figure 2.2. Deriving Foreign Export Supply Curve (Krugman and Obstfeld, 2006)

Figure 2.2 show the foreign export supply curve is derived. At the price P^1 foreign producers supply S^{*1} , while foreign consumers demand only D^{*1} , so the amount of the total supply available for export is $S^{*1} - D^{*1}$. At P^2 foreign producers raise the quantity they supply to S^{*2} and foreign consumers lower the amount they demand to D^{*2} , so the quantity of the total supply available to export rises to $S^{*2} - D^{*2}$. Because the supply of goods available for export rises as the price rises, the foreign export supply curve is upward sloping. At P^{*A} , supply and demand would be equal in the absence of trade.

Meanwhile illustration of deriving home's import demand curve given in Figure 2.3. The figure show how the home import demand curve is derived. At the price P^1 home consumers demand is D^1 , while home producers supply only S^1 , so import demand is $D^1 - S^1$. If the price experiences rise to P^2 , home consumers

demand only D^2 , while home producers raise the amount supply to S^2 , so import demand falls to $D^2 - S^2$. The import demand curve MD is downward sloping because as price increases, the quantity of import demanded declines. As the price of the good increases, home consumers demand less, while home producers supply more, so that the demand for imports declines. At P_A , home supply and demand are equal in the absence of trade, so the import demand curve intercepts the price axis at P_A .

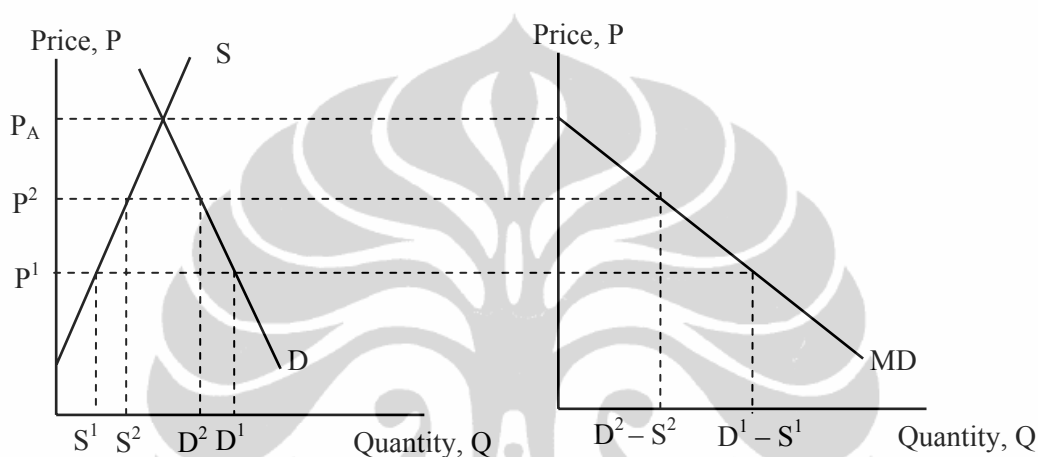


Figure 2.3. Deriving Home's Import Demand Curve (Krugman and Obstfeld, 2006)

2.4. Trade Barrier

Salvatore (2007) mention that trade barrier is a general term that describes any government policy or regulation that restricts international trade. While trade restrictions are invariably rationalized in terms of national welfare, in reality they are usually advocated by those special groups in the nation that stand to benefit from such restrictions. The most important type of trade restriction has historically been the tariff. A tariff is a tax or duty levied on the traded commodity as it crosses a national boundary.

Trade barriers can take many forms such as tariff, export tax, import quota, subsidies, voluntary export restraints, local content requirement, rule of origin, custom procedures, dumping, and standards: technical barrier to trade, sanitary and phytosanitary measures. Tariffs are the oldest form of trade policy and have traditionally been used as a source government income. During the past

two decades, non tariff trade barriers or the new protectionism, have become more important than tariffs as obstructions to the flow of international trade and represent a major threat to the world trading system. Economists generally agree that trade barriers are harmful and decrease overall economic efficiency.

Export tax is one of government policies or regulation to protect their domestic market or domestic consumer from increasing domestic commodity price due to increasing world price. This regulation makes domestic firms to shift their supply from the foreign to domestic market. Reed (2000) mentions that export tax are predominantly used by developing countries with the objective either to generate government revenues or to protect particular groups for political reasons. The effect of an export tax by a small country under a competitive market structure causes the price in the exporting country to fall below the world price

Under this policy, producers in the exporting country will lose because they receive lower prices and exports decline. Consumer in the exporting country will gain through lower prices and the government generates revenue. The effect of an export tax is different in the case of a large exporting country. Having market power in the world market, the export tax causes reduction in domestic production; thus, export decline and the world price increases. In this case, consumers, producers and the government in the exporting countries will gain from this policy. An illustration of effect export tax by a small country as follow

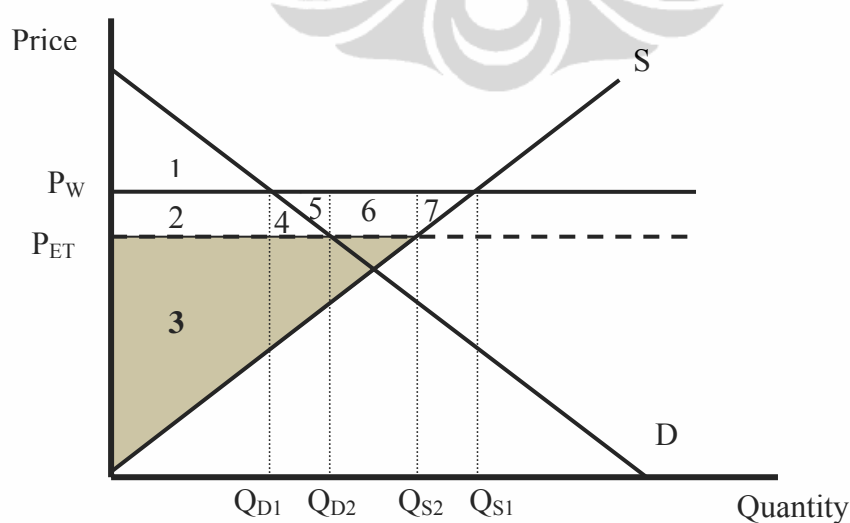


Figure 2.4. The Effect of Export Tax by a Small Country (Reed, 2000)

Figure 2.4 show the quantity of export after export tax imposition decline from $Q_{S1}-Q_{D1}$ to $Q_{S2}-Q_{D2}$, meanwhile the price in the exporting country to fall below the world price from P_w to P_{ET} . Producers in the exporting country will lose because they receive lower prices, from area $2+3+4+5+6+7$ to area 3. Consumer will gain through lower prices from area 1 to area $1+2+4$. The government generates revenue at area 6. There are efficiency losses at area 5 and 7, which is consumption distortion and production distortion.

According to Hasan et al (2001) an export tax policy on CPO reduces not only competitiveness of the Indonesian palm oil industry but also hurts producers of CPO, some of them are small-holder farmers, due to the lower price of CPO relative to the world market price. On the other hand, refiners that process CPO into various products - such as cooking oil, margarine, shortening - gain from this policy since they get CPO at lower prices. Finally, consumers may or may not gain from this policy since there is no guarantee that the processors will pass on the lower price of cooking oil. The export tax policy also hinders the development of the cooking oil industry in Indonesia as a whole and does not encourage diversification in cooking oils.

Piermartini (2004) mentions that export tax are not prohibited by WTO. About one third of WTO Members impose export duties. In contrast, on the basis of the recognition that export taxes distort trade, many regional trade agreements have prohibited them. For example, export taxes are prohibited among the member countries of the European Union, and NAFTA. Some bilateral trade agreements also prohibit export taxes.

Hudson and Ethridge (1998) in their research explained that the implication of an export tax on sectoral economic growth in the cotton and yarn sector in Pakistan. Pakistan imposed an export tax on raw cotton fiber from 1988-1995 in order to lower input cost to domestic yarn spinner. The policy of export tax had a significant adverse impact on growth in the raw fiber sector. This policy make internal market price for cotton become bellow international market price. Export of cotton decreased significantly after the implementation of export tax. The lower input cost as a result of the tax however did not appear to stimulate growth in the yarn sector over what would have occurred without the policy

2.5. Gross Domestic Product

The important economic indicator or economic performance for a certain period and country is Gross Domestic Product (GDP) both at current and constant prices. GDP is defined as total expenditure for all final goods and services produced within the country during a given period time. GDP also can define as total value added created by all economic units in a certain country during a given period. The GDP at current prices has advantages in presenting economic structure, while the GDP at constant price for knowing economic growth either for the whole or specific sector annually.

Nominal GDP is GDP evaluated at current market prices. Hence, nominal GDP will include all of the changes in market prices that have occurred during the current year due to inflation or deflation. Inflation is defined as a rise in the overall price level, while deflation is defined as a fall in the overall price level. In order to abstract from changes in the overall price level, another measure of GDP called real GDP is often used. Real GDP is GDP evaluated at the market prices of some base year.

There are three approaches in estimating GDP, namely: production, income and expenditure approach. Production approach is defined as the total value added of all production units in a certain country for a certain period. According to BPS, Indonesia's national income based on the production units are grouped into 9 sectors of industrial origin, namely: 1. Agriculture, livestock, forestry and fishery; 2. Mining and quarrying; 3. Manufacturing; 4. Electricity, gas and water supply; 5. Construction; 6. Trade, hotel and restaurant; 7. Transport and communication; 8. Finance, real estate and business services; 9. Services including services provided by government. Meanwhile GDP based on income approach is defined as the total of compensations to production factors used in the producing goods and services in a country and for a certain period.

According to Piana (2001), the most important measure of economic activity in a country, the Gross Domestic Product is the crossing point of three sides of the economy: expenditure, output, and income. To measure economic activity, one needs a meaningful aggregation of all kinds of productions. The

territory's productions are the crossing result of 1) effective demand, 2) production capabilities, and 3) income. Income arises from payments distributed to production factors and it provides the necessary finance for demand. Domestic demand is attracted not only by national goods but also by imports.

2.6. Exchange Rate Concept

The exchange rate expresses the national currency's quotation in respect to foreign ones. Thus, the exchange rate is a conversion factor, a multiplier or a ratio, depending on the direction of conversion. If the exchange rate can freely move, the exchange rate may turn out to be the fastest moving price in the economy, bringing together all the foreign goods with it. There are two types of exchange rate that are nominal exchange rate and real exchange rate. Nominal exchange rate is established on currency financial market called forex markets which are similar to stock exchange market. Nominal exchange rate is the price of one unit of foreign currency in domestic currency or can also be said the price of domestic currency against foreign currencies. For example, if the dollar is 8000 rupiah per dollar, then we can exchange one dollar with 8000 rupiah in the money market. Meanwhile real exchange rates are nominal rate corrected somehow by inflation measures (Piana, 2001).

The real exchange rate is calculated by correcting the nominal exchange rate for the price levels in the two countries. The real exchange rate measures the international price competitiveness (and changes in competitiveness) of domestic versus foreign products after adjusting for the exchange rate change and inflation. (Levich, 2001).

Exchange rates are important because they affect the relative price of domestic and foreign goods. When a country's currency appreciates (rises in value relative to other currencies), the country's goods abroad become more expensive and foreign goods in that country become cheaper (holding domestic prices constant in the two countries). Conversely, when a country's currency depreciates, its goods abroad become cheaper and foreign goods in that country become more expensive. Appreciation of a currency can make it harder for domestic manufacturers to sell their goods abroad and can increase competition at home

from foreign goods. Increasing trade barriers causes a country's currency to appreciate in the long run.²

There are several factors that affect to fluctuation of exchange rates such as capital flows, export revenues and speculation activities. The greater of the capital inflow tend to appreciate of domestic currency. Meanwhile, the capital outflow, the greater of demand for foreign currency, so will affect to depreciation of domestic currency. The greater volume of export revenues of goods and services so the greater amount of foreign exchange owned by a State and the subsequent exchange rate against foreign currencies would tend to strengthen or appreciation. Conversely, if exports decrease the amount of foreign exchange will have declined so make domestic exchange rate tends to depreciate.

2.7. Price Theory

According to Pindyck and Rubinfeld (2005), in a market economy, prices are determined by the interaction of consumers, workers, and firms. These interactions occur in markets-collection of buyers and sellers that together determine the price of a good. There are two types of prices. The first is nominal price, absolute price of a good, unadjusted for inflation. The second is real prices, the price relative to an aggregate measure of prices. In other words, it is the prices adjusted for inflation. The aggregate measure most often used is the consumer price index (CPI). While, wholesale price index (WPI) is the price of a representative basket of wholesale goods. WPI measure the change in the price of a fixed set of product of constant quantity and quality for all producer units and uses ISIC to classify economic transaction. The type of price is wholesale price defined as local price at the seller's. Some countries use the changes in this index to measure inflation in their economies.

The market prices of most goods will fluctuate over time, and for many goods the fluctuation can be rapid. This is particularly true for goods sold in competitive markets. The price of goods which has a high competitive market, thus make price determined by supply and demand in the market. In markets that are not perfectly competitive, different firms might charge different prices for the

² Mishkin, Frederic S and Eakins, Stanley G. Financial Market and Institutions, 5th Edition. Pearson Addison Wesley, USA. 2006.

same product. This might happen because one firm is trying to win customers from its competitors.

2.8. Previous Research

Goldstein and Khan (1978), the primary purpose of the research is to investigate the price responsiveness of both export demand and export supply using quarterly data on the aggregate exports of eight industrial countries for the period 1955-1970.

They constructed two kind models of supply and demand that were equilibrium and disequilibrium model. The function of supply and demand model in equilibrium and disequilibrium is as follow:

a. Equilibrium Model

$$\text{Log}X_t^d = a_0 + a_1 \log(\text{PX}/\text{PXW})_t + a_2 \log YW_t$$

$$\text{Log}X_t^s = \beta_0 + \beta_1 \log(\text{PX}/\text{P})_t + \beta_2 Y^*_t$$

$$\text{Log}PX = b_0 + b_1 \log X_t^s + b_2 Y^*_t + b_3 \log P_t$$

Expected sign: $a_1 < 0$; $a_2 > 0$; $\beta_1 > 0$; $\beta_2 > 0$; $b_1 > 0$; $b_2 < 0$; $b_3 > 0$.

Where:

X^d = quantity of exports demanded

PX = price of exports

PXW = weighted average of the export prices of the country's trading partners

YW = weighted average of the real incomes of the country's trading partners.

X^s = quantity of exports supplied

P = domestic price index

Y^* = logarithm of an index of domestic capacity

b. Disequilibrium Model

$$\text{Log}X_t = c_0 + c_1 \log(\text{PX}/\text{PXW})_t + c_2 \log YW_t + c_3 \log X_{t-1}$$

Expected sign: $C_1 < 0$; $C_2 > 0$; $C_3 > 0$.

The equilibrium model makes the simplifying assumption that there are no lags in the system so that the adjustment of export quantities and prices to their respective equilibrium values is instantaneous. In addition, adjustment takes place within a one-quarter period. Meanwhile disequilibrium model assumption and admit the possibility that adjustment of actual to equilibrium values may take place with some delay. Therefore, in the disequilibrium model, excess demand and supply are allowed to emerge and to affect the prices and quantities of exports

The result of this research, for relative prices is significant determine the world demand for these countries' exports. This implies a fairly large response of exports to changes in relative prices. It means that the decreasing of price would influence the increasing of export demand. While, the estimated income elasticities have the expected positive signs and are significantly influence for export demand all eight countries. The estimated of export supply was significantly affected on the export price elasticity in the positive coefficient. Meanwhile the performance of the capacity variable (Y^*) is with the coefficient being significant in all eight cases. It means that if the capacity of domestic becomes bigger than before, affect to increasing export supply.

The result of the disequilibrium export supply function, the coefficient of exports has the expected positive sign in all eight cases and is significantly. Domestic prices have a positive and significant effect on export prices in all countries except Germany and Japan. The coefficient of lagged export prices is quite large and highly significant in all equations suggesting that this variable is capturing a good part of the dynamics of changes in export prices.

According to Moran (1988) manufactured exports are believed to play a prominent role in this process because of early country experiences linking industrialization and development, and because of the lessons and indirect benefits of industrial expansion including industrial management, technology acquisition, marketing, and product design and development. In the research, export supply specification assumes that producers base their production decisions on two main factors: domestic capacity and the relative profitability of producing manufactured exports vis-à-vis producing other goods (including other exports, import substitutes, and home goods).

As follow model of export supply and export demand in this research

$$\text{Log } X_s = \alpha_0 + \alpha_1 (\text{PX}/\text{PT})_t + \alpha_2 (\text{PH}/\text{PT})_t + \alpha_3 y^*$$

$$\text{Log } X_d = \beta_0 + \beta_1 (\text{PX}/\text{PX}^w)_t + \beta_2 Y_t$$

Where:

X_s = the quantity of manufactured exports supplied;

PX_t = the price of manufactured exports (a unit value index);

PT_t = the price of domestic tradables;

PH_t = the price of nontradables (home goods);

y^* = an index of domestic capacity (trend output);

X_d = the quantity of manufactured exports demanded;

PX^w = the world price (based on a unit value index) of manufactured exports;

y_t = an index of external demand for the country's exports;

The result of the research is two price coefficients seem to play an important role in manufactured exports supply: the own-price elasticity (the parameter associated with the price ratio of manufactured exports to domestic tradable), and the real exchange rate elasticity (the parameter associated with the price ratio of domestic tradable to home goods). The domestic capacity clearly affects the supply of manufactured exports. The importance of domestic capacity, therefore, suggests that adjustment programs designed to encourage exports should promote domestic investment, improve the quality of infrastructure (particularly in transportation and communications), and provide other services essential for exports.

Ali (1987) has done research of India's Manufactured Exports: an Analysis of Supply Factors with variable such as total manufactured output or domestic capacity, exchange rate, relative price of export, and export subsidy rate. The result of this research is exchange rate is a significant variable in explaining variation in total and value added in manufactured exports, the total export subsidy is a significant variable in explaining total export only. In addition exchange rate is quantitatively more important than export subsidy in determining

export manufactured goods. Trend of output also significant influence to export supply of manufactured goods.

Goldar (1989) mention that export performance determined by total factor productivity, cumulative output, exchange rate, world demand for engineering exports, and domestic demand pressure. Meanwhile, Khairuzzaman and Cameron (2005), export supply function is given in the following form:

$$\text{Log}X_t = a_0 + a_1\text{Log}Y_t + a_2\text{Log}PR_t + a_3\text{Log}ER_t + a_4\text{Log}EV_t + u_t$$

Where, X_t = Carpet export (volume)
 Y_t = Real GDP (Pakistan) as proxy output
 PR_t = Relative prices i-e export price/domestic price
 ER = Exchange rate
 V_t = Exchange rate volatility

The result of the research is variables relative prices, and exchange rates have the expected signs and are statistically significant at reasonable levels. Meanwhile, the coefficient on the scale factor suggests that there is no relationship between the growth of rug exports and overall Pakistan output in this period.

In this study, variable of relative price which use export price divide by domestic price index for exporter country use wholesale price index based on Sharma (2000) research about Export Growth in India: Has FDI played a Role?. There were several variables which include in export supply function such as domestic demand, relative price of export, FDI, and infrastructure facilities. The result of this research is the positive price elasticity of export supply implies that a rise in export prices in relation to domestic prices increases export supply. A higher domestic demand reduces export supply. Meanwhile, foreign investment appears to have statistically no significant impact on India's export performance although the coefficient of FDI variable has a positive sign. Similarly, we find no evidence to claim that the level of infrastructure has an impact on export supply.

Several previous research above can be summarize in the following table

Table 2.1. Summary of Previous Research

No	Authors	Topic of Research	Result
1.	Goldstein and Khan (1978)	The Supply and Demand for Export: a Simultaneous Approach.	The export supply was significantly affected on the export price elasticity in the positive coefficient.
2.	Cristian Moran (1988)	A structural Model for Developing Countries's Manufactured Exports with pooled cross-section time-series data.	Prices, domestic productive capacity, and real exchange rate are critical determinants of manufactured exports supply.
3.	Ifzal Ali (1987)	India's Manufactured Exports: an Analysis of Supply Factors with Ordinary Least Squares Method.	Exchange rate, trend of output and relative price are significant influence on export supply of manufactured goods
4.	Biswanath Goldar (1989)	Determinants of India's Export Performance in Engineering Products with Ordinary Least Squares method.	Cumulative output, exchange rate and total factor productivity are important determinants of export performance.
5.	Khairuzzaman and Cameron (2005)	Export Supply Function Estimates for the Pakistan Carpet Industry with method was Error Correction Model.	- Relative price and exchange rate are statistically significant. - The real GDP of Pakistan has no impact on the export supply.

Compare with previous research, this study use export supply function model to find the determinant factors of export performance leather and leather products industry. Some of variables such as exchange rate, relative price of export and real GDP as proxy of output are same as with variables in the previous research. The difference of this study is using dummy economic crisis and domestic economic policy which is export tax policy on raw leather as one of independent variables. Therefore, the research assume that exchange rate, relative price of export, Indonesian real GDP as proxy of output, dummy economic crisis and dummy export tax policy influence on export performance or export supply of Indonesia's leather and leather products industry.

CHAPTER 3
AN OVERVIEW OF INDONESIA'S LEATHER
AND LEATHER PRODUCTS

3.1. An Overview of Leather Commodity

Leather commodity comes from animal butchering mainly cattle, buffalo, sheep and goat. This commodity is a main raw material to produce leather products in leather industries. In leather industry, the raw materials are by-products of the meat industry, with the meat having higher value than the skin. Indonesia's leather called Java Box in international market, because of a good quality with soft fiber, thus make foreign manufacture of leather interest to import the commodity.

The availability of leather as raw material to produce various products also depends on level of meat consumption. Recently, animal protein consumption in Indonesia is 4.19 gram per capita per day. It means lower than standard which required by FAO that is 6 gram per capita per day.

The performance of domestic production of raw leather experiences fluctuation on volume and value. Production of raw leather can be seen in the following table

Table 3.1. Domestic Production of Raw Leather

Year	Volume of Production (ton)	Value (in Million rupiah)
1999	43,675.38	185,964.20
2000	44,864.56	228,758.00
2001	37,549.15	237,205.80
2002	37,719.50	332,035.80
2003	38,215.15	309,264.30
2004	48,837.05	468,913.30
2005	43,017.54	343,593.50
2006	36,901.11	401,416.90

Source: BPS (processed)

According to the data above, the biggest volume of production of raw leather was 48,837.05 ton in 2004. Production of raw leather declined in 2001 and 2002. The decline of production of raw leather may cause reduction of raw material supply to domestic leather industries. The greatest contribution to the production of raw leather is from cow hide. Some things like the factors affecting the consumption of beef and the quality cow hide is better than the skins of other animals, especially for producing leather goods. The availability of raw leather supply is important to support domestic leather products industries.

Before being used as input or raw material in leather industry, raw hide must undergo tanning process. This process converts raw skin or leather from not durable to durable, long-lasting and versatile natural material for various uses. Tanning process is a process to give material tanning to raw skin tissue so that it could be formed chemical tying which is resistant to destructive factors. There are many of tanner leather substances such as vegetable, synthetic, mineral, and oil tanner.

In general, types of leather are three forms:

- 1. Full-Grain leather** or **Top-Grain leather** is referring to the upper section of a hide that contains the epidermis or skin layer. It refers to hides that have not been sanded, buffed or snuffed (otherwise known as Corrected) in order to remove imperfections on the surface of the hide. The grain remains in its natural condition which allows the best fiber strength, resulting in greater durability. The natural grain also has natural breath ability, resulting in greater comfort for clothing. The finest leather furniture and footwear are made from Full-Grain leather. For these reasons only the best raw hide are used in order to create Full-Grain or Top-Grain leather.
- 2. Corrected-Grain leather** is any Top-Grain leather that has had its surfaces sanded, in order to remove any imperfection on the surface due to insect bites, healed scars or brands. The hides used to create corrected leather are hides of inferior quality that do not meet the high standards for use in creating leather products. The imperfections are corrected and an artificial grain applied.
- 3. Split leather** is leather that is created from the fibrous part of the hide left once the Top-Grain of the raw hide has been separated from the hide. Split leather

then has an artificial layer applied to the surface of the split and is embossed with a leather grain. Splits can also be used to create suede or commonly used to make jackets. The strongest suede is usually made from grain splits (that have the grain completely removed) or from the flesh split that has been shaved to the correct thickness.

The quality of finished leather is determined from two different aspects: First is a livestock-to-slaughterhouse stage, where not all livestock is properly treated. During their lives some of them live freely, allowing skin scratches or wounds from insect bites as well as from objects such as tree branches or bushes. In the slaughterhouse bad execution processes of the livestock create muscle and arterial stress, and also marks on the hides / skins due to the depression of the animals before slaughtering. Also in the slaughterhouse bad flaying process (separation skin / hide from meat), especially if the slaughterhouses use a manual cutting process instead of pulling machines. The manual cuts cause holes on skins / hides and jagged flesh cuts. As a result, whereas Java cow hides had been famous for their soft texture ten years ago, when tanners found it easy to randomly get 40 percent grade A from a bulk of supply, tanners currently feel lucky to find 30 percent randomly at grade A. Second is during leather processing. Leather processing, such as in the finishing process, can impact the quality of the finished leather product. The use of improper leather chemicals, such as expired chemicals or chemicals mixed with other substances to expand the volume, also impacts quality ³.

Leather commodity is main raw material to produce various products in leather industry. According to annex 4, it can be seen that many products produced from leather, for instance are shoes, jackets, gloves, bag, suitcase, purse and other leather goods.

3.2. Technology of Leather Tanning Process

In Indonesia, leather tanneries can be divided into two main different categories: traditional and modern. Traditional tannery means that less machinery is used in the process and the production output is small compared to the modern tannery. Most of Indonesia's tanneries still use this particular method. Traditional

³ Komarudin, Y and Suhari, J. (2007). Access of Footwear Raw Material Inputs.

tanneries come with a host of environmental impact issues and quality concerns. Modern tannery processes employ modern technology and machinery. Usually, the modern tanneries are more environmentally friendly because of their well-managed waste treatment (Komarudin and Suhari, 2007).

Tanning of leather consist of long process, marginally there is three main processes. The first process is the preparatory stages which is when the hide/skin is prepared for tanning. These processes include soaking, calcification, deliming and pickling. Beginning the process of soaking is restoring lost water content during the drying process before, where wet leather is more easily react with tanner chemicals, then cleaning the remaining dirt, blood, and salt that are still attached to the leather. Calcification is a leather swelling process to remove the remaining meat, and scales disposal. Deliming is a process to remove lime and neutralize raw leather from the air base, avoid skin shrinkage, and avoid lime deposits. Meanwhile, pickling is a process to provide an atmosphere of acid on the leather that is more in accordance with the tanner leather compounds and more resistant to bacteria.

The second process is tanning process by giving tanner substance to raw leather. In the tanning process, it includes aging process by hanging leather for one night with the purpose to complete reaction between molecules of tanner substance with raw leather. According to the leather types, stages of tanning process can be different. The leather was divided into two groups that are hide (for leather comes from animals such as cow leather, buffalo, horses, etc.), and skin (for the skin of sheep, goats, reptiles, etc.). Type of substances used for tanner affects the final result obtained. Vegetable tanner (tannin) provides color of reddish brown is a little bit stiff but soft and less resistant to heat. The most common mineral tanner is chrome. Chrome tanner skin produces limper and more resistant to heat. Through the process of tanning, aging processes are carried out by hanging skin for one night with the aim to improve the reaction between the molecules and leather tanner materials.

The last process is finishing of leather tanned. Finishing process determines quality of leather. This process will produce special characteristic of leather, for instance are flexibility, compactness, and colors of leather. The

finishing process consists of several stages such as setting out process, drying, relaxation, and sanding process. The setting out process aims to eliminate the folds that formed during the previous process and make the creation of the maximum skin area. This process can reduce the amount of water, because the water content of the skin will strike out. Drying process is reducing the skin water content up to the standard limit that is usually 18 to 20 percent. Relaxation process is to relax and restore the skin creases so that the skin areas become normal again. The last is sanding process for smoothness of skin surface (Wanasuria, 2001).

To produce high quality leather, technologists must understand the nature of the materials used, the way in which they react, the means of controlling this reactivity, and the methods of testing and analyzing the finished product. With this knowledge as a basis, tanners must become familiar with all the practical tanning processes and machinery operations that are necessary to prepare the skins for tanning, the tanning process itself, and the many subsequent operations which determine thickness, softness, texture, color and waterproof-ness of leather. Leather is turned into a wide variety of articles - footwear, clothing, bookbinding, gloves, saddles, harness, belts, luggage, bags, driving belts, gaskets, hydraulic seals used in aircraft, rockets and underwater craft, upholstery including automobiles, sports goods and many others (Richardson).

3.3. Performance of Indonesia's Leather and Leather Products Industry

Indonesia leather industries started to develop in 1970s. At first, there were 37 upstream firms in 1975 and grew to 112 medium and large firms in 1995. According to Ministry of Industry, in 1994, there were 601 small, medium and large of leather tanning industries, 3,488 small, medium and large of leather goods industries.

Based on Indonesian Tanners Association (APKI), the number of leather tanning industries occurred declining due to the continuous collapse of national tanners from 112 factories operating in 1998 to only 46 factories operating in 2002. The tanning industry then re-opened again and there were more factories in 2006 around 67 tanning factories and 240 home industries. The collapse of the

national tanning industry in period 1998-2002, perceived by some experts from the Tanners Association, has been caused by the lack of raw leather, and also because there was abolition export tax policy on raw leather.

The East Java tanning industry is the biggest in the nation in producing finished leather. Its current capacity is 46 million square feet per year from 8 tanning companies. Its biggest factories, however, produce finished leather for the export market, as explained in national perspective. Total production capacity of Garut tanneries is two million square feet / month from 8 large factories (having capacity more than 100,000 square feet per month), 12 mid-size factories (having capacity 10,000-100,000 square feet/month) and around 200-300 home industry tanneries. While, in Jogjakarta and its surroundings, the total capacity of the nine factories registered under the Association is 26.5 million square feet per year. Some of them are now utilizing capacity for finished leather for garment or glove production. Indonesia leather needs reach to 250 million square feet per year. However, the domestic supply of only about 150 million square feet. In other words, Indonesia experiences lack of supplies about 40 percent of raw leather to support the growth of industrial production performance of tanneries.

The performance of medium and large leather industry can be seen in the following table

Table 3.2. Performance of Medium and Large Leather and Leather Products Industry

Year	Number of Industries	Number of Workers	Total Output (in thousand rupiah)
2001	200	32,857	2,975,773,153
2002	177	27,487	4,520,020,479
2003	162	24,755	2,628,894,982
2004	165	23,661	1,981,249,489
2005	164	22,720	4,491,117,656

Source: BPS

The number of industries of leather and leather products experience decline. There were 200 medium and large industries in 2001, and then the number declines to 164 industries in 2005. This condition also occurs on the

number of workers, which is the declining of workers in these industries. Although leather and leather products industries experience decline of number of workers, these industries were labor intensive industries. In 2005, these industries employed 22,720 workers. Meanwhile, total outputs of the industries were fluctuating. The biggest total output was 4,520 billion rupiah in 2002. The second biggest value of output was 4,491 billion rupiah in 2005. Value of output indicates the value of good which is produced by the industry when there was a value added. The industry which produces with a high value added indicates that the industry is able to use resources or raw material to produce goods with its price higher than price of raw material. According to BPS, output of leather and leather product has value added 1,103 billion rupiah in 2003. These facts indicate that value added is around 50%.

According to BPS data, the number of medium and large industries of leather and leather products manufacture was 540 industries in 2006. The number of medium and large leather products industries experienced increase up to 686 in 2007. Meanwhile, the number of micro and small business of leather and leather products were 38,548 in 2005, which employed 132,680 workers. Then, the number of micro and small business experienced decline into 37,090 with workers 128,654 person in 2007. It shows that leather and leather product industries are relative stagnant, but the industries are still potential which is able to absorb many labors. Based on the data above, the industries are able to play role in economic activities mainly by absorbing many labors or reducing unemployment and increasing national income.

Most of labor absorption is from leather products industries. According to BPS, leather products industries able absorb 142,590 workers in 2004; meanwhile leather tanning industry (semi finished leather industry) absorbed 6,437 workers. In general terms, absorption of labor is inclining slowly year to year. This condition may be caused by a development of downstream industry in leather products that is relatively slow.

Large amount of employment related to the productivity of labor. Labor productivity is used to measure the annual value added produced by each worker in certain industry. Productivity of labor in leather and leather products industry

has increased from year to year. Based on BPS data, labor productivity in the leather industry in 2000 was 24,958 million rupiah per worker per year, and has increased every year. In 2006, labor productivity reached 61,736 million rupiah per worker per year. Increased productivity of labor in an industry is expected improve the performance of the industrial production.

Leather and leather products industry has contributed to the total non-oil exports of Indonesia. Although it has a relatively small share, but it remains a priority commodity by the government. Export share of this industry can be seen in the following table

Table 3.3. Export Share of Leather and Leather Products Industry to the Total Non-Oil Indonesia's Export

Year	Total Non-Oil Export (in US \$ million)	Export of Leather and leather products industry (in US\$ million)	Export share (in percent)
2004	55,939.3	106.5	0.19
2005	66,428.4	130.4	0.20
2006	79,589.1	177.6	0.22
2007	92,012.3	226.9	0.25
2008	107,894.2	226.8	0.21

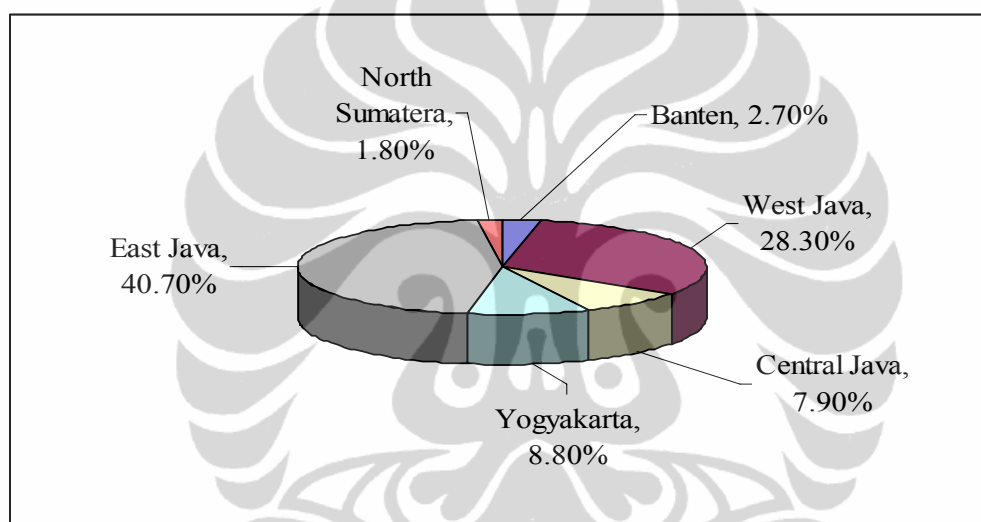
Source: BPS (processed)

Based on Table 3.3, export share of leather and leather products industry to the total non-oil exports was relatively change a little every year about 0.2 percent. In 2004, the export share of this industry was 0.19 and in 2008 achieved 0.21 percent. Largest export share occurred in 2007 that reached 0.25 percent. Although having a small export share, the export share has a role to economic growth, especially employment and revenues from exports.

In order to improve the performance of the leather and leather products industry, the development of this industry is improved through the spread of leather industrial centers in several areas both in Java and outside Java. It also aims to provide an opportunity for regions that have potency of raw materials of

leather to be developed into a leather industrial area. In addition to absorb labor, it is expected to improve the economy in the region.

Indonesia has several regions which there is an industry that produces leather and leather products such as in Central Java, West Java, East Java, Banten, and North Sumatra. Based on Ministry of Industry data, leather and leather products industry consist of 2.7 percent in Banten, 28.3 percent in Garut (West Java), 8.8 percent in Manding (Yogyakarta), 7.9 percent in Magetan and Surakarta (Central Java) and 40.7 percent in Tanggulangin (East Java). Meanwhile, leather products industry in North Sumatra was 1.8 percent.



Source: Ministry of Industry (processed)

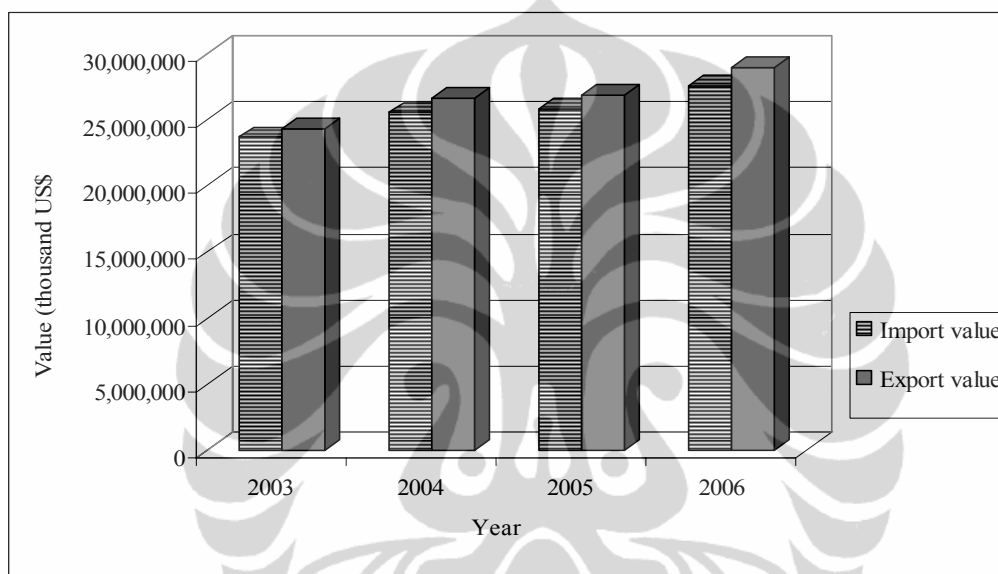
Figure 3.1. Industrial Area of Leather and Leather Products

3.4. Performance of Indonesia's Leather and Leather Products in the World Market

Demands for leather and leather products in the world market experience increase year to year. This condition makes suppliers from all countries do competition to fulfill this demand. Meanwhile, world exports of raw leather and leather commodity experience increase year to year. World export raw leather and leather was US\$ 24.3 billion in 2003, then increased to US\$ 28.9 billion in 2006. The main exporter countries of raw leather and leather in the world market were Italy, Hong Kong, USA, China and Brazil. Meanwhile, the main importers were

China, Italy, Mexico and USA. World export and import value of raw leather can be seen in the figure 3.2.

Based on International Trade Center data, Indonesia's raw leather and leather in the world market has market share around 0.4 percent. Indonesia's export of raw leather and leather was US\$ 140 million in 2006. The main countries destination was Hong Kong, China, Thailand, Vietnam, Germany, Singapore, Italy and Japan.



Source: International Trade Center (processed)

Figure 3.2. World Export and Import of Raw Leather

Leather tanning and leather products manufacture have competitiveness better than raw leather competitiveness in the world leather market. Based on BPS data, export values of leather products experience increase year to year. Export value of leather products was US\$ 106.5 million in 2004, and then increased to US\$ 226.9 million in 2007. But, in 2008 there was a decline of export that may be caused by declining of demand in foreign countries. Export performance of Indonesia's leather and leather products manufacture is shown in table 3.4.

Table 3.4. Export Performance of Indonesia's Leather and Leather Products

Year	Export Value (in US\$ million)	Export Volume (in thousand ton)
2003	88.7	13.2
2004	106.5	15.5
2005	130.4	16.2
2006	177.6	13.3
2007	226.9	12.1
2008	226.8	11.4

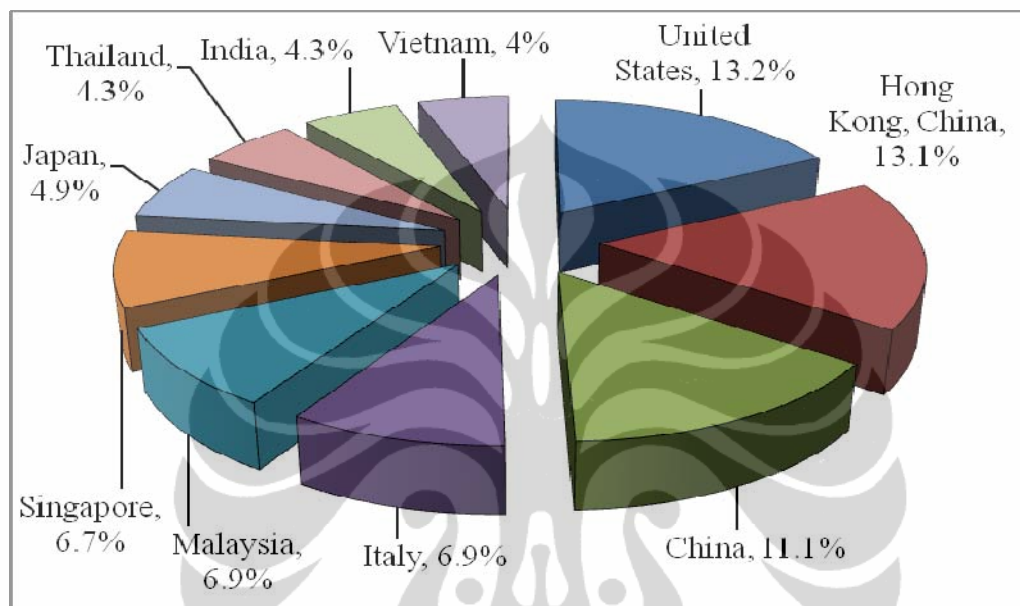
Source: BPS

According to BPS data, percentage of domestic production of leather and leather product manufacture which is exported was 53.9 percent in 2005; the rest was to fulfill domestic demand. It is one of factors which may be impact to increase value of export. The other factors may be there was export tax policy on raw leather which taken by government to secure supply of raw leather to domestic leather products industries.

Based on WITS data, ten main countries destinations of Indonesia's export leather and leather products are United States of America, Hong Kong, China, Italy, Malaysia, Singapore, Japan, Thailand, India and Vietnam. The United States of America was the largest market share of about 13.2 percent of the total export of Indonesia's leather and leather products in period 2004 until 2008, followed by Hong Kong 13.1 percent and China 11.1 percent. Export value of the ten main countries destination in period 2004 to 2008 reached 75.6 percent of the total export of leather and products industry. Leather tanning and dressing manufacturing (ISIC 1911) has a larger share in exports average US \$ 136.2 million per year, compared to manufacture of luggage, handbags, saddlery and harness (ISIC 1912) with average exports of US \$ 91.3 million per year.

The largest average export value of Indonesia's leather and leather products industry was US\$ 30.12 million per year to the United States of America in period 2004 until 2008. Meanwhile, average export value to Hong Kong market reached US\$ 29.9 million per year followed to China market US\$ 25,27 million

per year. The greatest increase in exports of ten main destination countries are in China market. For instance, the export value to this market by US\$ 10.5 million in 2005 then increased to US\$ 25.4 million in the year 2006. As follow is figure of ten main countries destination of Indonesia's leather and leather products industry export performance.



Source: WITS, Ministry of Trade (processed)

Figure 3.3. Main Countries Destination of Indonesia's Export of Leather and Leather Products Industry in Period 2004-2008

Figure 3.3 show that main countries destination more dominant in Asia countries. This is a potential market for Indonesia to developed primarily with have been the bilateral trade relations. China and India are countries which as the main destination but also competitor country in the world leather products markets. This is because the dominance of China's and India's exports of industrial leather products in most countries export destination.

In the world leather products market, there are several countries competitor such as China, Italy, France, India, Brazil and Vietnam. China is a major supplier of leather products in the United States market of about 67 percent with average of export value around US\$ 5.8 billion per year in period 2004 until 2008, followed by Italy at 9.3 percent with export value average US\$ 818 million

per year, French was 3.9 percent with export value average US\$ 333 million per year and India 2.2 percent with average US\$ 191 million. Indonesia's leather product industry has export share around 0.5 percent in United States market and has position in fourteen. This does not include leather footwear industry. If the leather footwear industry entered the export market share of Indonesia in the United States reached two percent.

Indonesia was ranked fifteenth of the main suppliers to the Hong Kong market with 0.4 percent share. Suppliers who have the greatest share are Italy by 9.7 percent with average export value US\$ 709.9 million per year, followed by France 5.9 percent (average export value US\$ 432.9 million per year), India 3.7 percent around US\$ 275.6 million per year, and Brazil 3.2 percent. Meanwhile Indonesia has the thirteenth position of the main suppliers to the China market, around 1 percent from the total import China of leather and leather products. The main supplier in china market is Italy with 13.4 percent with export value average US\$ 561.5 million per year, followed by Korea 13.1 percent with average US\$ 549.8 million per year, Brazil 11 percent (US\$ 469.7 million) and the United States of America 5.5 percent (US\$ 231.1 million) in period 2004 until 2008. Korea, India and Thailand are the main competitor from the Asia region.

3.5. Government Policy on Leather and Leather Products

3.5.1. Policy of Development on Leather Products Industry

Recently, leather and leather products industry is potential industries which give contribution to export of non oil and gas sectors. Development of leather industry, the government continuously increases and creates a good climate investment in this business. The development of this industry has important means, because the industry which is labor intensive industry and able to increase foreign exchange earnings. There are several policies such as strengthening industry structure and secure fluency of distribution and facilitating on production and market access.

According to Ministry of Industry, there are several policies to develop leather and leather product industry such as developing leather tanning industry mainly diversification raw material, developing the industry which has a concept

of environmental friendly, increasing role of cooperation of industry from micro, small, medium and large to obtain gain in international market through forward linkage and backward linkage. It also covers supporting dissemination of leather and leather products industry central in outside Java island by increasing potential resources in the regions, therefore be able to support economic growth in this region; increasing quality standard of products and also using advance technology to produce products which are able to compete with the same products from other countries.

In general, development of leather and leather products industry can be classified become four aspects. The first is managerial aspect, consists of increase of productivity, ability of marketing and development human resources through training. The second is financial aspect, because most of leather and leather products industry are small and medium scale, so that they needed financial aid and financial assistance through credit program. The third is development program cooperation among leather industries through forward linkage or backward linkage. The last is development leather industry central.

3.5.2. Policy on Export of Leather

Development of industrial product exports to developing countries affected by possible changes in the exporting country's trade policy that is increasingly export oriented. There is government deregulation as one of the internal factors, especially to increase the export supply although the existence of external factors such as increased demand from importing countries. Trade policies on commodities will work to improve product competitiveness in world markets.

Policy on export of leather commonly is export tax policy on raw leather. In year 1996, the government issued decree No. 666/KMK.017/1996 about tariff export tax of untreated leather. The export tax was around 30 percent until 50 percent. After the policy issued, the industry of leather and leather products flourished. But, in 1998 there was policy which taken by government to abolish of export tax as part of an agreement signed with the IMF to deregulate the international trade sector. The policy through decrees of Minister Finance No.

74/KMK.01/1998 and No 241/KMK.01/1998 about put zero percent tariff to several commodities including raw leather commodity. The liberalization of raw leather export has increased the export of raw leather and also has caused a decline in the exports of semi-finished and finished leather articles as a result of shortage of domestic raw material supply in the subsequent years. Suppliers of raw leather prefer exporting their product of raw leather to selling them to the domestic leather manufacturers.

The industry needs is supportive government regulation to secure domestic supply of raw materials and at the same time provision for improvements in various production aspects. In 2005, government released rule No. 35 about export tax imposition on certain export commodity include raw leather as much as 25 percent. The objectives of this regulation were to secure domestic necessity or demand, to protect natural resources, to anticipate effect of increasing price which significant from certain export goods in international market, and to stabilize domestic price for certain products or commodities.

The other regulation of export on leather commodity was UU No. 16 year 1992 and Government Rule No. 82 year 2000 about quarantine of animal and media from animal which bring animal diseases. The policy taken by government because considers to impact of national social economic and international trade, and to prevent spreading of animal diseases through raw material or raw leather which exported. Therefore, the export process must be completed by quarantine document. These documents consist of certificate of origin, commodity come from healthy animal, and free from disease.

For leather commodity which come from animal protected appropriate with appendix II Convention on International Trade in Endanger Species (CITES) so this commodity regulated and controlled in the process of export. It means if do export the commodity must have certificate CITES from Indonesian Management Authority namely Directorate General of Forest Protection and Natural Conservation, Ministry of Forestry; and also export agreement from Directorate General of Foreign Trade, Ministry of Trade.

3.5.3. Policy on Import of Leather

Government policy on import of leather commodity is UU No. 16 year 1992 and Government Rule No. 82 year 2000 about animal quarantine. Objective of the policy is to prevent spreading animal disease through imported of raw leather or media from animal which can further processed and has potential as dissemination of diseases.

In 2001, Ministry of Agriculture issued decree through SE (form letter) Minister of Agriculture No. 510/94/A/IV/2001 about import bans of raw leather which had purpose to prevent spreading of foot and mouth disease. On the other side, Indonesian Tanners Association (APKI), and Indonesian Footwear Association (Aprisindo) argue that this regulation should does not implement on leather processed and expect that the regulation which is taken by government can prevent spreading of disease and also does not become obstacle in availability of raw material to produce various products in leather and leather products industries. When imported leather is mentioned and categorized in occasional epidemics, the country of origin must quarantine the hides or skins by means of fumigation. Of course, this extra expense affects final production costs. Problems at the customs clearance in seaports and airports arise when there are administrative discrepancies, such as certificates of health. These problems also require additional expense to facilitate the clearance process.

In the same year, Ministry of Agriculture had also issued a similar decree to ban leather imports from South Korea and Japan, to secure the endemic foot and mouth disease, but it was then removed after strong protests from leather industries. Indonesia imported raw leather materials from Australia, Argentina, France, Germany and the United of States to fulfill the domestic demand of leather industries.

Indonesian Tannery Association hopes that Department of Agriculture could mitigate supply of leather imports from other countries, such as Africa, Latin America, and some countries in Asia. In addition, the Agriculture Quarantine Agency is also expected to simplify licensing and importation of bureaucracy raw leather, so that the quality can be maintained. Raw leather is not durable.

CHAPTER 4

RESEARCH METHODOLOGY

4.1. Model Specification

This research uses export supply function as specification model to find determinant factors of export performance leather and leather products industry. There are some variables which may be affected on export supply such as exchange rate, relative price, and real Gross Domestic Product. Three variables such as exchange rate, real GDP and relative price related to research from Khairuzzaman and Cameron (2005). This research use equation which has been modified by including dummy export tax policy on raw leather and dummy crisis variables. Furthermore, the equation of export performance leather and leather products industry is made in linier equation, as follow

$$EX_t = \alpha_0 + \alpha_1 RGDP_t + \alpha_2 RP_t + \alpha_3 NER_t + \alpha_4 D_1 + \alpha_5 D_2 + \varepsilon_t$$

Where:

EX_t : Export value of leather and leather products industry, in year t (US\$)

$RGDP_t$: Real Gross Domestic Product (as proxy of output) in year t

RP_t : Relative price (export price / domestic Wholesale price index) in year t

NER_t : Nominal exchange rate in year t (Rp/US\$)

D_{1t} : Dummy export tax policy on raw leather

D_{2t} : Dummy economic crisis

α_0 : Constanta

$\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5$: Regression coefficient

ε_t : Error standard in year t

Based on goodness of fit, the model transforms into log-log functional form, as well as to directly obtain export elasticities with respect to the independent variable. The equation to be estimated is as follow:

$$\begin{aligned} \text{Log}(EX)_t = & \alpha_0 + \alpha_1 \text{Log}(RGDP)_t + \alpha_2 \text{Log}(RP)_t + \alpha_3 \text{Log}(NER)_t + \alpha_4 D_1 \\ & + \alpha_5 D_2 + \varepsilon_t \end{aligned}$$

Where:

LogEX_t : Logarithmic export value of leather and leather products industry (US\$)

LogRGDP_t : Logarithmic real Gross Domestic Product as proxy of output

Log RP_t : Logarithmic relative price (export price/domestic WPI)

Log NER_t : Logarithmic nominal exchange rate in year t (Rp/US\$)

D_{1t} : Dummy export tax policy on raw leather

D_{2t} : Dummy economic crisis

α_0 : Constanta

$\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5, \alpha_6$: Regression coefficient

ε_t : Error standard in year t

4.2. Expected Sign

To determine whether the regression results in accordance with what is expected, it is given the first expected sign for each variable. Determination of the expected sign of each variable based on economic theory and also from previous research. Expected sign for each variable can be seen in the following table

Table 4.1. Expected Sign

No	Independent Variable	Rationale	Expected Sign
1	Real Gross Domestic Product	An increase of real GDP as proxy of industries output will affect to increase of export supply of leather products	Positive (+)
2	Relative Price of Export	An increase of relative price of goods, the goods will be more competitive in the world market, and thus there is an increase of export supply.	Positive (+)
3	Nominal Exchange Rate	An increase of amount of rupiah's, it will be a depreciation condition for rupiah's currency and thus it will increase export supply	Positive (+)
4	Dummy Export Tax Policy on raw leather	There is export tax policy that will affect to decrease export of raw leather then producer will supply of raw leather to domestic market. Thus, it will increase export supply of leather products industry.	Positive (+)
5	Dummy Crisis	If economic crisis occurs, it may be impact on economic activity contraction, thus it affect to decline or sluggish of export performance	Negative (-)

4.3. The Characteristic of the Data

4.3.1. Export of Leather and Leather Products Industry

This research uses export value of leather and leather products industry as a dependent variable. This value represents the supply of leather product industry to the world market. The data is annually in period 1980 - 2008 denote in US\$ that is collected from Central Bureau of Statistic (BPS).

4.3.2. Real Gross Domestic Product

This study uses real Gross Domestic Product of exporter country as proxy of leather and leather products industry output. Real Gross Domestic Product is an independent variable. The data are collected from economy watch; economic indicator by country, source of data is from IMF and World Bank.

4.3.3. Relative Price

Relative price of leather and leather product industry is an independent variable. Relative price of export is from export price of leather product industry that is divided by domestic wholesale price index price. The data of export price are calculated based on data from BPS. Meanwhile, wholesale price index for Indonesia is collected from IMF's International Financial Statistic (IFS).

4.3.4. Nominal Exchange Rate

Nominal exchange rate is an independent variable. In general, depreciation of a country's currency tends to encourage its export. The data of nominal exchange rate is annually in 1980 – 2008 denote in Rp/US\$ that is collected from IMF's International Financial Statistic (IFS).

4.3.5. Dummy Export Tax Policy on Raw Leather

This study uses dummy export tax policy on raw leather as one of independent variable. The policy is expected to be able to secure domestic supply of raw leather as raw material to leather and leather products industry, thus it can increase export supply of leather products. The export tax policy data are collected from directory regulation on Ministry of Finance and Ministry of Trade.

4.4. Methodology

Objective of this research is to find the determinant factors of Indonesia's leather and leather products industry export performance. The annual time series data from 1980 until 2008 will be used in this research. Analysis uses multiple regression models, as follows:

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \mu_i$$

The regression model analysis use Ordinary Least Square (OLS) method to estimate the parameters of five variables. Furthermore the model transform to logarithmic or log-log model. According to Nachrowi and Usman (2006), log-log model has advantage than linier model. One of the advantages is the regression coefficient that can be interpreted as elasticities. Slope coefficient is level percentage change in dependent variable caused by percentage change in the independent variable. Elasticities coefficient between Y and X always constant, therefore this model is called constant elasticity model. Consequently, the estimated coefficient in this research indicates that the percentage will change in the level of exports, if the level the independent variable changes for one percent, other variable remaining unchanged (*ceteris paribus*).

4.4.1. Test of Economic Sign

Test of economic sign is to identify the sign and coefficient of regression of all independent variables which have to be appropriate with economic theory. If the result is positive means that if variable X increase one will increase variable Y as big as coefficient of regression variable X. On the other hand, if the result negative means that is vice versa.

4.4.2. Test of Econometric

The validity of the results has to be tested to ensure any subsequent interpretations made based on the result are reliable. There are some assumptions in the classical linier regression such as the disturbances have zero mean, a constant variance (homoscedastic), uncorrelated, uncorrelated with covariates, independent and identically distributed. If the assumptions hold true, thus OLS estimator is called Best Linear Unbiased Estimator (BLUE). This research,

ordinary least square estimation has three major technical problems related to data. They are autocorrelation, heteroscedasticity and multicollinearity. The diagnosis test is to identify these problems.

4.4.2.1. Autocorrelation

The problem of first-order serial correlation (autocorrelation), which is errors in one time period are correlated directly with errors in the ensuing period. Serial correlation will not affect the unbiasedness or consistency of the ordinary least squares regression estimator, but it does affect their efficiency. Diagnosis test to identify of autocorrelation, first order can be tested using Durbin Watson test. The DW statistic range is 0 to 4, with a value near 2 indicating no serial correlation. As a rule of thumb, if DW is found to be 2 in an application, one may assume that there is no first order autocorrelation, either positive or negative. Meanwhile, the closer DW is to 0, the greater the evidence of positive serial correlation. Second order autocorrelation can be tested using the Breusch-Godfrey test. The test is general in the sense that it allows for nonstochastic regressors such as the lagged values of the regress; higher order autoregressive schemes (Gujarati, 2003).

4.4.2.2. Heteroscedasticity

One of the important assumptions of the classical linear regression model is that the variance of each disturbance is constant or equal variance (homocedasticity). Heteroscedasticity occurs when variance of the error terms are not the same. When heteroscedasticity is present, ordinary least squares estimation places more weight on the observations with large error variances than on those with smaller error variances. Finally, homocedasticity is important to make efficiency of the least square estimators (Pindyck and Rubinfeld, 1998).

There are a number of specific test to detect of heteroscedasticity, a useful first procedure is the informal one of examining the pattern of the residuals to see whether estimated variances differ from observation to observation. Meanwhile formal heteroscedaticity tests use White heteroscedasticity test. The multiple of observation and r-squared will be compared with the critical value of chi-squared test at a particular degree of freedom and at a particular confidence level. If the

obs r-squared value does exceed that critical value, the null hypothesis of no heteroscedasticity is rejected. It means, the variance of error in the regression model is homocedastic.

4.4.2.3. Multicollinearity

One of the assumptions of the multiple regression models is that there is no exact linear relationship between any of the independent variables in the model. Multicollinearity occurs when two or more independent variable are highly correlated with each other. Suppose two variables are correlated in this manner. Then it will be possible to obtain least squares estimates of the regression coefficients, but interpretation of the coefficients will be quite difficult. Thus the presence of multicollinearity implies that there will be very little data in the sample to give one confidence about such an interpretation.

To detect multicollinearity problem in the model use some rule of thumb such as high adjusted R-squared but few significant t ratios, high pair wise correlations among regressors. Multicollinearity can be tested with the examination of correlation matrix. The closer correlation value between two independent variables is to 1, if the more likely that these two variables are correlated. Belsey, Kuh, and Welsch (1980) mention that a common rule of thumb is to take TOL (tolerance) < 0.1 or equivalent, VIF (Variance inflation factor) > 10 , as an indication that collinearity may be a problem. The tolerance for variable X_k is

$$(\text{TOL})_k = 1 - R_k^2 \quad k = 1, 2, \dots, p-1$$

where R_k^2 is the R square when X_k is regressed on the other independent variables in the model including a constant. The variance inflation factor for variable X_k is the inverse of the tolerance

$$(\text{VIF})_k = 1/(\text{TOL})_k$$

There are some rules of thumb to remedy multicollinearity, the first is dropping a variable and specification bias. The second way is transformation of variables. The first difference transformation is running the regression not n the original variables, but on the differences of successive values of the variables. The

third ways is additional or new data. Sometimes simply increasing the size of the sample (if possible) may attenuate the collinearity problem (Gujarati, 2003).

4.4.2.4. Stability Test

Specification test in econometrics can be very serious if there is a specification error. Failure to include a relevant variable in a regression model can lead to biased and inconsistent estimators, while the inclusion of inappropriate variables leads to a loss of efficiency. A more general method of doing the same tests that does not utilize least squares and does not rely on the normality of the error term (when the sample size is large) is the likelihood ratio test (Pindyck and Rubinfeld, 1998).

E-Views provide a number of test statistic views that examine whether the parameters of the model are stable across various subsamples of data. One of test is Ramsey RESET test. RESET is a general test for the following types of specification errors: omitted variables (does not include all relevant variables), incorrect functional form (some or all of the variables in and should be transformed to logs or in some other way) and correlation between variables and errors. Under such specification errors, Ordinary Least Square estimators will be biased and inconsistent.

4.4.2.5. Normality Test

Normality test used to check our model is satisfies. There are several tests of normality such as histogram of residuals, normal probability plot and Jarque-Bera test. A histogram of residuals is a simple graphic device that is used to learn something about the shape probability density function (PDF) of a random variable. Meanwhile Jarque-Bera is a test statistic for testing whether the series is normally distributed. The test statistic measures the difference of the skewness and kurtosis of the series with those from the normal distribution. Jarque-Bera test of normality is a test of the joint hypothesis that coefficient skewness and kurtosis coefficient are 0 and 3. E-views provide the Jarque-Bera test, as a test for normality of the residuals.

Under the null hypothesis that the residuals are normally distributed, if the computed probability value of the Jarque-Bera statistic in an application is sufficiently low (lower than probability significant level), one can reject the hypothesis that residuals are normally distributed. But if the probability value is reasonably high, which will happen if the value of the statistic is close to zero, we do not reject the normality assumption.

4.4.3. Test of Statistics

There is three test statistics in this research, which are the coefficient of determination (R-squared), t-statistics and F-statistics will be measured in the model. The three tests are used to identify of the coefficient of each independent variable, which indicates that, the effect of the independent variable on the dependent variable and the proportion of the variation of the dependent variable explained by the independent variables. Theoretical framework of three tests of statistics is explained below:

4.4.3.1. Coefficient of determination (R-squared and Adjusted R-squared)

R-squared is useful to measure goodness of fit in the multiple regression models. R-squared measures the proportion of the variation in dependent variable which is explained by the multiple regression equation. The closer value of R-squared is to 1, the better is the fit. The coefficient determination is sensitive to the number of independent variables included in the regression model. The addition of more independent variable to the regression equation can never lower R-squared and is likely to raise it. However, R-squared increases as more independent variable are added to the model irrespective of whether these variable are significant, so adjusted r squared gives more credible result.

Adjusted R-squared is a measure of the proportion of variance of the dependent variable explained by the variance of independent variable. The adjusted R-squared has a number of properties which make it a more desirable goodness of fit measure than R-squared. When new variables are added to a regression model, R-squared always increases, while adjusted R-squared may rise or fall.

4.4.3.2. F-statistic

There is a relationship between the coefficient of determination R-squared and the F-test used in the analysis of variance. The F-statistic calculated by most regression programs can be used in the multiple regression models to test the significance of the R-squared statistic. The null hypothesis is none of independent variable helps to give detail the variation of the dependent variable about its mean. If this null hypothesis is rejected, it means at least one independent variable helps to explain the variation.

If the calculated F-value is greater than the critical one, the null hypothesis is rejected. Therefore, if F-statistic to be close to 0, it means a rationale the null hypothesis is true. An F-statistic not significantly different from 0, then can conclude that the explanatory variables do little to explain the variation of dependent variable. The F-test of the significance of a regression equation may allow for rejection of the null hypothesis even though none of the regression coefficients are found to be significant according to individual *t*-test. The situation may arise, for example if the independent variables are highly correlated with each other. The probability of F-statistics will be used in this research.

4.4.3.3. *t*-test and *p* value

An alternative but complementary approach to the confidence interval methods of testing statistical hypothesis is the test of significant approach. Test the statistical significance is the effect of the independent variable X_i on the dependent variable Y . The larger the *t* value, the more likely that the hypothesis of zero coefficients is rejected; and thus the estimate are more precise.

The level of significant must be establish before doing the test, because rejecting or do not reject the null hypothesis depends critically on the level of significance. A 95% confidence level or 5% level of significance is used in this research. The calculated *t*-value is then compared with a critical *t*-value for a given degree of freedom and a given confidence level. If the calculated *t*-value is higher than the critical *t*-value for a 5% significance level, then the coefficient regression is said to be significant at the 95% confidence level.

The other way to find out the significant level is use probability value (*p*-value). It shows the chance that the estimated coefficient is equal to zero. The

smaller the p-value, the more significant the estimated coefficient is. More technically, the p-value is defined as the lowest significance level at which a null hypothesis can be rejected. For example, if performing the test at the 5% significance level, a p-value lower than 0.05 is taken as evidence to reject the null hypothesis of a zero coefficient. It should be emphasized that the statistical significance shown by p-values is conceptually different from the magnitude of the effect of X_i on Y because the coefficient of X_i can be significant but its effect on Y can be small.

4.5. Research Framework

Research framework can be seen in the following figure

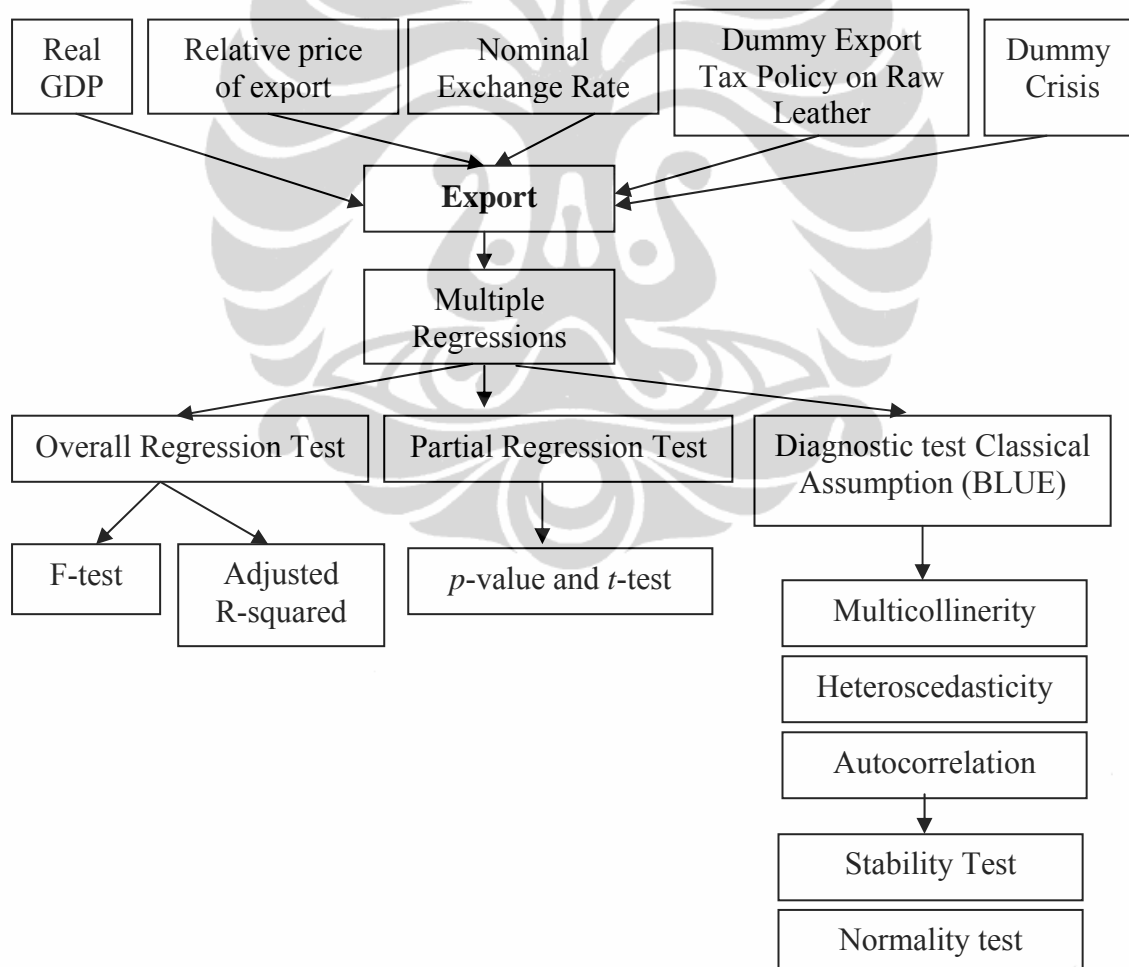


Figure 4.1. Research Framework

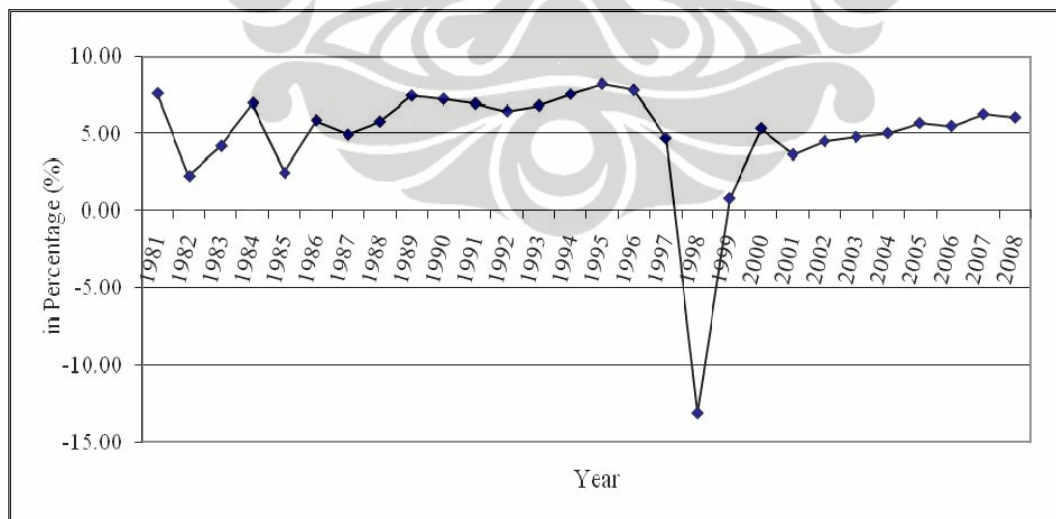
CHAPTER 5

RESULT AND ANALYSIS

5.1. Descriptive Analysis

5.1.1. Economic Growth and Export Performance of Leather Industry

Indonesia's economic growth may have effect to export performance of leather and leather products industry. Since 1986 to 1996 were relatively stable economic growth in the range of 5 percent to 8 percent. In this period, the export performance of the leather industry has increased. In the period 1997 to 1999 economic crisis that resulted in economic growth fell to -13.3 percent in 1998. It affect to decline of export performance of several industrial sectors based on labor intensive industry and export-oriented such as textile industry and wood products. The economy began to recover in 2000, the rate of growth back to rate of pre-crisis, although well below pre-crisis growth trend. Then, the next period of relatively increase economic growth. Indonesia's economic growth can be seen in the following figure.



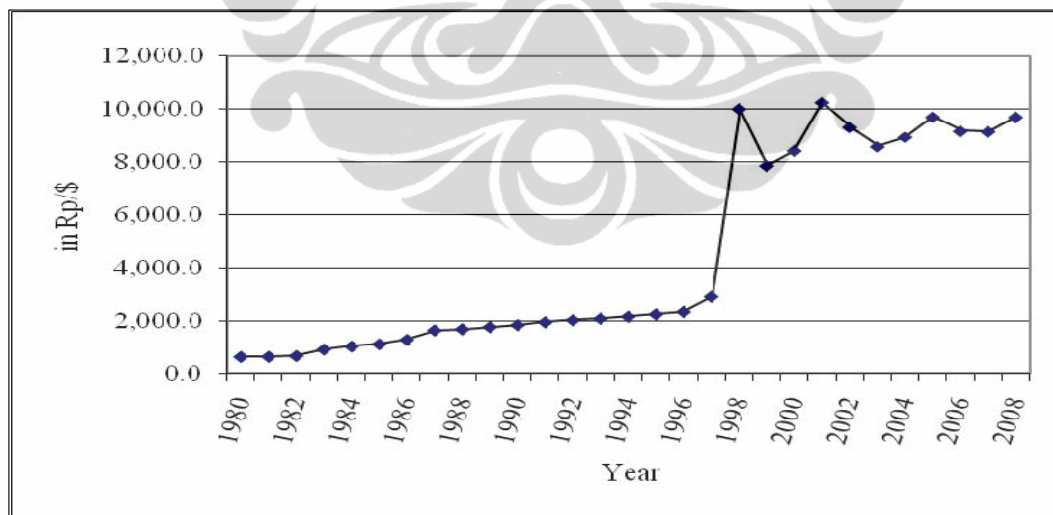
Source: International Financial Statistic (processed)

Figure 5.1. Indonesia's Economic Growth in Period 1981-2008

Based on BPS data, the average share leather industry and textile industry to the gross domestic product was 2 percent. The average percentage of manufacturing in GDP composition based on the production approach is the greatest share compared to other sectors was about 28 percent. It indicates if the increase of economic growth is expected to improve the exports performance of leather and leather products industry.

5.1.2. Nominal Exchange Rate and Export Performance of Leather Industry

Nominal exchange rate experienced an increase or exchange rate depreciation in the period 1980 to 1998. It can be seen in Figure 5.2. Export performance of leather and leather products industry tend to increase in this period. The excessive monetary expansion in 1998 played a major role in the sharp depreciation. The sharp depreciation still helped to improve Indonesia's competitiveness. Export performance of leather and leather products industry in 1997 was US\$ 104.5 million increase to US\$ 174.4 million in 1998. The improved competitiveness, however, did not last long as the nominal appreciation took place in 1999 and 2000.



Source: International Financial Statistic (processed)

Figure 5.2. Indonesia's Exchange Rate in Period 1980-2008

Figure 5.2 shows the nominal exchange rates were fluctuated after economic crisis in 1997-1999. The export of performance leather and leather products industry was fluctuations in this period. Although, occurred increase in the export value of leather and leather products industry in period 2002 to 2007. Fluctuations of nominal exchange rate could allow the fluctuations of the export of industrial products.

5.2. Ordinary Least Square Estimation

Estimation of the determinant factors that affect the performance of export supply of leather and leather products industry uses ordinary least squares which has been available in the program E-views. Based on the regression result in table 5.1, the four coefficients of independent variables appropriate with expected sign are relative price of export, nominal exchange rate, dummy export tax policy on raw leather, and dummy economic crisis. Meanwhile, there is one independent variables namely real gross domestic product as proxy of output which is not appropriate with expected sign.

Table 5.1. Regression result

Dependent Variable: LOG(EX) Method: Least Squares Included observations: 29				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.944672	4.474668	0.881556	0.3871
LOG(RGDP)	-0.636127	0.467829	-1.359745	0.1871
LOG(RP)	0.279046	0.092547	3.015195	0.0062**
LOG(NER)	0.935570	0.231424	4.042661	0.0005**
DTAX	0.498834	0.162785	3.064371	0.0055**
DCR	-0.028745	0.146115	-0.196729	0.8458
R-squared	0.883047	Mean dependent var		4.327546
Adjusted R-squared	0.857623	S.D. dependent var		0.580570
S.E. of regression	0.219066	Akaike info criterion		-0.016897
Sum squared resid	1.103767	Schwarz criterion		0.265992
Log likelihood	6.245006	F-statistic		34.73218
Durbin-Watson stat	1.715952	Prob(F-statistic)		0.000000

** Significance at 99% confidence level

From the regression result, value of adjusted R-squared 0.85 is smaller than value of Durbin-Watson statistic 1.71. This indicates that the regression result is not a spurious regression. Spurious regression problems often occur in time series data because the data are from stochastic processes (random). Spurious regression means that the result of the regression has a coefficient of determinant (R^2) is high and the t-statistic is significant but not economically meaningful. Gujarati (2003) mention that an adjusted R-squared greater than Durbin-Watson statistic is a good rule of thumb to suspect that the estimated regression is spurious.

Before exploring the relationship between each independent variables and dependent variable, we must perform another econometric test, looking for the reliability of the BLUE (Best Linear Unbiased Estimation) assumption. We must have absence of autocorrelation, heteroscedasticity, and multicollinearity.

5.2.1. Test for Autocorrelation

Serial correlation or autocorrelation is errors in one time period which are correlated directly with errors in the ensuing period. Based on autocorrelation test, it can be seen in annex 3, probability of Obs*R-squared is 0.83, greater than probability of significant level 5%. Thus, it makes conclusion that it is not able to reject the null hypothesis. These conditions indicate the regression model that there is not autocorrelation. It means errors in one time period are not correlated with errors in the ensuing period.

5.2.2. Test for Heteroscedasticity

Heteroscedasticity occurs when variance of the error terms are not the same. Based on White Heteroscedasticity test, it can be seen in annex 3 probability of Obs*R-squared is 0.28, greater than probability of significant level 5%. It makes conclusion that it is not able to reject the null hypothesis. It means, regression model has homocedastic variance of errors.

5.2.3. Test for Multicollinearity

Multicollinearity occurs when two or more independent variable are highly correlated with each other. To detect multicollinearity problem is by using the correlation matrix (using pairwise correlation matrix) of the model that is

constructed. Based on the rule of thumb, the model has multicollinearity problem if the correlation between each independent variable exceeds 0.8.

Based on the result, it can be seen in annex 3, indicates that real GDP variable with nominal exchange rate (NER) has value correlation 0.83. Another method to detect multicollinearity problem use tolerance (TOL) and variance inflation factor (VIF). The tolerance for variable real GDP with nominal exchange rate is 0.17. While, the variance inflation factor for this variable is 5.8. The value of VIF lower than 10, it means there is not multicollinearity problem.

5.2.4. Stability Test

Eviews provide Ramsey RESET test, which is a statistic for testing for functional form misspecification. The null hypothesis of this test is that the equation has the correct functional form, and the alternative hypothesis that there is functional misspecification. Based on the result, it can be seen in annex 3, joint probability of log likelihood ratio is 0.91, greater than probability of significant level 5%. It makes conclusion to do not reject the null hypothesis. It means, specification form in the model is correct form or there is not misspecification form.

5.2.5. Normality Test

E-Views provide the Jarque-Bera test, as a test for normality of the residuals. This test is based on the estimated moments of the residuals. The null hypothesis of the test is that the residuals are normally distributed. Meanwhile, the alternative hypothesis is that the distribution is non-normal. Based on the result, it can be seen in annex 3, probability of Jarque-Bera test is 0.41, which is quite high or greater than probability of significant level 5%. It makes conclusion to do not reject the null hypothesis or the residuals are normally distributed.

5.3. Analysis Determinant Factors of Leather and Leather Products Export Performance

To measure goodness of fit of the regression model is by using adjusted R-squared. The adjusted R-squared coefficient of determination is 0.85, which

indicates that about 85 percent the variation of export supply leather and leather products explained by all independent variables (real gross domestic product, nominal exchange rate, relative price of export, dummy export tax policy on raw leather and dummy economic crisis) in the model, which means this form is a good fit for the data. On the other hand, around 15 percent variation of dependent variable cannot be explained by all independent variables in the regression model.

Another way to identify the variation of the dependent variable is by using F statistic. The null hypothesis is none of independent variable helps to give detail of variation of the dependent variable about its mean. If the calculated F-value is greater than the critical one, the null hypothesis is rejected. If F-statistic is not significantly different from 0, then it can be concluded that the explanatory variables do little to explain the variation of dependent variable. From the regression statistics obtained F-statistic is 34.7. This makes the conclusion that the null hypothesis is rejected. It means that there are independent variables which are able to explain the variation of the dependent variable (export supply of leather and leather products industry).

There are 15 variations of the dependent variables which cannot be explained by all independent variables in regression models due to possibility of export supply leather and leather products industry to world markets also depends on the standards of quality products and management aspects in these industries. Based on BPS data, most of the industries are small and medium enterprises, which is relatively minimal in using technology and controlling quality products. According to Nazar and Saleem (2009), contribution of small and medium enterprises in global export is becoming significant, but still a large number of these are unable to outperform in international market. There are several factors which influence on export performance such as aspect management, export marketing strategic and characteristic of firm in the industry.

Based on the regression result, there are four variables which are appropriate with expected sign. These variables are relative price of export, nominal exchange rate, dummy export tax on raw leather and dummy economic crisis. Meanwhile, there is one variable which is not appropriate with expected sign. This variable is real gross domestic product.

The econometric results also indicates that independent variables such as nominal exchange rate, relative price of export and dummy export tax on raw leather had a statistically significant influence on export supply of leather and leather products industry. Meanwhile, one variable that is real gross domestic product is not significant and it is not appropriate with expected sign. The following explains the relationship of each independent variable with dependent variable.

5.3.1. Real Gross Domestic Product

Real gross domestic product as a proxy of output is expected to increase export supply leather and leather products. Based on the regression result, coefficient variable of real gross domestic product is -0.636127. It means if real gross domestic product increase one percent will affect to decrease of export supply of leather and leather products to world market. This sign is not appropriate with expected sign.

Real GDP variable is insignificant effect on export supply performance of leather and leather products industry. This can be explained by the probability value and t-statistic of real GDP variable. Probability of real GDP is 0.1871, greater than the probability of 5% significance level. This makes conclusion to do not reject the null hypothesis. Another way is by using t-statistic, if the calculated t-value (t-statistic) is higher than the critical t-value (t-table) for a 5% significance level, then the coefficient regression is said to be significant at the 95% confidence level. Variable real GDP has t-statistic -1.35, lower than the critical t-value (t-table) 2.064. It means that the coefficient regression do not significant affect to export supply.

Real gross domestic product as proxy of leather and leather products industries output does not always affect to performance of export supply. Although in general, if production increases, the supply may also increase. Real GDP insignificant changes on export supply due to demand of leather products in home country has experienced increase, so the increase in the output or production could increase supply to domestic market.

Another reason that causes the coefficient sign of real GDP is different with expected sign due to the increase in real gross domestic product indicate country's economy to grow. This affects could increase both income communities as producers and consumers. If there is an increase in income, then the purchasing power of goods in general will increase as needed. Increasing demand in domestic will affect to declining of product exports due to the produced goods are diverted to fulfill domestic demand. According Blanchard (2006) increase in income (change in GDP) associated with the increase in demand, then leads to increase in production. One of component of GDP is consumption. Higher income will influence on increases consumption. Therefore, an increase in real GDP will have impact on increasing demand for imported goods and domestic goods. The existence of economic growth makes the producers of leather and leather products industry choose the domestic market because the costs are relatively small.

Based on export performance of leather and leather products data, value export is fluctuation, meanwhile real gross domestic product data relatively increase year to year. Export value of leather and leather products industry had experienced fluctuation, for instance in 2001 was US \$ 100.2 million, decrease to US \$ 80.5 million in 2002 then increase again to US\$ 106.5 million in 2004. While in the same year, it occur an increasing value of real gross domestic product. This fact can be a reason why real gross domestic product does not significantly effect on export supply of leather and leather products industry and is also different with expected sign.

5.3.2. Nominal Exchange Rate

Nominal exchange rate is one of the factors which influence on export supply of leather and leather products industry. Indonesia exporter gets advantage when the condition of Indonesia's currency is depreciation. Based on the results of regression, the coefficient parameter of the nominal exchange rate is 0.93 with probability 0.0005. From these results, probability is lowest and less than 5% significant level, which can make conclusion to reject the null hypothesis. Nominal exchange rate variable has t-statistic 4.04 greater than critical t-value is 2.064 at a 5% significance level and 2.5 at one percent significant level. It means

that the nominal exchange rate has significant effect on export supply of leather and leather products industry, both at 95% confidence level or 99% confidence level. Positive sign of coefficient nominal exchange rate is expected. Increasing of export supply value is influenced by depreciation of exchange rate, which is also appropriate with exchange rate theory. If the exchange rate depreciates, it will have an impact on increasing exports.

Variable of nominal exchange rate is statistically significant and appropriate with expected sign. The coefficient result is 0.93 means that a one percent increase of nominal exchange rate (means depreciation) *ceteris paribus*, will increase 0.93 percent of export supply performance. It means, nominal exchange rate confirms that a depreciation of the Indonesia's currency (rupiah's) promotes the growth of export supply of Indonesian leather and leather products industry.

Depreciation of domestic currency tend to increase export supply due to the firm production structure is benefit by lowered relative labors cost and also the small share of imported input material used in the production. According to BPS data, average percentage of imported of raw material used in the production of leather and leather products industry was 35 percent in period 2001-2005. It means if depreciation domestic currency occurs with lower production cost will make suppliers to supply more of goods to foreign markets (increasing export supply). Ghei and Pritchett (1999) summarize the empirical evidence on the impact of exchange rate depreciation on exports, and conclude that exchange rate depreciation mostly translated to an improved export performance.

According to Marshall-Lerner condition in Blanchard (2006), depreciation of domestic currency tends to increase export and decrease import. Depreciation makes domestic goods relatively less expensive abroad. This leads to an increase in foreign demand for domestic goods, or an increase in Indonesia's export. While depreciation makes import decrease cause foreign goods relatively more expensive in domestic. This leads to a shift in domestic demand (foreign goods) toward domestic goods and to decrease in the quantity of imports. Decrease import occurs because of two things. First, the depreciation leads to switching from imported goods to domestic goods. Second, depreciation may result in

inflation, which in turn reduce the level of real income so that purchasing power whole to decrease. Depreciation also affects on trade balance, will result in the reducing of the trade deficit due to decrease imports greater than the increase in exports. Trade balance is then to experience improvement with time.

5.3.3. Relative Price of Export

Regarding the international market, the higher relative price of its export good represents an advantage. If relative price of good increase, it will affect to produce more good or increase relative supply. Relative prices of export leather and leather products is one of factors that influence on export supply performance. This variable is statistically significant and appropriate with economic sign. The coefficient result is 0.27 means that a one percent increase of relative price of exports, *ceteris paribus*, will affect to increase 0.27 percent export supply of leather and leather products. Probability of this variable is 0.0062, less than probabilities 5% significant level, which can make conclusion to reject the null hypothesis. Relative price of export variable has t-statistic 3.01 greater than critical t-value is 2.064 at a 5% significance level and 2.5 at one percent significant level. It means relative price of export significant influence on export supply of leather and leather products at 95% confidence level or 99% confidence level.

The elasticity of relative price of export supply is less than one or inelastic because one percent increase on relative price leads to a 0.27 percent increase in export supply of leather and leather products. Exporter Indonesia tends to sell their products to foreign market if ratio of export price in terms wholesale price index for Indonesia is positive. The positive relative price elasticity of export supply implies that a rise of export price in related to domestic price would lead to the increase of export supply of Indonesian leather products. The positive relative price of exports indicates that the value of export price is greater than domestic price. If domestic price has advantage, then the exporter will sell leather products to domestic market.

Assuming that export price of products determined in international markets, so the increase in relative export prices would lead to increase

competitiveness products, thus make export supply tends to increase. Increasing export prices have impact on increase in export value from US\$ 177.6 million in 2006 to US\$ 226.9 million in 2007. Export supply of leather and leather products is inelastic to changes in the relative price of exports indicates that the export price changes have not quickly responded by exporters. The exporters' leather and leather products tend to sell their products regardless of price in international market; this is because the Indonesian exporters are not a major player for this commodity.

5.3.4. Dummy Export Tax on Raw Leather

Export tax policy on raw leather is one of the factors which influence on export supply of leather and leather products manufacture. Based on the results of the regression, dummy export tax policy is appropriate with the expected sign and also has a significant effect on export supply leather and leather products. Coefficient sign of parameter dummy export tax policy is positive. This means that if there is an export tax policy on raw leather, then it will lead to increase export supply of leather products manufacture. This variable has probability 0.0055, which can make conclusion to reject the null hypothesis. From the regression result, the variable of dummy export tax policy on raw leather has t-statistic 3.06 greater than critical t-value is 2.064 at a 5% significance level and 2.5 at one percent significant level. Based on probability value and t-statistic, it indicates that the dummy export tax policy on raw leather has a significant effect on export supply of leather and leather products at 95% and 99% confidence level.

There is export tax policy which is issued by government to give positive effect to exporter of leather and leather products industry. If there is not export tax policy such as occurred in 1998 until 2004, thus it makes suppliers of raw leather prefer exporting their product to selling them to the domestic leather manufacturers. These conditions make leather and leather manufacturers experience shortage of raw material, then the industry experiences decline in production and also export supply.

There is government rule No. 35 about export tax imposition on certain export commodity including raw leather as much as 25 percent in 2005. It had

impact on guarantying domestic necessity of raw leather and increasing of export supply of leather and leather products manufacture. For instance export leather and leather products manufacture was US\$ 106.5 million in year 2004 then experienced increase to US\$ 130.4 million in 2005 and US\$ 177.6 million in 2006.

Export tax policy on raw leather is effective in helping the leather products manufacture to keep existing in the global market. This is felt by most of the leather and leather products industries which are mostly small and medium enterprises. This policy also prevents the increase in domestic commodity prices due to rising prices abroad.

Export tax policy raw leather is one of the government's efforts to develop leather and leather products industry in the country. It also needs control in the implementation because Indonesia's raw leather has a good quality in the international leather market so that smuggling still exists. Although the impact of implementation of this export tax has reduced the amount of export of raw leather, this policy has encouraged the development of real industrial leather. According to Ministry of Industry occurs declining export of raw leather after imposition export tax policy, from 243.4 ton in 2004 to 135.4 ton in 2005 and 21 ton in 2007. The other impact of the export tax policy is the export cost to be higher because the producers have to pay export tax than the domestic supply. So, this policy is expected to make producer of raw leather be able to supply the domestic necessity of raw leather, and leather industries does not depend on import of raw leather from abroad. Thus, this policy is beneficial for the leather and leather products industry because relative prices get cheaper. On the other side, this policy also has benefits for the government, because tax revenues have applied however small share to the total tax revenue. According to Piermartini (2004) Indonesia's export tax revenue has 0.2 percent from the total tax revenue.

Raw leather is the main raw material for producing various kinds of leather products. The export tax policy resulted raw material input prices will be cheaper. Factor a good's input price is one factor affecting change in export supply. A decrease in the prices of a good's inputs reduces costs and allows suppliers to supply more of good produced to market. According to Pindyck and Rubinfeld (2005), impact of imposition export tax policy depends on

elasticity of demand and supplies its good. If demand is very inelastic relative to supply, the burden of the tax falls mostly on buyers. It takes a relatively large increase in price to reduce the quantity demanded by even a small amount, whereas only a small price decrease is needed to reduce the quantity supplied. Meanwhile, if demand is very elastic to supply, it falls mostly on sellers.

5.3.5. Dummy Crisis

There is economic crisis in certain years that affect to fluctuation of export supply of several commodities. Based on regression result, dummy crisis variable is appropriate with expected sign, but is not significant effect on export supply of leather and leather products. The coefficient of dummy crisis variable is -0.02 with probability 0.84. Probability value of this variable greater than 5 % significant level thus make conclusion to do not reject the null hypothesis. This variable also has a t-statistic of -0.19 smaller than critical t-value (t-table). It means, this variable has not a significant influence on export supply. Insignificant may be caused by these products are not primary Indonesian commodity exports.

There is crisis in certain year, for instance which occurred in 1997 and 1998, had impact the Indonesian economy to experience decline. According to Narjoko and Atje (2007), Indonesia enjoyed a more competitive terms of trade during and after the 1997/98 economic crisis, as a result of sharp exchange rate depreciation in 1998. The better terms of trade was expected to have improved the country's export performance. In contrast to this positive performance was the very disappointing performance of some sectors which Indonesia has its comparative advantage, and many of these had actually been the Indonesian export-oriented industries (labor and resource-intensive industries). Sectors included in this group were furniture, paper-and-paper products, textiles, wearing apparel, and wood-and-wood products.

Economic crisis will result in the switching of consumption of imported goods to domestic goods. Because the economy weakening, then some consumers' incomes will fall and it affects the purchasing power decline.

CHAPTER 6

CONCLUSION AND RECOMMENDATION

6.1. Conclusion

Variables such as relative price of export, nominal exchange rate, and dummy export tax policy on raw leather are appropriate with expected sign and it statistically significant influence on export supply of leather and leather products industry. Meanwhile, dummy economic crisis is not significant influence on export supply, but the sign of coefficient is appropriate with expected sign. For real gross domestic product variable as proxy output is not significant influence on export supply.

A depreciation of the Indonesia's currency (rupiah's) promotes the growth of export supply of Indonesian leather and leather products industry. Indonesian exporter tends to sell their products to foreign market if ratio of export price in terms wholesale price index for Indonesia is positive. The positive relative price of export indicates that the value of export price is higher than domestic price.

Export tax policy imposition result in raw material input prices will be cheaper. A decrease in the prices of a good's inputs reduces costs and allows producers to increase supply of leather products to market. Therefore export tax policy on raw leather is effective and it gives positive effect on exporter of leather and leather products industry.

6.2. Recommendation

Recommendations from this study as follow:

1. The government must develop leather and leather products industry by maintaining macroeconomic stability and also increasing quality and technology aspect that can compete in international markets.
2. The government must provide compensation to producers of raw leather as part of income distribution such as training of good cattle management, separation techniques and the preservation of raw leather; development of livestock breeding that have superior quality.

REFERENCES

- Ali, Ifzal. (1987). India's Manufactured Exports: An Analysis of Supply Factors. *The Developing Economies*, XXV-2, pp. 152-170.
- Belsey, David A., Kuh, Edwin, and Welsch, Roy E. (1980). *Regression Diagnostic: Identifying Influential Data and Sources of Collinearity*, Wiley Press, New York.
- Blanchard, Olivier. (2006). *Macroeconomics, Fourth Edition*. Upper Saddle, Prentice Hall, New Jersey.
- Ghei, N and L. Pritchett. (1999). The Three Pessimisms: Real Exchange Rate and Trade Flows in Developing Countries.
- Goldar, Bishwanath. (1989). Determinants of India's Export Performance in Engineering Products, 1960-1979. In *the Developing Economies*, XXVII-1, 3-18.
- Goldstein, Morris and Khan, Mohsin S. (1978). The Supply and Demand for Exports: a Simultaneous Approach. *The Review of Economics and Statistics*, Vol. 60, No 2., pp. 275-286.
- Gujarati, Damodar N. (2003). *Basic Econometrics, Fourth Edition*. New York: McGraw-Hill.
- Hasan, Mohamad F., Michael R. Reed and Mary A. Marchant . (2001). Effects of an Export Tax on Competitiveness: the Case of the Indonesian Palm Oil Industry *Journal of Economic Development*, Volume 26, No. 2, pp 77-90.
- Hudson, Darren and Ethridge, Don. (1998). The Implication of an Export Tax on Sectoral Growth: a Case in Pakistan.
- Khairuzzaman and Cameron, S. (2005). Export Supply Function Estimates for the Pakistan Carpet Industry. BCID Research Paper No. 9, pp. 1-12.
- Komarudin, Yudhi and Suhari, Jusuf. (2007). Access of Footwear Raw Material Inputs: A Study Focusing on Indonesian Footwear Producers' Access to Cow Finished Leather. United States Agency for International Development (USAID)
- Krugman, Paul R. and Obstfeld, Maurice. (2006). *International Economics, Theory & Policy, Seventh Edition*. Pearson-Addison Wesley, Boston, USA.
- Levich, Richard M. (2001). *International Financial Markets: Prices and Policies, 2nd Edition*. McGraw-Hill Companies, Inc, New York.

- Mishkin, Frederic S and Eakins, Stanley G. (2006). *Financial Market and Institutions, 5th Edition*. Pearson Addison Wesley, USA.
- Moran, Christian. (1988). A Structural Model for Developing Countries Manufactured Exports. *The World Bank Economic Review*, Vol. 2, No. 3: 321-340,
- Nachrowi, D Nachrowi and Usman, H. (2006). Pendekatan Populer dan Praktis Ekonometrika Untuk Analisis Ekonomi dan Keuangan. Universitas Indonesia.
- Narjoko, D. A and Atje, Raymond. (2007). Promoting Export: Some Lessons from Indonesian Manufacturing in *Working Paper Series*, No. 32, February 2007 (rev. 5/07), Asia-Pacific Research and Training Network on Trade.
- Nazar, M. Suhail and Saleem, Hasaan Mujtaba Nawaz Saleem. (2009). Firm-Level Determinants of Export Performance, in *International Business and Economics Research Journal*, Vol. 8, No. 2, pp. 105-112. Pakistan.
- Piana, Valentino. (2001). Exchange Rate.
- Piermartini, Roberta. (2004). The Role of Export Taxes in The Field of Primary Commodities. World Trade Organization.
- Pindyck, Robert S. and Rubinfeld, D. L. (1998). *Econometric Models and Econometric Forecasts, International Edition*. New York: McGraw Hill.
- Pindyck, Robert S. and Rubinfeld, D. L. (2005). *Microeconomics, Sixth Edition*. Upper Saddle, Prentice Hall, New Jersey.
- Prasad, Sangita. (2000). Determinants of Exports in Fiji, Reserve Bank of Fiji, *Working Paper*, 2000/04.
- Pusat Penelitian dan Pengembangan Perdagangan Dalam Negeri. (2007). Info Komoditi Prioritas: Kulit dan Produk Kulit.
- Reed, Michael R. (2000). *International Trade in Agricultural Products*, Upper Saddle, Prentice Hall, New Jersey.
- Richardson, Paul. What is Leather Technology?. British School of Leather Technology, University College Northampton.
- Salvatore, Dominick. (2007). *International Economics, 9th Edition*. USA: John Wiley & Sons, Inc.,
- Sharma, Kishor. (2000). Export Growth in India: Has FDI Played a Role? in *Center Discussion Paper* No. 816, Charles Start University, Australia.

Electronic source:

Piana, Valentino. (2001). Gross Domestic Product.

<http://www.economicwebinstitute.org/>

Wanasuria, S. (2001). Industri Kulit Kekurangan Bahan Baku.

http://suharjawanasuria.tripod.com/industri_kulit_01.htm

<http://www.imfstatistics.org/>

<http://www.depdag.go.id>

<http://www.bps.go.id>

<http://www.intracen.org>

<http://www.economywatch.com/economic-statistics/country/Indonesia/>



Annex 1. Time Series on Leather and Leather Products Export Performance, and the Explanatory Variables, 1980-2008

YEAR	EX (in millions of US\$)	RGDP (in billions of rupiah)	RP (US\$/ton)	NER (Rp/US\$)	DCR	DTAX
1980	27.3	554,161.70	993.81	627.0	0	0
1981	28.7	596,302.24	901.95	631.8	0	0
1982	29.8	609,697.84	760.20	661.4	0	0
1983	28.7	635,262.27	526.41	909.3	0	0
1984	42.1	679,570.14	476.24	1,025.9	0	0
1985	44.1	696,306.31	525.44	1,110.6	0	0
1986	49.1	737,217.84	584.52	1,282.6	0	0
1987	73.0	773,530.00	538.11	1,643.9	0	0
1988	77.6	818,238.89	1,108.57	1,685.7	0	0
1989	79.1	879,258.37	1,334.35	1,770.1	0	0
1990	73.2	942,929.45	1,019.36	1,842.8	0	0
1991	53.2	1,008,466.00	1,314.23	1,950.3	0	0
1992	80.5	1,073,610.00	1,611.61	2,029.9	0	0
1993	73.7	1,146,787.00	1,330.57	2,087.1	0	0
1994	70.5	1,233,254.00	1,396.04	2,160.8	0	0
1995	65.0	1,334,628.00	1,203.70	2,248.6	0	0
1996	65.5	1,438,973.00	1,082.64	2,342.3	0	1
1997	104.5	1,506,602.00	565.48	2,909.4	1	1
1998	174.4	1,308,835.00	170.42	10,013.6	1	0
1999	91.0	1,319,189.00	137.95	7,855.2	1	0
2000	111.5	1,389,769.00	53.98	8,421.8	0	0
2001	100.2	1,440,405.00	118.55	10,260.9	0	0
2002	80.5	1,505,216.00	100.07	9,311.2	0	0
2003	88.7	1,577,171.00	83.16	8,577.1	0	0
2004	106.5	1,656,516.00	79.16	8,938.9	0	0
2005	130.4	1,750,815.00	80.49	9,704.7	0	1
2006	177.6	1,847,126.00	117.44	9,159.3	0	1
2007	226.9	1,963,091.00	143.80	9,141.0	0	1
2008	226.8	2,082,103.00	120.87	9,699.0	0	1

Remarks:

- EX : Export value of leather and leather products industry
 RGDP : Real Gross Domestic Product as proxy of output
 RP : Relative price of export
 NER : Nominal exchange rate
 DCR : Dummy economic crisis
 DTAX : Dummy export tax policy on raw leather

Annex 2. Ten Main Countries Destination of Indonesia's Export Leather and Leather Products in period 2004-2008

No	Country	Export Value of Indonesia's Leather and Leather Products (in US\$ thousands)					Total
		2004	2005	2006	2007	2008	
1	USA	27,188.71	20,432.26	27,088.62	34,545.40	41,374.71	150,629.71
2	Hong Kong	18,171.33	27,262.24	28,557.10	33,798.90	41,946.48	149,736.04
3	China	5,979.05	10,482.22	25,422.44	38,935.11	45,551.73	126,370.55
4	Italy	12,984.48	12,219.61	10,811.58	19,878.21	23,373.96	79,267.83
5	Malaysia	3,458.29	5,820.21	23,520.45	28,714.16	18,138.30	79,651.40
6	Singapore	10,340.76	11,894.96	18,555.35	19,964.44	14,972.51	75,728.02
7	Japan	9,775.32	10,996.16	9,433.51	12,486.83	12,776.55	55,468.37
8	Thailand	6,116.94	9,874.56	9,147.26	12,862.51	11,403.59	49,404.84
9	India	4,922.87	8,497.02	11,385.89	13,199.82	10,626.36	48,631.96
10	Vietnam	8,840.51	8,390.20	8,139.36	9,792.37	10,595.67	45,758.11

Source: WITS, Ministry of Trade

Annex 3. The Regression Result

Dependent Variable: LOG(EX)				
Method: Least Squares				
Date: 12/14/09 Time: 17:06				
Sample: 1980 2008				
Included observations: 29				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.944672	4.474668	0.881556	0.3871
LOG(RGDP)	-0.636127	0.467829	-1.359745	0.1871
LOG(RP)	0.279046	0.092547	3.015195	0.0062
LOG(NER)	0.935570	0.231424	4.042661	0.0005
DTAX	0.498834	0.162785	3.064371	0.0055
DCR	-0.028745	0.146115	-0.196729	0.8458
R-squared	0.883047	Mean dependent var		4.327546
Adjusted R-squared	0.857623	S.D. dependent var		0.580570
S.E. of regression	0.219066	Akaike info criterion		-0.016897
Sum squared resid	1.103767	Schwarz criterion		0.265992
Log likelihood	6.245006	F-statistic		34.73218
Durbin-Watson stat	1.715952	Prob(F-statistic)		0.000000

Result of Multicollinearity Test

Pairwise Correlation Matrix

	DCR	DTAX	NER	RGDP	RP
DCR	1.000000	0.106024	0.221998	0.146228	-0.235958
DTAX	0.106024	1.000000	0.365664	0.671071	-0.292733
NER	0.221998	0.365664	1.000000	0.836736	-0.781169
RGDP	0.146228	0.671071	0.836736	1.000000	-0.513833
RP	-0.235958	-0.292733	-0.781169	-0.513833	1.000000

(Continue)

Result of Autocorrelation Test**Breusch-Godfrey Serial Correlation LM Test:**

F-statistic	0.130586	Probability	0.878288
Obs*R-squared	0.356235	Probability	0.836844

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 12/14/09 Time: 17:08

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.967330	5.192199	-0.186304	0.8540
LOG(RGDP)	0.116623	0.564649	0.206541	0.8384
LOG(RP)	-0.024095	0.119338	-0.201905	0.8419
LOG(NER)	-0.063681	0.287948	-0.221154	0.8271
DTAX	-0.022708	0.181280	-0.125265	0.9015
DCR	0.018881	0.166118	0.113660	0.9106
RESID(-1)	0.126965	0.277722	0.457166	0.6522
RESID(-2)	-0.037421	0.264183	-0.141648	0.8887
R-squared	0.012284	Mean dependent var		2.41E-16
Adjusted R-squared	-0.316955	S.D. dependent var		0.198545
S.E. of regression	0.227848	Akaike info criterion		0.108674
Sum squared resid	1.090208	Schwarz criterion		0.485859
Log likelihood	6.424227	F-statistic		0.037310
Durbin-Watson stat	1.875541	Prob(F-statistic)		0.999911

(Continue)

Result of Heteroskedasticity Test

White Heteroskedasticity Test:

F-statistic	1.262305	Probability	0.316446
Obs*R-squared	9.729899	Probability	0.284498

Test Equation:

Dependent Variable: RESID²

Method: Least Squares

Date: 12/14/09 Time: 17:09

Sample: 1980 2008

Included observations: 29

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-43.18328	37.76098	-1.143595	0.2663
LOG(RGDP)	6.395779	5.648382	1.132321	0.2709
(LOG(RGDP)) ²	-0.232676	0.201857	-1.152678	0.2626
LOG(RP)	0.198006	0.189946	1.042436	0.3096
(LOG(RP)) ²	-0.015966	0.016206	-0.985157	0.3363
LOG(NER)	-0.370598	0.541886	-0.683904	0.5019
(LOG(NER)) ²	0.025771	0.032523	0.792390	0.4374
DTAX	0.087412	0.043645	2.002798	0.0589
DCR	-0.072496	0.037564	-1.929927	0.0679
R-squared	0.335514	Mean dependent var		0.038061
Adjusted R-squared	0.069719	S.D. dependent var		0.046116
S.E. of regression	0.044479	Akaike info criterion		-3.138463
Sum squared resid	0.039568	Schwarz criterion		-2.714130
Log likelihood	54.50772	F-statistic		1.262305
Durbin-Watson stat	2.052327	Prob(F-statistic)		0.316446

(Continue)

Result of Stability Test

Ramsey RESET Test:

F-statistic	0.008516	Probability	0.927309
Log likelihood ratio	0.011224	Probability	0.915629

Test Equation:

Dependent Variable: LOG(EX)

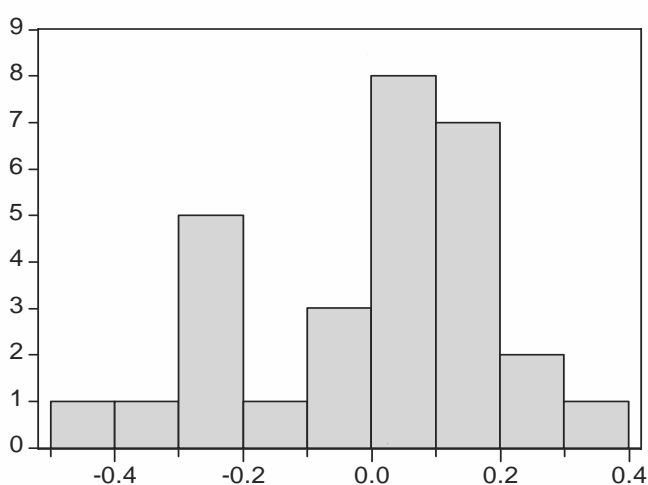
Method: Least Squares

Date: 12/14/09 Time: 17:09

Sample: 1980 2008

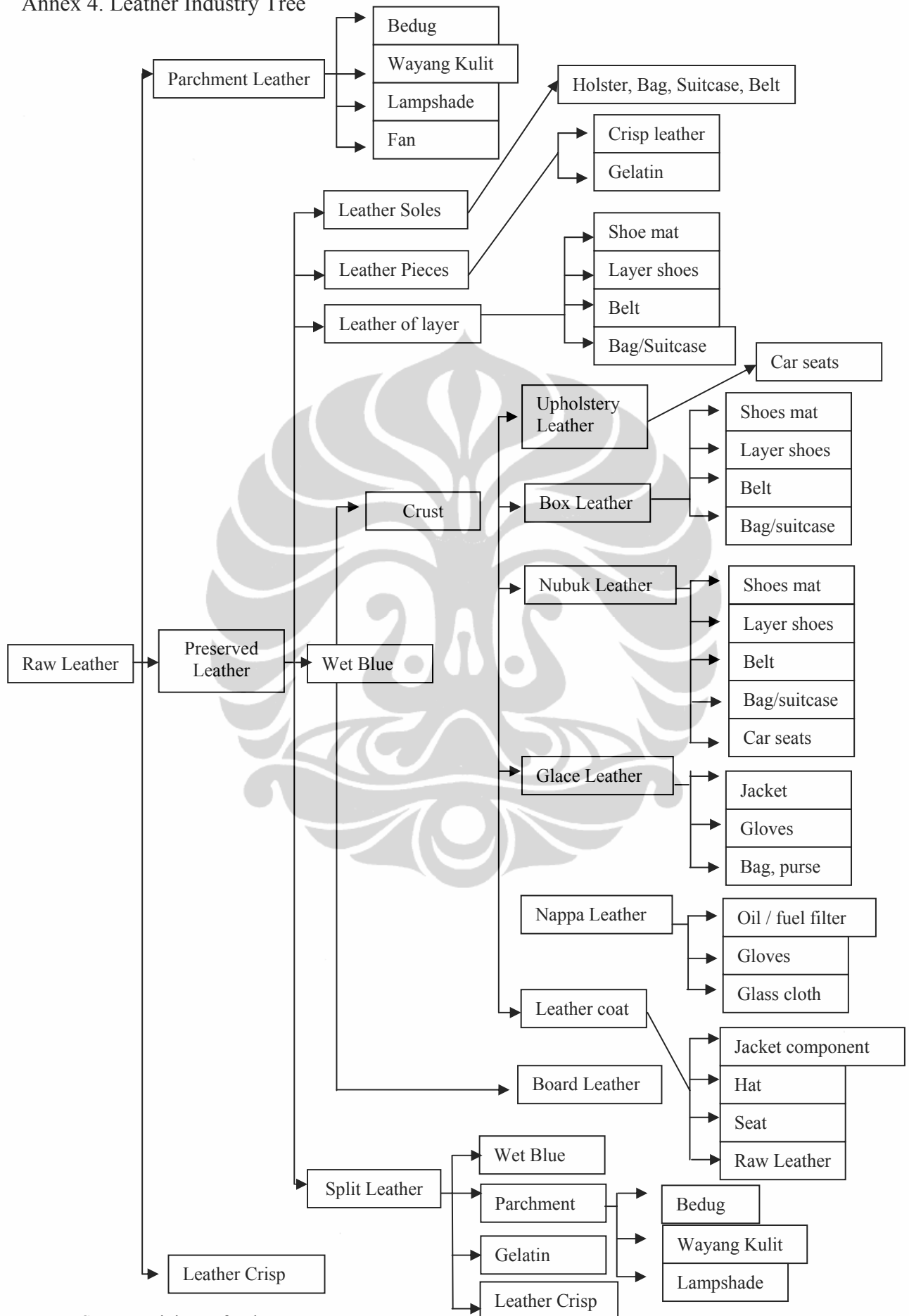
Included observations: 29

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.519382	7.727169	0.584869	0.5646
LOG(RGDP)	-0.767275	1.499469	-0.511698	0.6140
LOG(RP)	0.325763	0.515002	0.632548	0.5335
LOG(NER)	1.104354	1.844236	0.598814	0.5554
DTAX	0.599908	1.107837	0.541513	0.5936
DCR	-0.034955	0.163828	-0.213364	0.8330
FITTED^2	-0.020840	0.225827	-0.092283	0.9273
R-squared	0.883093	Mean dependent var	4.327546	
Adjusted R-squared	0.851209	S.D. dependent var	0.580570	
S.E. of regression	0.223946	Akaike info criterion	0.051682	
Sum squared resid	1.103340	Schwarz criterion	0.381718	
Log likelihood	6.250618	F-statistic	27.69721	
Durbin-Watson stat	1.719838	Prob(F-statistic)	0.000000	

Histogram and Normality Test

Series: Residuals	
Sample 1980 2008	
Observations 29	
Mean	2.41E-16
Median	0.053246
Maximum	0.309249
Minimum	-0.450246
Std. Dev.	0.198545
Skewness	-0.525347
Kurtosis	2.417430
Jarque-Bera	1.744042
Probability	0.418106

Annex 4. Leather Industry Tree



Source: Ministry of Industry

Universitas Indonesia