



UNIVERSITAS INDONESIA

**ASSESSING BILATERAL TRADE RELATIONS
BETWEEN INDONESIA - CHILE**

THESIS

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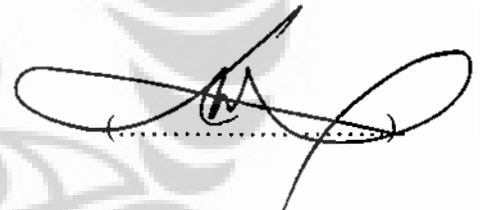
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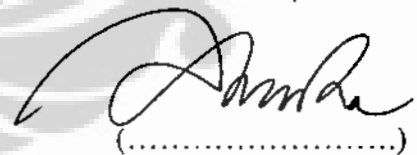
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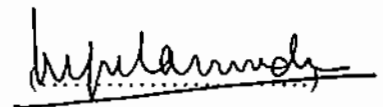
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ABSTRACT

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Trade cooperation is one way required by the countries to improve their trade performance. Kinds of trade cooperation are bilateral trade, regional trade and international trade. Indonesia recorded currently has little trade cooperation when compared with other countries. Chile is one country that wants to conduct trade cooperation with Indonesia. Performance of Indonesia-Chile trade increases every year. In the year 2008 value of Indonesian exports to Chile reached US\$ 0.14 billion while value imports from Chile Indonesia amounted to US\$ 0.2 billion. For Indonesia, Chile is an export destination number 3 for the South American region. *Zones Franca Iquique* existence is expected to form in the Indonesia market penetration into the neighboring countries of Chile. And on 1st September 2008 join commission formed by Indonesia-Chile is intended to discuss the possibility of establishing cooperation between Indonesia and Chile.

This study aims to see the impact of tariff reduction on potential commodities exports Indonesia exported to Chile and also potential commodities export Chile exported to Indonesia. Other factors that affect performance export and import Indonesia-Chile are GDP and the RER. From the results regression panel data show that the export performance of Indonesia to Chile for a potential commodity exports Indonesia affected significantly by Chile tariff. Chile' s tariff decrease, it will give effect to the increase in value of Indonesian exports to Chile. As for the performance of Indonesia imports from Chile for a potential export commodities Indonesia significantly influenced by Indonesia's GDP

Potential commodity exports of Indonesia to Chile which provides a major change in the tariff reduction is rubber and rubber articles (HS 40), Paper (HS 48) and preserved vegetables, fruits and nuts (HS 20). While the potential commodity exports of Chile to Indonesia, provides a major changes impact on reducing Indonesia' s tariffs are the Fruit Nuts (HS 08), Fats, Oils and Waxes (HS 15), Beverages, Spirits and Vinegar (HS 22).

Keywords: bilateral trade Indonesia - Chile, tariff, panel data model

ABSTRAK

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Judul :Mengkaji Ulang Hubungan Kerjasama Perdagangan Indonesia-Chile

Kerjasama perdagangan merupakan salah satu cara yang dibutuhkan oleh negara untuk meningkatkan performa perdagangannya. Bentuk kerjasama perdagangan bilateral trade, regional trade dan international trade. Indonesia tercatat saat ini masih memiliki sedikit kerjasama perdagangan jika dibandingkan dengan negara-negara lain. Chile merupakan salah satu negara yang ingin mengadakan kerjasama perdagangan dengan Indonesia. Performa perdagangan Indonesia-Chile meningkat setiap tahunnya. Pada tahun 2008 jumlah export Indonesia ke Chile mencapai US\$ 0.14 billion sedangkan import Indonesia dari Chile sebesar US\$ 0.2 billion. Bagi Indonesia, Chile merupakan negara tujuan ekspor nomor 3 untuk kawasan Amerika Utara. Keberadaan *Zona Franca Iquique* diharapkan dapat membentuk Indonesia dalam melakukan penetrasi pasar ke negara-negara tetangga Chile. Dan pada tanggal 1 September 2008 dibentuk *joint commission Indonesia - Chile* yang diperuntukkan untuk membahas kemungkinan diadakannya kerjasama antara Indonesia-Chile.

Penelitian ini bertujuan untuk melihat dampak penurunan tariff terhadap komoditi ekspor indonesia yang potensial diekspor ke Chile dan juga komoditi ekspor chile yang potensial diekspor ke Indonesia. Faktor lain yang mempengaruhi performa ekspor dan impor Indonesia-Chile adalah GDP dan RER. Dari hasil regresi data panel menunjukkan bahwa performa ekspor indonesia ke chile untuk komoditi potensial ekspor ke chile dipengaruhi signifikan oleh tariff chile. Penurunan tariff chile akan memberikan dampak pada kenaikan nilai ekspor Indonesia ke Chile. Sedangkan untuk performa impor Indonesia dari Chile untuk komoditi potensial ekspor indonesia dipengaruhi signifikan oleh GDP Indonesia.

Komoditi Potensial ekspor Indonesia ke Chile yang memberikan perubahan besar dalam penurunan tariff adalah karet dan barang dari karet (HS 40), Kertas/Karton (HS 48) dan olahan dari buah-buahan/sayuran (HS 20). Sedangkan untuk komoditi potensial ekspor Chile ke Indonesia yang memberikan dampak perubahan terbesar terhadap penurunan tariff Indonesia adalah buah-buahan (HS 08), lemak dan minyak hewan/nabati (HS 15), minuman (HS 22).

Kata Kunci: kerjasama perdagangan Indoensia - Chile, tariff, panel data

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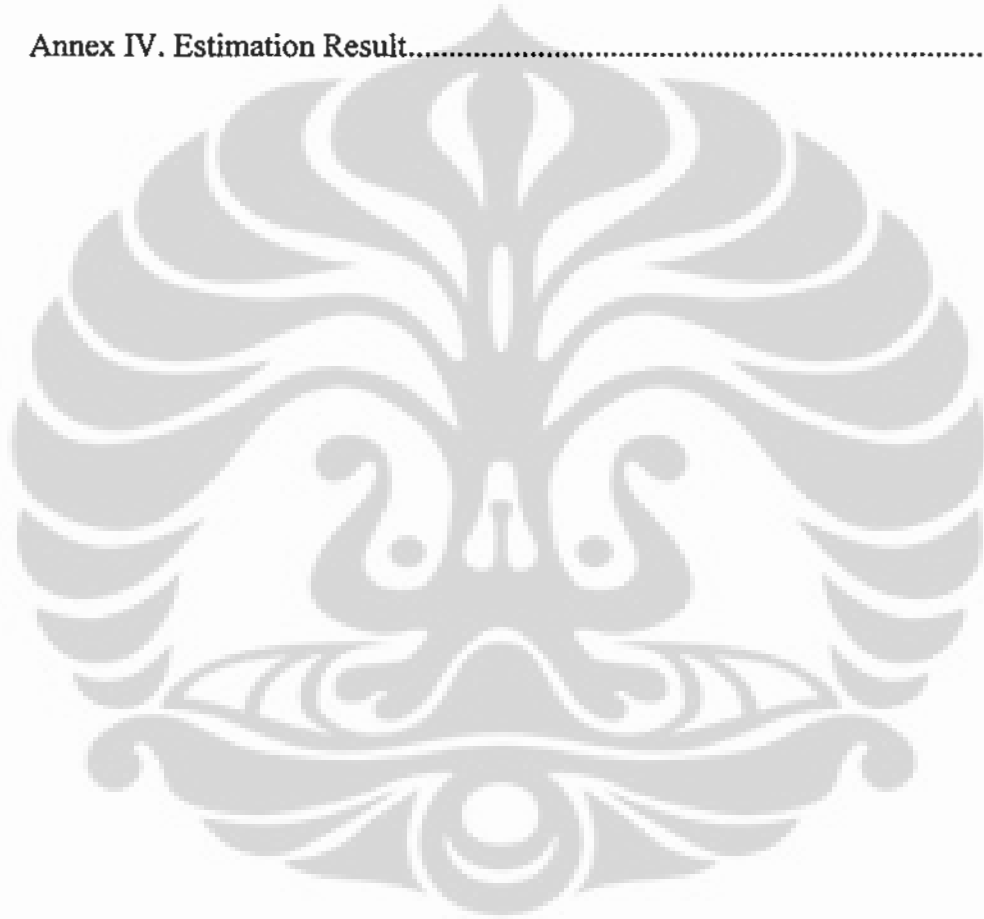
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CHAPTER I

INTRODUCTION

1.1. Background

Every country needs other country to fulfill their domestic necessities. There's a slight chance that a country could self fulfill its own needs. International trade is a definite solution to satisfy a particular country's domestic demands. In the light of this spirit, emerged international trade agreements. WTO (World Trade Organization) is a legitimate international trade organization which plays a significant role in order to create any kinds of agreements to reduce and eliminate trade barriers that might exist in international trade for the goal to trade globalization.

Besides WTO, there is other institution which plays similar roles regionally, namely RTA (Regional Trade Agreement). If RTA succeeded, it will influence regional trade activities between its member countries. According to WTO data, since year 1990 until 2008, there has been 421 agreements existed. This shows how enthusiast these countries to established trade cooperation. The final goal of each international agreement is establishing free trade.

Indonesia is a country located in Asia region and is also a member of ASEAN. It is not the only country who enacted regional or bilateral trade cooperation. It's also has bound itself with some RTAs, namely ASEAN-China, ASEAN-Korea, ASEAN-Japan, ASEAN +3, AFTA, Indonesia-Japan and the last one is ASEAN-Australia-New Zealand.

If compared with other country in Asia. Indonesia is still considered to have few numbers of RTA cooperation. Singapore is one of ASEAN member who leads with 17 RTA which reported to WTO. Singapore's bilateral cooperation is as follows: China-Singapore, Japan Singapore, India-Singapore, New Zealand-Singapore, US-Singapore, and many others. Other ASEAN member countries followed Singapore steps by establishing bilateral agreements with non ASEAN member countries.

Indonesia is also considering this bilateral cooperation as a potential chance to push export activities and expanding market. However, each time it tries to make bilateral agreement with other country, it has to consider the side impact which fore to come. These will minimize lost which might emerge from the agreement. This prudential act has to be nurtured by Indonesia government, since it's not yet considered as a strong country in trade if compared with China, United States, Japan, or European Union.

Currently, Indonesia is still considering possibilities to create trade cooperation with Chile. This initiative came from Chile. The government of Chile expected to increase their trade relation with Indonesia. Bilateral trade between Indonesia and Chile is increasing each year since 2003. Thus, on September 1st 2008, Indonesia and Chile has signed an MoU to establish Join Commission Indonesia – Chile, as follow-up of both countries' commitment to explore possibilities of FTA establishment between Indonesia and Chile.

However, the total trade has declined in 2008. Total non-oil and gas export from Indonesia to Chile as much as US\$ 67.8 million in 2003 and keep increasing in the following years, except in the year 2007 it's declined, from US\$ 152.8 million in 2006 down to US\$135.4 million in 2007. In the other side, non-oil and gas import from Chile is increasing. Total non-oil and gas import in year 2003 as much as US\$ 62.1 million up to US\$ 202.6 million in year 2007.

According to data issued by BPS, in year 2007 export value from Indonesia to Chile has reached US\$ 0.14 billion and ranked on 45th position from all Indonesia's export destinations. In the other side, import value from Chile to Indonesia has reached US\$ 0.2 billion and ranked on 38th position from all Indonesia's importer countries. However, based on regional view, Chile is the third export target countries in South America with 9.6% shares.

One interesting point from Chile is that it's eagerness to build cooperation with many other countries. bilaterally or regionally. Chile has initiated cooperation with many other countries including North America. Central America, other South American countries, European Union, East Asia, and Asia Pacific countries. In Asia region, Chile has established cooperation with some countries such as South Korea, Japan, China and Singapore. FTA between Chile

and South Korea has succeeded to increase trade value between both countries. Export value for commodities from South Korea to Chile experiences significant increment and so does the export value from South Korea to South America region. Based on data taken from Central Bank of Chile, the export value from South Korea to Chile has increased from US\$ 541 million in year 2003 to US\$ 3.1 billion in year 2007 or increased as much as 5.8 times based on values during that period.

Chile's trade performance has been considered to have satisfying development. From year 2000 until year 2004, Chile experienced significant economic growth if compared with other Latin America countries. Based on data from state of Chile, the unemployment rate in year 2000 has reached 9.2% and decreasing drastically in 2007 with only 7.1%. This fact shows that Chile is a great potential to become Indonesia's export target countries, not to mention that Chile's GDP/capita increment in year 2007 as much as US\$ 4,930.7.

Indonesia and Chile has done some joint studies before establishing agreement. On 1st September 2008 Indonesia and Chile has signed an MoU to establish Joint Commission of Indonesia-Chile through "Joint Study Group". Chile is considered as a potential market expansion for Indonesia in Latin America region. Chile has engaged on free trade zone, namely ZOFRI (Zone Franca de Iquique), which is the largest free trade zone in South America. This zone is considered as the gate where Asia's products enter and it also has become a market distribution channel for Pacific and Atlantic. Indonesia is the second main trade partner for Chile after Thailand, which a good chance for Indonesia to develop trade potential. However, there is a real barrier in Indonesia-Chile bilateral trade such as the distant between two countries is way too far, not to mention that there is no direct transportation to or from Chile. In the end of the days, Indonesia has to analyze the cost and benefit which will emerge from this bilateral trade agreement before it is established.

1.2. Research Objective

Generally, this thesis is aimed to identify commodity or product which has potential trade if the bilateral trade agreement between Indonesia and Chile is

established, and also to analyze the impact of tariff reduction as main goal to establish free Trade Agreement. Therefore, this thesis has the following goals:

- a. To identify and analyze potential commodity or product from Indonesia and Chile;
- b. To determine existing factors which influence export and import activities between Indonesia and Chile;
- c. To simulate the effect of tariff reduction on the value of Indonesia and Chile trade.

1.3. Research Coverage

In order to focus this thesis, there are some boundaries needs to be defined, as follows:

- a. Commodity or product will be analyzed with two digit HS code and all commodities are assumed to be treated equally and is not considered as sensitive product. Identification and analysis will focus only to 10 potential commodities or products.
- b. Yearly data during period 1999-2007 will be exercise in this thesis. Those data reflects trade fluctuation between Indonesia and Chile during last 9 years reported by Chile;
- c. Impact analysis will only focus on tariff reduction. Tariff reduction as one of many instruments being used in trade negotiation and the limited data which reflects NTB's impact to Indonesian-Chile's trade performance is the reason why tariff impact is being analyzed;
- d. Data source in this thesis are BPS (Indonesia Statistic Agency), Ministry of Trade, WITS (World Integration Trade Solution), IFS (International Financial Statistic) and other electronic resources.

1.4. Research Methodology

- a. In order to satisfy the first goal in this thesis. identification of export potential based on trade acceleration analysis and indicative measurement of trade potential, usually called ITP will be used as an analysis method.
- b. Index potential commodity or product (ITP) has been identified between Indonesia and Chile, and it will be exercised in an econometric equation to

reveals which factors that might influence export and import activities between the two countries, and further imposed tariff variable in to the equation to analyze its impact.

Existing econometric model will be calculated with Cross Section and Time Series. The equation divided into two forms, there are equation for determinant factors export and equation for determinant factors import.

- c. From the result of the econometric equation, there will be tariff reduction simulation predict the trade impact if the trade agreement between Indonesia and Chile is established.

1.5. Organization of The Thesis

In order to give more elaboration of this thesis, the writer will provide the outline of the contents of each chapter, as follows:

CHAPTER I : INTRODUCTION

The first chapter is the introduction section which will elaborate about the background of this thesis and also will give more illumination about the problem which will be analyzed; research objective which is the aim of this thesis; research coverage as the boundary of the problem at stake; and research methodology which is the short explanation of the methodology to be utilized to satisfy the objective of this thesis.

CHAPTER II: LITERATURE STUDY

In this chapter, the writer will explain few theories which will be used in this thesis. Theories to be explained are International Theory which contains explanation of many other theories such as Ricardian theory, Hecksher-Ohlin Theory, Tariff and Economic Integration. Other than that, this thesis will also elaborate previous publications which have been done in the past related to the research to be discussed.

CHAPTER III: INDONESIA-CHILE TRADE AND ECONOMY RELATION'S

This chapter will provide information about Chile's profile such as GDP growth, unemployment's, inflation index, world trade partner and commodity

profile. This chapter will also explain about Indonesia-Chile bilateral trade thus Chile's trade barriers such as tariff and non-tariff barriers.

CHAPTER IV : RESEACH METHODOLOGY

This chapter will explain about the equation that will be used in this thesis. The first equation is ITP (Indicative Trade Potential) calculation which determines ITP value over US\$ 1 million. The second equation is GPC (Growth Trade Potential) which determines potential commodities based on growth. Both equations will be combined to determine 10 potential commodities for Indonesia's export to Chile and also 10 potential commodities for Indonesia's import from Chile. Further, each of those 10 potential commodities will be regressed using econometric model. There are two econometric equations will be used in further calculation, they are export equation and import equation, where variables which will be included in those equations are GDP, RER and tariff. Lastly, there will be simulation for tariff reduction of each 10 potential commodities.

CHAPTER V: RESULT AND ANALYSIS

This chapter will explain about the result of the equation along with the analysis. The first result is calculation of potential commodities for Indonesia's export to Chile during period 1999-2003 and period 2003-2007 and calculation of potential commodities for Chile's export to Indonesia during period 2003-2007. The second result is the yield of econometric regression equation for export equation and import equation. The last result is simulation findings and tariff reduction analysis for each 10 potential commodities.

CHAPTER VI: CONCLUSION AND RECOMMENDATION

Finally, this chapter will conclude the result of this thesis and provide some recommendation to develop this thesis even further.

CHAPTER II

INTERNATIONAL TRADE THEORY AND ECONOMIC INTERGRATION

2.1. International Trade Theory

Each country has its own potentials and imperfectness in producing goods to fulfill its own needs. There are countries which has rich natural resources. While the others can produce goods efficiently to minimize its production cost. However, there are also some countries which can produce goods but not efficient enough to reduce its production cost, merely even makes it higher. In order to fill up the needs gap and distribute excess goods, a country trade goods with other countries.

In order to measure dependency of one country to another, one can observe the ratio between import and export of goods and services to its Gross Domestic Product. (Salvatore, 2007) GDP reflects total value of all goods and services which was being produced domestically. Smaller industrial country and developing country has higher export value compared to developed countries like the U.S.

A country dependency to another can also be observed generally from world trade growth which keeps increasing compared to world production increment. International trade theory analyzes the flow of goods, services, and payments between countries and the world. Policies and regulations influence inter country trade flows and affects a country's welfare. The benefit of having transaction with other country shall also be taken into account when doing trade.

There are some reasons why countries doing international trade as a base to gain profit among them, mostly because they realize that one country and another has differences and uniqueness, while also having its own distinct way to achieve its economic scale in producing goods. (Krugman and Obstfeld, 2006).

International trade theory which appears initially was Adam Smith theory, known as Absolute Advantage theory. This theory was using assumptions where

there are two countries having trade activities and both have to gain profit. First country has higher efficiency in producing goods while the other country has more efficiency in producing other goods. The next assumption is that there are no barriers which restrict inter country goods exchange. The other assumption is perfect mobility of factors within the nation but no international mobility, perfect competition in all commodity and factors markets, and no transportation cost.

Absolute advantage theory which introduced by Adam Smith cannot fully be implemented in the real world. In reality, not every country has ability to produce goods absolutely; countries have trade policies and regulations, when some goods pass through their territories then the value of goods will be adjusted with foreign currency.

International trade theory was elaborated according to some factors which influence trade such as labor, capital, technology, and trade barriers. Followings are some international trade theories based on factors which influence trading country's profit, with some limitations such as that there are only two countries doing trade, and only two commodities being traded.

2.1.1. Ricardian Model

The next international trade theory after Absolute Advantage theory is Comparative Advantage theory which was introduced by David Ricardo. This theory was using productivity of labor approach as distinct factor between two trading countries. This theory was also stated that there is a country having less efficiency in producing goods compared to the other country. However, this country was still able to do trade with the other country to gain profit.

There are some limitations which are used to explain this theory as follows. Trade activities only occur between two countries, two commodities. imperfect labor exchange, no trade barriers, constant production cost, no technological change in producing goods, and there is no transaction cost. Comparative advantage is shown when a country can produce goods with lower opportunity cost compared to the other country. Profits which yielded from the two country trade activities are by trading each country's distinct comparative advantage to another.

2.1.2. Heckscher-Ohlin Theory

The next international trade theory is the one which being introduced by Eli Heckscher and Bertil Ohlin or also known as Heckscher-Ohlin Theory (H-O). H-O theory develop deeper impact from international trade which done by two countries compared to the two previous theories. Generally, H-O theory explains two theorems, H-O theorem which explains and predicts patterns of trade, and factor price equalization theorem which explain the impact of price to international trade activities.

H-O theorem says: *"A nation will export the commodity whose production requires the incentive use of the nation's relatively abundant and cheap factor and import the commodity whose production requires the incentive use of the nation's relatively scarce and expensive factor."* (Salvatore, 2007: 131). In short, a country with richer relative labor will export commodities which using relative labor intensive and it will also import commodities which relative capital intensive.

Started from H-O theory, Paul Samuelson then added factor price equalization theorem which known as Heckscher Ohlin Amuelson Theorem (H-O-S). H-O-S theorem says: *"International trade will bring equalization in the relative and absolute return to homogeneous factors across nation."* (Salvatore, 2007:138). In other words, international trade will affects the same wages of homogeneous labor with each trading countries. Homogeneous labor is labors which having similar level of training, skills and productivities. Therefore, international trade will let wages similar across two countries and will also having similar interest rate balancing the two countries. Relative and absolute relative price balance will occurs in both countries.

2.1.3. Tariff as Instruments of Trade Policy

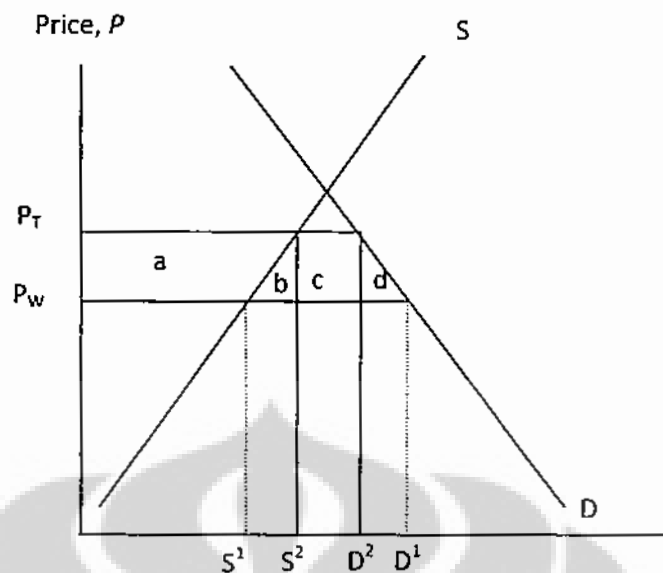
International trade activities between countries, in reality always face many problems and barriers. International trade barriers can be obtained from importing country or from exporting country. Government takes significant role in managing its country trade with other country through trade policy. The simplest trade policy is tariff. Tariff is tax levied when a goods is imported. (Krugman and

Obstfeld, 2006). Tariff is the oldest form of trade policy and generally used as the government source of income. Tariff is identical with protectionism, which restrict inter country trade, and also perform as a political instruments. Tariff can be imposed to imported goods as well as export goods.

There are two kinds of tariff, namely specific tariff and ad valorem tariff. Specific tariff is tax levied as fixed charge for each unit of goods imported. For example, oil import tariff imposed as much as US \$3 per barrel. Ad valorem tariff is tax levied as fraction of the value of imported goods. For example, tax imposed for every 25% of imported trucks.

The impact of tariff implementation by government is increasing price of domestic commodity or export commodity price in importing country. If tariff is applied to imported goods, then it will increase price of imported goods in domestic market. Existing price change may cause significant loss for domestic consumer in importing country and merely loss in exporting country. Tariff implementation will gain income for government. Analysis of consumer surplus and producer surplus can be utilized to analyze the cost and benefit from tariff implementation.

Let there are two relatively small countries engage in trade activities. The first country imports a commodity from the second. The government imposed import tax or tariff to imported goods. Balanced price or world price is PW . However, the price in exporting country decrease lower than PW to PT^* . The price of local goods has become cheaper than importing goods which allow opportunity for local producer to produce more goods to let domestic supply increase from $S1$ to $S2$. In the other hand, domestic consumption has decrease from $D1$ to $D2$. There are two sides of impact will occur by imposing tariff to imported goods, namely cost and benefit. From the above chart. area a, b, c, d are occurring cost and benefit.



Cost and Benefits of a tariff for the Importing Countries
Krugman and Obstfeld, 2007

Figure 2.1 Effect Tariff to the Importing Countries

Tariff increment has given profits for domestic producers, they accept the price increment so they will have higher producer surplus. Previously, domestic producers can only accept producer surplus in area below P_w but above supply curve, after existing price increment as much as P_t , domestic producers may gain profit as much as area 'a'.

Increasing price in domestic market caused by tariff implementation may cause consumer to experience loss. In the above chart, consumer surplus is located in the area above price but below demand curve. Lastly, consumers may suffer by the price increment due to smaller consumer surplus area.

The last impact of tariff implementation to imported goods is that the government may gain profits by tariff/tax collection. Below is the net affect from tariff to welfare in importing country:

<i>Consumer Loss</i>	: $a+b+c+d$
<i>Producer gain</i>	: a
<i>Government Revenue</i>	: c
<i>Net Welfare</i>	: $(a+b+c+d) - a - c = b+d$
<i>Efficiency loss</i>	: $(b+d)$

Efficiency loss occurs when there are price increment caused by tariff and might further caused incentives distortion for producers and consumers. The term of trade has experience increment because tariff lowers the price of foreign export.

2.2. Economic Integration

International trade can give positive impact as well as negative impact for both importing and exporting countries. Total loss which accepted by a country may be less if they do coordination and cooperation. Coordination and cooperation which done by these countries are usually by equalizing economical policies in their country such as tariff reduction or special treatment grant for certain countries.

Trade agreements on reduction tariff give impacts to members countries. There are two kind of impacts that will occurs in trade agreements. The first impacts is trade creation. And the second impacts is trade diversion. Trade creation occurs when *some domestic production in anation that is a member of the custom union is replaced by lower cost imports from another member nation*. And Trade diversion occurs when *lower cost imports from outside the custom union are replaced by higher cost imports from a union member*. (Salvatore, 2007: 341,343)

Benefit which derived from inter country cooperation is that they can maximize profit from liberal trade, labor movement and capital across border which can be easier due to fiscal policies cooperation and monetary cooperation. Fiscal and monetary policies cooperation is tend to economic integration.

Economic Integration basic theory was first introduced by a Hungarian economist, Bella Balassa in year 1960. There are several kinds or steps of economic integration: *Preferential Trade Agreement (PTA)*, *Free Trade Area (FTA)*, *Custom Union*, *Common Market*, *Economic Union and Monetary Union*.

PTA may be the weakest kind of economic integration. PTA offers tariff reduction to partner countries for several product categories. This policy in WTO is known as Most Favored Nation (MFN), where each member of WTO provides similar treatment to other member countries such as tariff implementation. For example, a country imposed tariff for imported bicycle product as low as 5%, therefore 5% tariff is also applied to all WTO member without exception.

A free trade area will happen when a group of countries engaging agreement to lower or even eliminate tariff among them, however they keep external import tariff to all other countries in the world. For example, FTA among North American countries, known as NAFTA which imposes zero tariffs to automobile products between the U.S. and Mexico? However, Mexico may apply higher import tariff to any non NAFTA member countries. Since there are tariff differences between NAFTA member countries and non NAFTA member countries, usually FTA elaborates rules of origin (ROO) to avoid transshipment problems. ROO is used to prevent imported goods from FTA member countries which originated from importing countries which is not FTA member.

The next kind of economic integration is Custom Union. It is cooperation between a group of countries to lower or even eliminate tariff among member countries and create other import tariff which similar among members and other countries in the world. A common market establishes free trade in goods and services sets common external tariffs among members and also allows for free mobility of capital and labor across countries. For example of those two kinds of economic integration is the European Union.

European Union is able to develop cooperation between its member countries by creating economic union and monetary union. Besides lowering tariff among member countries and forming external tariff, economic union is also regulate free trade for labor and services among them and fiscal policies for member countries. The last stage of economic integration is monetary union by forming common currency for member countries.

Todaro (645, 2006) explained that developing countries should orient themselves to develop their trade more than others. This is due to some factors as follows:

- a. *There are relative comparative-advantage changes to South-South as opposed to North-South trade;*
- b. *There are greater dynamics gains to be realized from such trade;*
- c. *Export instability resulting from fluctuations in developed-country economic activity can be reduce;*
- d. *Greater collective the nature of these arguments.*

Therefore it can be inferred that cooperation among developing countries will give positive impact for themselves and the development of world trade in general.

2.3. Previous Studies

There are some studies which have done to analyze international trade, especially one which closely related with economic integration. Followings are studies that have been done related with economic integration and further free trade area.

- a. Kalijaraan (2007) studies the possibility of trade between two countries, and the advantages from FTA between Japan and India. In this study, initially will be measured is cooperation prospect between India and Japan using Trade Intensity Index (TII), which is described in term of import and export intensity indices. This measurement is used to identify how intensive both countries are trading with each other. The result of TII is export and import intensities of both India and Japan have declined over the years. However, there are increasing number of Japanese companies which operating in India and make demand of import in India from Japan increase. So, there are opportunities for both countries to create agreement in order to increase their trade activities.

Next, this study will measure the possibilities when India and Japan implementing free trade agreement. This analysis is using gravity model based to observe the impact “behind of borders”, constraint of trade flow and tariff simulation. The specific model in these researches is as follows:

$$\ln X_{ij} = \beta_0 + \beta_1 \ln(GDP_j) + \beta_2 \ln(Pop_j) + \beta_3 \ln(Dist_{ij}) + \beta_4 Tariff_j + \beta_5 \ln(REXR_j) - u_i + v_{ij}$$

Where

- X_{ij} = Exports of country ‘i’ to country ‘j’
 GDP_j = Gross Domestic Product of country j (i.e. importing country)

- Pop_j = Population of country 'j' (i.n. population of importing country)
- Dst_{ij} = Distance between country 'i' and 'j'
- Tariff_j = Average weighted tariffs of the importing country
- REXR_j = Real exchange rate of the currencies of importing countries
- u_i = Combined effects of "behind the border" constraints that prevent concerned country (India/Japan) from reaching its potential with its partner country. In other words, exp (u), which is the ratio of actual to estimated exports, can be called as export efficiency of India/Japan.
- V_i = Combined effects of "beyond the border" constraints and 'usual statistical' errors.
- i, and j = India and Japan respectively.

Export and import commodities selection is based on the total export aggregates between Japan and India, which then will be ranked and taken top 10 commodities based on 2 digits HS. Cross section model will be used for one year to analyze 10 main commodities. From this research, it can be obtained that all coefficients from all variable are significant. Japan may raise its export as much as 40% and India 36% if they eliminate the existing constraint behinds borders between them.

- b. Nur, Wiljeweera and Dorelly (2007) studied about the estimation of export demand function using bilateral trade data, by doing research for Bangladesh. This study explained factors which affect Bangladesh's export and the impact of trade liberalization to the export performance itself. The period of research was spanned from 1973 until 2004. There are two basic objectives in this study, the first is whether bilateral export elasticity has significant difference between trading partners and whether trade liberalization affects Bangladesh's export. This study was using the following model:

$$EXPO_{ij} = a_0 + a_1 REXC_{ij} + a_2 GDP_{ij} + \epsilon_{it}$$

Where:

- i : 1,2,...,5 denoting five major exporting countries of Bangladesh which are Belgium, UK, France, Germany, and US.
- $EXPO_{it}$: the real export of Bangladesh to the country I in t time
- $RERXC_{it}$: bilateral real exchange rate between Bangladesh and country i in t time
- GDP_{it} : the real gross domestic product country I in t time.

Dummy variable will be used to observe the impact of trade liberalization from Bangladesh to exporting countries. Dummy variable is '0' to identify the period prior to liberalization and '1' for liberalization period. During year 1973-1991, the dummy variable is '0' and for period 1992-2004, it is '1'. The detailed model specification is as follows:

$$EXPO_{ij} = a_0 + a_1 REXC_{ij} + a_2 GDP_{ij} + a_3 D + \epsilon_{it}$$

Research shows that GDP increment of exporting countries was also increasing export volume to Bangladesh or in other words, it gave positive impact. Income export countries which beneficial for Bangladesh are France, Germany, and the U.S. This indicates that those countries growth will increase Bangladesh's export. However, real exchange rate is negative or not expected sign expect for France, while dummy variable showed positive value or with expected sign.

Trade liberalization has given positive impact for Bangladesh except for the U.S. This is due to the fact that Bangladesh's import share from the U.S. hasn't changed significantly during sample period. Export products are also affects Bangladesh import performance to those countries. Policy reforms or trade liberalization was also affecting the growth of exporting countries to Bangladesh, as shown by Belgium. Belgium's export change to Bangladesh would increase 0.78% (significant in 1%) by the change in trade liberalization.

The highest increment of export value due to trade liberalization was Germany with value 0.95%.

In general, different export income and price elasticity leads to suggest Bangladesh for having single external trade policies to improve the external sector's export. Policy makers are suggested to have a good understanding of the socio-economic environment and business climate against exporting countries.

- c. Puntodewi (2003) studied about FTA feasibility between Indonesia and Chile in terms of increasing export volume. This research was exaggerating Revealed Comparative Advantage (RCA) analysis model. This approach is used to identify complementarity and competition between countries. Sample data was based on SITC 1997-2001. RCA formula in this study is as follows:

$$RCA = \frac{X_{ij} / X_j}{X_{iw} / X_w}$$

Where :

- i : Commodity (Based on SITC data)
- j : country (Chili or Indonesia)
- w : World
- X : Value of Export

One of the key success factors of FTA is when complementary value of Indonesia's product export higher than complementary value of Chile's product import to Indonesia.

From this research can be inferred that during year 2001 there are 33 kinds of commodities of Indonesia's product export which complement to the Chile's product import. Complementarily value of Indonesia's product export to Chile's product import was 42.67% from the total Indonesia export, and relatively low as much as 12.4% vice versa. Chile's export commodities which compete with Indonesia's have reach 65% of Chile's total export.

There are some Indonesia's export commodities which complemented with Chile's import commodities according to the following criteria:

- Having high comparative advantages, with import RCA value higher than 2;
- Having positive export growth trend;
- Having positive market share growth.

Commodities which comply with those mentioned criteria are SITC 091 (Margarine and shortening), SITC 692 (metal containers for storage or transport), SITC 074 (Tea and mate), SITC 625 (rubber tires, interchangeable tire treads, tire flaps and inner tubes for wheels of all kinds), SITC 342 (Liquefied propane and butane), SITC 321 (Coal, whether or not pulverized, but not agglomerated), SITC 851 (Footwear), SITC 641 (Paper and paperboard) and SITC 841 (Men's or boys' coats, capes, jackets, suits, blazers, trousers, shorts, shirts, underwear, nightwear and similar articles of textile fabrics, not knitted or crocheted).

- d. Nathalia (2008), studied about analysis free trade agreement between Indonesia and India. This study identifies 10 commodities which can be exported to India. It uses data for HS 10 digits commodities during period 2000-2007. Those commodities were simulated for tariff reduction. There were two models used in this study, export model and import model. On export model, it can be identified that Indonesia's export to India was influenced by India's GDP, RER and tariff where India's GDP and RER had positive and significant impact to the export, while its tariff had negative and significant impact. In the other side, equation for Indonesia's import from India was influenced significantly by Indonesia's GDP and import tariff.

From the simulation, it can be inferred that if India's import tariff was reduced on Indonesia's export commodities, the most significant impact would occur for fats, Oils and Waxes (HS 15) with 3.03% increase, followed by Fruit and Nuts (HS08) with 1.76% increase and Electrical equipment (HS 85) with 0.91% increase. In the other hand, Indonesia's import tariff reduction on India's export commodities had most significant impact for Plastics and Plastics articles (HS 39) with 4.48% increase, followed by Iron and Steel (HS 72) and Cotton (HS 52).

- e. Gunawardana (2005) studied about the determinant of and impact of the Asian currency crisis on the Australian total merchandise export to nine East Asian countries. This studies used modified Gravity Model as follows:

$$X_{ajt} = a_0 + a_1 Y_{jt} + a_2 YP_{jt} + a_3 D_{aj} + a_4 E_{jat} + a_5 T_{jt} + a_6 C_j + a_7 IN98 + a_8 MA98 + a_9 PH98 + a_{10} SK98 + a_{11} TH98 + a_{12} Y_j 98 + a_{13} LE_{ja} 98 + e_t$$

Where:

X_{ajt}	: Australia real export to country j in year t
Y_{jt}	: real GDP of country j in year t
YP_{jt}	: per capita real GDP of country j in year t
D_{aj}	: Distance between Australia and country j
E_{jat}	: Real exchange rate of country j vis a vis Australia in year t
T_{jt}	: Average tariff rate in country j in year t
C_j	: Intercept dummy for the year in which country j was a member of APEC
IN98	: Intercept dummy for Indonesia, 1998 = 1, other years = 0
MA98	: Intercept dummy for Malaysia, 1998 = 1, other years = 0
PH9	: Intercept dummy for Philippines, 1998 = 1, other years = 0
SK98	: Intercept dummy for South Korea, 1998 = 1, other years = 0
TH98	: Intercept dummy for Thailand, 1998 = 1, other years = 0
$Y_j 98$: slope dummy for real GDP of country j in 1998
$LE_{ja} 98$: slope dummy for real exchange rate of country j vis a vis Australia 1998
a	: Australia
j	: Each east Asian countries

This study used pool data with 20 years observation period since 1979 until 1998. Thus, there are 9 countries in East Asian region were being observed. The result showed that real GDP and real GDP per capita of East Asian countries had positive and significant impact to the increase of Australia's export as much as 0.62% and 0.11% consecutively. In contrary, real exchange

rate and tariffs had negative and significant impact to Australia's export for as much as 0.04% and 0.02% consecutively.

From residual analysis of estimation model, it can be inferred that Australia's export to 9 East Asian countries was potential in year 2007. Generally, Australia's export to those countries was increasing since they joined APEC. Australia's export to East Asian countries was increased a year prior to the crisis-ravaged 2008 except Thailand. Further analysis showed that Australia has potential to expand its export to China and Hong Kong.



CHAPTER III

INDONESIA – CHILE TRADE AND ECONOMY RELATION

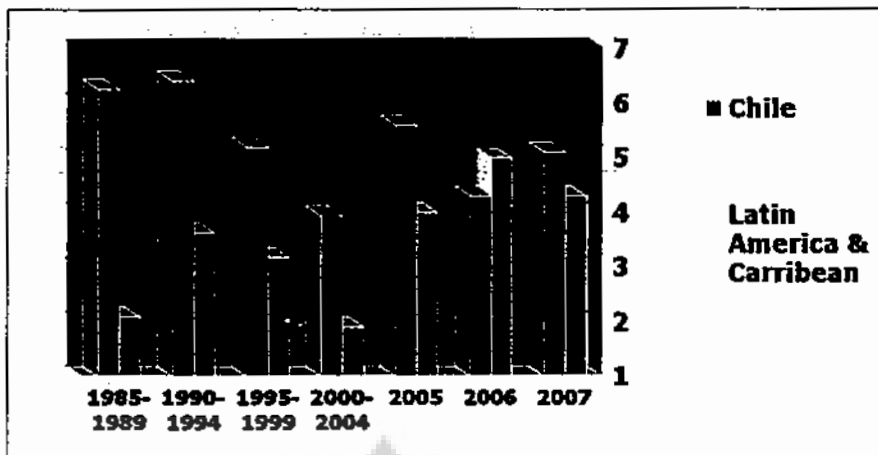
3.1. Overview of Chile

Chile, which also known as Republic of Chile is a country located in South America, occupying a long and narrow coastal strips wedge between the Andes Mountain and the Pacific Ocean. Chile shares borders with Peru in the north, Bolivia in the northeast, Argentina to the east and Drake Passage at its southernmost tip. This country is one of two countries in South America which is not sharing border with Brazil. Chilean territory extends to the Pacific Ocean which includes the overseas territories of Juan Fernández Islands, the Salas y Gómez islands, the Desventuradas Islands and Easter Island located in Polynesia. Chile claims 1,250,000 square kilometers (480,000 sq mi) of territory in Antarctica. Total area of Chile is 756,102 sq km. (Wikipedia, 2008).

Since year 1990, Chile experienced many changes especially in terms of economic growth. High economic growth and major social development has become this country's identity. Chile has succeeded to maintain its economic growth, reducing poverty level, establishing democratic country and representative government. This country has been assumed as a stable and democratic country in regional and international.

3.1.1 Economic Performance through GDP per Capita and GDP

Observing from Gross Domestic Product (GDP), Chile experiences a considerably good growth. Chile's GDP growth is always higher than total GDP growth of all countries in South America. Chile is a country which has the highest income per capita in South America with estimated population 16,804 million people in 2009. GDP per capita in year 2007 is US\$ 9,881.33 and keep increasing become US\$ 10,123.82 in year 2008. (Economic Watch, 2009) This increment has showed its government seriousness to build its country and to reduce poverty rate.



Source: Ministry of Trade of Indonesia, 2008

Figure 3.1 Comparison GDP Chile and GDP Latin America & Caribbean

GDP per capita increment is also increase its GDP in the same year. In year 2007, its GDP is US\$ 119.99 billion and estimated to be increased as much as US\$ 123.84 billion or increased for 3.2% in the following year. In year 2008, it is estimated that Chile's GDP was distributed into several sectors as followings: agriculture 4.8%; industry 50.5%; and services 44.7%. From these data, it can be stated that Chile has started to develop its trade sector from industry to services. However, lately Chile's manufacturing sectors or industry sector is still leading the Chile's economy.

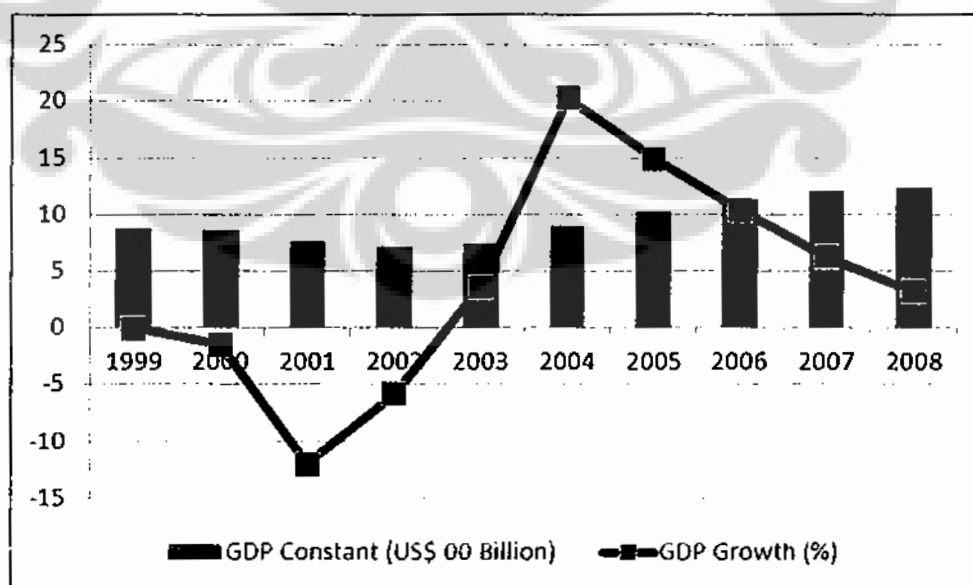


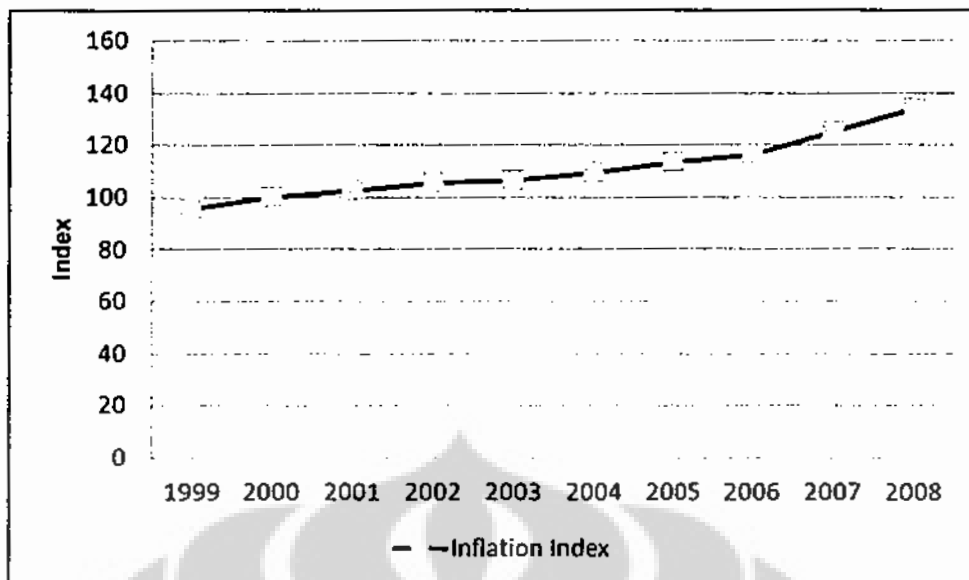
Figure 3.2 GDP at Constant Price and GDP Growth

In terms of GDP growth, Chile experienced a significant change. Previously in year 2000, Chile's GDP growth was decreased as much as 1.5%, and continuously decreased until 2002. GDP growth in 2001 was 12.03% and still decreased as much as 5.8% in the following years. These were due to the crop yields reducing which further causing hydroelectric shortfalls and electric power rationing during year 1999 in Chile. In the next following years, Chile's GDP growth was 4% per year in average. Chile's GDP growth was getting better since the government seriously began to develop Chile's economy into market oriented economy. Thus, Chile was also strengthening its financial institutions along with related policies. The peak of Chile's GDP growth was during 1999 up until 2008 was in year 2004 with GDP growth as much as 20.3%. Finally, it was 3,2% in the end of year 2008. During 1990-2007 GDP growth Chile's was 5.5 %.

Chile's culture is far way different from Indonesian culture. Chile's location is also far from Indonesia. However, Chile is well known of having a lot of trade cooperation if compared with other developing countries. This shows that political stability in Chile is good enough to influence other country to establish cooperation.

3.1.2 Inflation and Exchange rate

Economic growth in Chile was also influenced by exchange rate between domestic currencies against US dollar. This exchange rate could affect Chile's trade stability with other countries. As already mentioned before, that Chile's economic is strongly rely on foreign trade, therefore foreign exchange rates have became the most important component to keep Chile's economic stability.

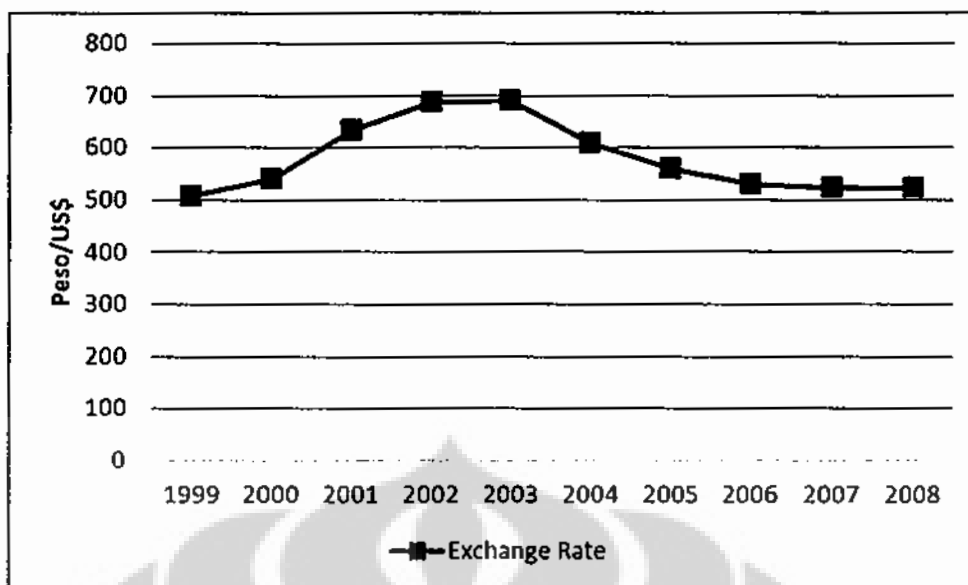


	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Inflation	95.64	100	102.671	105.614	106.776	109.389	113.397	116.319	125.437	134.081
Inflation (end of year change %)	0.023	0.046	0.027	0.029	0.011	0.024	0.037	0.026	0.078	0.069

Source: *EconomicWatch*

Figure 3.3 Inflation Index

During period 1999-2008, Chile's inflation kept increasing. The inflation rates average during that period was 110.93. The lowest inflation rate was 95.65 in 1999, and the highest was 134.081 in year 2008. The lowest inflation rate increment was in 2003 for as much as 1.1% or from 105.614 to 106.776. The highest inflation rate increment was in 2007, from 116.319 increased to 125.437 or increased for as much as 7.84%. The average of end of year changes inflation was 0.037%. During year 2003 the change was only 0.011%. However, during year 2007 the change of inflation was as much as 0.078%.



	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Peso/\$	508.777	539.588	634.938	688.937	691.398	609.529	559.768	530.275	522.464	522.461

Source: *EconomicWatch*

Figure 3.4 Exchange Rate

Chile's national currency exchange against US\$ was fluctuated during 1999-2008. Chile's exchange rates average was 580.81 Peso/US\$. The highest depreciation of Chile's currency was in year 2003, for as much as 691.398 Peso/US\$. It begins to depreciate in year 2000 for 508.777 Peso/US\$ became 539.588 Peso/US\$ in the next following year, and keep increasing up until year 2004. In 2005, it was strengthened from 609.529 Peso/US\$ became 559.768 Peso/US\$. This appreciation was continued until year 2008 with value 522.461 Peso/US\$.

3.2. Export Import Performance

3.2.1 Trade Balance

From year 1999 up until 2008, Chile's export values were higher compared to its import values. Its export growth during that period was 20.61%, while it was 16.66 for its import growth. Table 3.1 shows more detail about Chile's export and import yearly values.

Table 3.1 Export Import Value of Chile

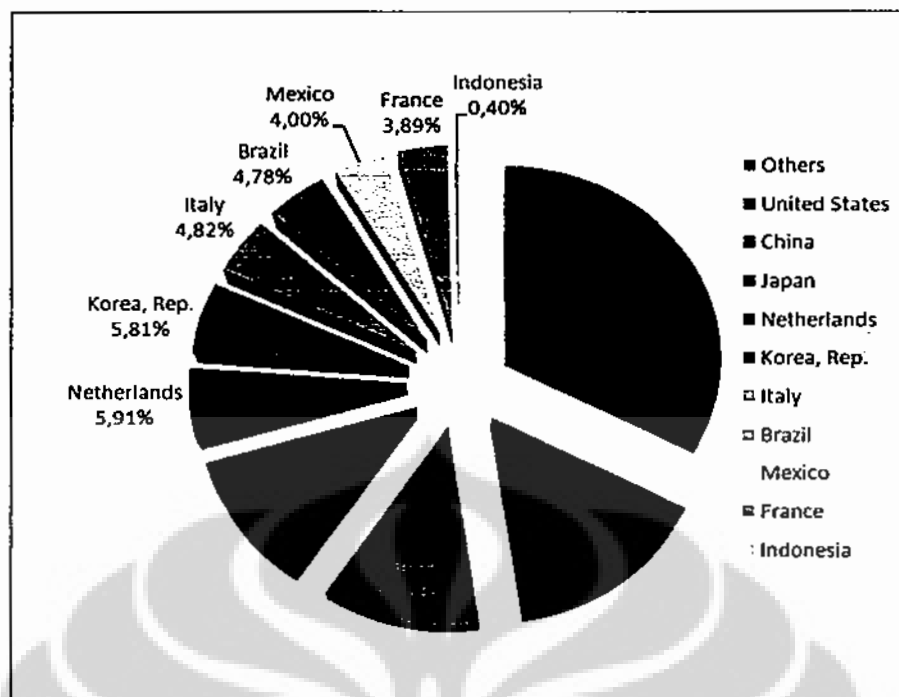
Year	Value Import	Value Export
	(Billion US\$)	
1999	13.79	15.34
2000	16.48	17.81
2001	16.09	18.30
2002	15.31	16.91
2003	17.31	19.55
2004	22.33	30.27
2005	29.72	37.76
2006	34.67	54.73
2007	42.66	64.30
2008	56.47	69.59

Source: WITS processed

From table 3.1, it can be inferred that Chile's export values was always increasing with minimum increment rate 16% and maximum 45%. In year 2006, there was a significant increment from the previous year US\$ 37.79 billion up to US\$ 54.73 billion. This was due to the cooperation engagement initiation with several potential countries for Chile such as China and South Korea in the previous year. Chile's import values were also increasing with 0.54% growth over the last 5 years. The highest Chile's import value was in year 2008 as much as 56.47 (est.). Chile's export value was in 47th position in the world while its import value was in the position 48th according to the World Fact Book, 2008.

3.2.2 World Trade Partner

Export destination country for Chile's commodity has been change each year. Although the changes in export destination composition for Chile commodities are not significant, the value of each export destination country experience fluctuation each year.



Source: WITS (processed)

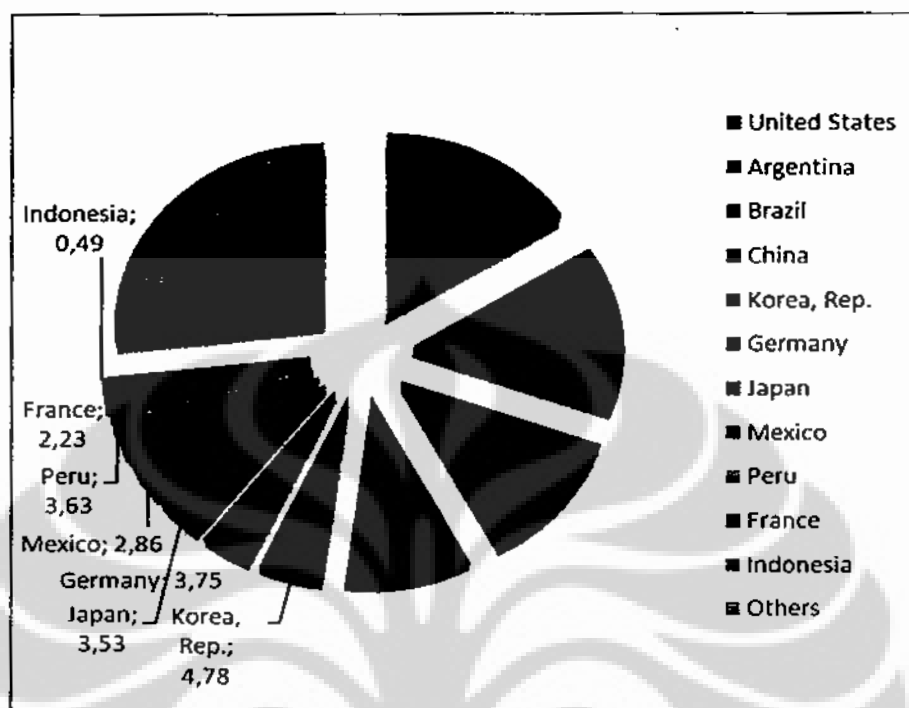
Figure 3.5 Share Countries Export Destination Chile 2003 – 2007 (in %)

From above diagram, during 2003-2007, there are 10 countries which have high export value from Chile is China, USA, Japan, Netherland, Rep. of Korea, Italy, Brazil, France. During that period, the highest export share is USA as much as 15.04%, followed by China 11.53%, Japan 11.18%, Netherland 5.91%, Rep. of Korea 5.81%, Italy 4.82%, Brazil 4.78%, Mexico 4% and France 3.89%. In the other hand, export from Chile to Indonesia during the same period was still low, 0.4%.

Meanwhile, based on a report for share in year 2007, China 7.59%, followed by USA 6.4%, Japan 5.39%, Netherland 2.97%, South Korea 5.93%, Italy 2.63%, Brazil 2.55%, France 1.82%, Mexico 1.80%, India 1.68%. For Indonesia, in year 2007 was as low as 0.18%.

In order to fulfill its domestic needs, especially for manufacturing sector, Chile is also importing from many countries. From the above diagram can be inferred that during period 2003-2007 Chile mostly import products from the USA. The USA has become the biggest trade partner for Chile after they establish FTA in year 2003. The USA import share to Chile during that period is 15.99%. Besides the USA, Chile's trade partner are Argentina, Brazil, China, Korea,

Germany, Japan, Mexico, Peru and France with each share are 14.62%, 11.78%, 9.55%, 4.78%, 3.75%, 3.53%, 2.86%, 3.63%, and 2.23%. Indonesia shared as low as 0.49% for the same period.



Source: WITS (processed)

Figure 3.6 Share Countries Import Source Chile 2003 – 2007 (in %)

In year 2007, the USA imports its commodities to Chile for as much as US\$ 7.27 billion or shares 8.52%. Meanwhile, China commodities exported to Chile has increased from US\$ 3.48 billion in year 2006 to US\$ 4.88 billion in year 2007 and shares 5.71%. Neighboring countries in South America such as Argentina and Brazil, has played a great role in providing Chile's needs in regards of free trade area for South American. In that year, Argentina and Brazil has shared Chile's import as much as 5.04% and 5.25%. Korea and Japan shared 3.61% and 1.85%.

3.2.3 Commodity Profile

During year 2004-2008, the top 10 commodities of export and import from Chile to the world were still dominated by mining and agriculture products. Those 10 export commodities from Chile to the world are as follows: copper (HS 74); ores, slag and ash (HS 26); wood (HD 44), fish (HS 03), wood pulp and waste (HS 47); fruit and nuts (HS 08); beverages, spirits and vinegar (HS 22), chemicals

and allied products (HS 28); mineral fuels and oils (HS 27); and pearls, precious stones and metals, and imitation jewelry (HS 71). The followings are 10 import commodities from the world to Chile: Mineral fuels and oils (HS 27); machinery (HS 84); vehicles other than trains (HS 87); electrical equipments (HS 85); plastic & plastic articles (HS 39); iron and steel (72), ores, slag and ash (HS 26); articles of iron or steel (HS 73); optical, photographic and measuring equipment, medical ins. (HS 90); paper (HS 48).

Chile's main export commodity was still dominated by copper which valued as much as US\$ 24.7 billion, although there was export value decrement from the previous year as much as 0.03%. In the other side, the main import commodity of Chile was no longer dominated by oils and mining products which represented only 32% of total imports. About 39% of import from the world to Chile was utilized to satisfy domestic needs and Chile infrastructure development.

Since year 1991, Chile has signed several FTA including with Canada, Mexico, South Korea, USA, China, and CACM countries (Costa Rica, El Salvador, Honduras, Guatemala, and Nicaragua), EFTA, European Union, and Japan. This means that Chile has free trade access with half of the world.

3.3. Trade Performance Indonesia - Chile

During period 2004-2008, top 10 commodities for share export and share import between Indonesia and Chile can be shown on table 3.2 about main commodity export and import Indonesia-Chile.

Table 3.2 Main Commodity Export and Import Indonesia – Chile
2004 - 2008

HS	Export	HS	Import
27	mineral fuels and oils	26	Ores, slag and ash
40	rubber and rubber articles	47	wood pulp and waste
84	machinery	87	vehicles other than trains
85	electrical equipments	31	fertilizers
64	footwear	08	fruit and nuts
87	vehicles other than trains	23	food waste and animal fodder

HS	Export	HS	Import
55	man-made staple fibers	16	prepared meat or fish
54	man-made filaments	76	aluminum
61	knitted or crocheted clothes	28	chemicals and allied products
12	seeds and grains	44	wood

Source: BPS (Indonesia), processed

The largest Indonesia's export commodity to Chile was mining products (HS 27) valued as much as US\$ 201.5 billion with 32.43% shares, while the smallest amount of export value was seeds and grains (HS 12) valued as much as US\$ 10.28 billion with 1.7% shares. In the other hand, the largest import value from Chile to Indonesia was ores, slag, and ash (HS 26) valued as much as US\$ 500.1 billion and the lowest import value was wood (HS 44) valued as much as US\$ 0.88 billion. Export and import values in detail between Indonesia and Chile are as shown on table 3.3.

Table 3.3 Value and Share Commodity Export and Import
Indonesia – Chile 2004-2008

HS	Ekspor		HS	Impor	
	Value (billion US\$)	Share (%)		Value (billion US\$)	Share (%)
27	201.45	32.43	26	500.10	59.40
40	59.86	9.64	47	277.91	27.28
84	50.67	8.16	87	10.68	2.66
85	46.07	7.42	31	22.20	2.65
64	45.43	7.31	08	21.83	2.32
87	37.25	6.00	23	47.45	1.62
55	21.55	3.47	16	3.38	0.67
54	13.98	2.25	76	2.40	0.51
61	13.84	2.23	28	2.37	0.30
12	10.28	1.66	44	0.88	0.23

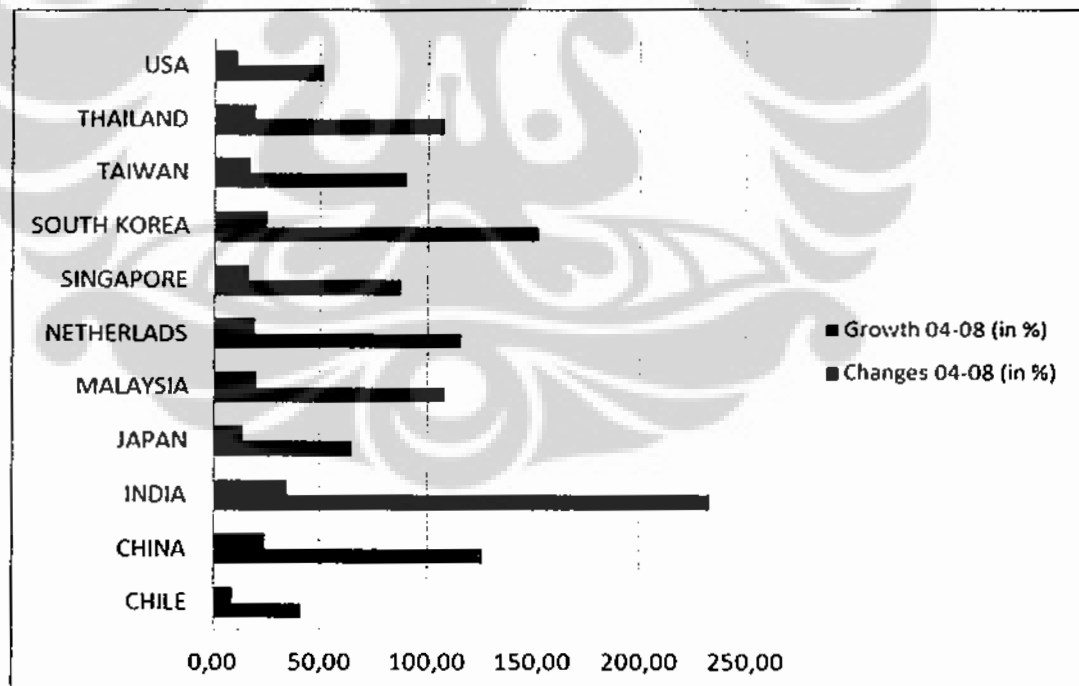
Source: BPS (Indonesia), processed

Based on figure 3.7 shows that, during period 2004-2008, the 10 most export commodities from Indonesia to Chile were dominated by mining and agriculture products, however there are also several industrial products such as electronic equipment, clothes, footwear, etc. In terms of import, Indonesia was still importing copper from Chile (HS 74) with value reached US\$ 12.47 billion.

Copper is the main export commodity from Chile to the world. As already mentioned in the previous chapter that Chile owns CODELCO which has become the biggest copper producer in the world.

In year 2008, the total trade value between Indonesia and Chile was US\$ 402.6 million with 100.5% growth. Trade volume between Indonesia and Chile is increasing each year. Export value from Indonesia to Chile for non mining and gas in year 2008 has reached US\$ 128.3 million, however, the total import value from Chile to Indonesia was higher as much as US\$ 274.3 million. Indonesia' export growth to Chile as much as 9.04% while import growth was 24.86%. This fact shows that Indonesia is still being considered as a potential market for Chile.

Indonesia' export growth to Chile was still considered as low (9.04%) compared to other 10 main Indonesia's export destination countries. However, this value is still potential for Indonesia due to the fact that in year 2007, Chile was positioned as the third largest Indonesia's export destination country among South America region with 9.6% market shares after Brazil and Argentina



Source: BPS (Indonesia), Processed

Figure 3.7 Export Performance Indonesia with Several Countries

3.4. Tariff Line Indonesia and Chile

Table 3.4 Comparison Tariff MFN Indonesia and Chile, 2007 (in %)

Summary		INDONESIA			CHILE		
		Total	Ag	Non-Ag	Total	Ag	Non-Ag
Simple average final bound	2007	37.1	47.0	35.6	25.1	26.0	25.0
Simple average MFN applied		6.9	8.6	6.7	6.0	6.0	6.0

Source: WTO, 2008

Based on the table 3.4 can be shown that tariff level of Chile and Indonesia generally can be considered as relative low. Based on WTO data, generally, the average of tariff level of MFN Bound Chile in year 2007 was 25.1%. MFN Bound tariff average of agriculture products and non-agriculture are 26% and 25% consecutively. Meanwhile, the average of MFN Bound tariff Indonesia is higher, 37.1%, with the average MFN Bound for agriculture product and non-agriculture product are 8.6% and 6.7% consecutively. Generally, MFN Bound average for total, agriculture product and non agriculture product is higher for Indonesia.

Although both applied tariff has already relatively low, there may have been a slight possibility for them to establish bilateral trade. Based on a research done by Kwon (2002), bilateral trade successfulness can be influenced by the existence of commodities complementary between the two countries. There are some differences between Indonesia's export commodities to Chile and vice versa. Based on its export values, Indonesia's main export commodities are Mineral Fuels and Oils, Rubber And Rubber Articles Machinery, Electrical Equipments, and Footwear. On the other hand, Chile's export commodities to Indonesia based on its export value are Ores, Slag and Ash, Wood Pulp and Waste, Vehicles other than trains, fertilizers, fruits and nuts, food waste and animal fodder.

Table 3.5 describe about overlook of tariff comparison between Indonesia and Chile for some agriculture and non-agriculture products:

Table 3.5 Comparison Tariff MFN by Commodity Indonesia and Chile
2007 (in %)

Product groups	CHILE					INDONESIA				
	MFN BOUND			MFN APPLIED		MFN BOUND			MFN APPLIED	
	AVG	Max	Binding	AVG	Max	AVG	Max	Binding	AVG	Max
Animal products	25.0	25	100	5.7	6	44.0	50	100	4.4	25
Dairy products	29.2	32	100	6.0	6	74.0	210	100	5.5	10
Fruit, vegetables, plants	25.0	25	100	6.0	6	45.8	60	100	5.9	25
Coffee, tea	25.0	25	100	6.0	6	45.3	60	100	8.3	15
Cereals & preparations	25.2	32	100	6.0	6	44.6	160	100	6.3	150
Oilseeds, fats & oils	29.1	32	100	6.0	6	39.9	60	100	4.0	15
Sugars and confectionery	43.3	98	100	6.0	6	58.3	95	100	10.4	31
Beverages & tobacco	25.0	25	100	6.0	6	85.0	150	100	51.8	150
Cotton	25.0	25	100	6.0	6	37.4	40	100	4.0	5
Other agricultural products	25.0	25	100	6.0	6	40.7	60	100	4.3	15
Fish & fish products	25.0	25	100	6.0	6	40.0	40	100	5.8	15
Minerals & metals	25.0	25	100	6.0	6	38.8	40	97.7	6.6	30
Petroleum	25.0	25	100	6.0	6	40.0	40	100	0.5	10
Chemicals	25.0	25	100	6.0	6	38.0	60	97.0	5.2	30
Wood, paper, etc.	25.0	25	100	6.0	6	39.4	40	98.8	5.0	15
Textiles	25.0	25	100	6.0	6	26.3	40	99.7	9.3	25
Clothing	25.0	25	100	6.0	6	35.0	40	100	14.4	15
Leather, footwear, etc.	25.0	25	100	6.0	6	39.8	50	99.3	9.0	25
Non-electrical machinery	25.0	25	100	6.0	6	34.9	40	98.3	2.3	15
Electrical machinery	25.0	25	100	6.0	6	30.3	40	97.7	5.8	15
Transport equipment	24.9	25	100	5.5	6	38.9	40	54.1	11.6	60
Manufactures, n.o.s.	25.0	25	100	6.0	6	35.7	40	88.1	6.9	20

Source: WTO, 2008

Based on table 3.5 data, it is clearly shows the differences of tariff level for each tariff post between Indonesia and Chile. In MFN Bound structure, Chile has done binding to all tariff post with average per tariff post is 25% - 98%. Meanwhile, Indonesia has not done any bonding to all tariff post. Further, Indonesia's MFN Applied are between 0.5% - 51.8%. In this regards, it is clear that based on tariff as well as MFN Bound rates or MFN Applied Rates, Chile's tariff is relatively lower than Indonesia.

3.5. Non Tariff Barriers in Chile

Chile is a country which applied free import policy. Generally, exporting countries did not find any barriers to export their commodities to Chile. Some Chile's policy which support free import activities are import tariff reduction down to 6% on almost all Chile's imported products, domestic industries are not given any subsidies or any protection, thus equality on tax applied to local manufacturing and imported products.

However, tariff reduction is not always make importing product to Chile became easy. In order to prevent imported products, Chile applied many technical regulations. Trade barriers which applied by Chile are to control number of imported products for certain sectors such as agriculture, livestock, chemical and pharmaceutical items. Chile's applied regulations are not intended to stop import of those products; it is intended to protect public livestock and agricultural sectors from contagion, since has declared itself as a country which free of pests and diseases such as the fruit fly and the foot-and-mouth disease.

Some Chile's local organizations which apply technical regulation are Ministry of Health, Ministry of Agriculture and the National Standard Institute (INN). The Ministry of Health through the Chilean Institute of Public Health (ISP) and the Metropolitan Environmental Health Service (SESMA) are responsible for food sanitation; approval of food ingredients; labeling and packaging of processed food; product registration, testing, certification and analysis of chemicals, agro-chemicals and finished pharmaceuticals. Ministry of Agriculture through the Agricultural and Livestock Service (SAG) is responsible for enforcing Chile's import regulation in respect of animal and plant quarantine. Thus, INN is responsible for the establishment of specific resolution on the import of safety industrial items, building and construction material, gas-related items and electric products.

There are 3 forms of technical barriers applied by Chile as follows, general requirement which include maximum duration of expiration date, net content, ingredient, storage, refrigeration, etc. Specific products requirement includes nutritional labeling, packaging and container regulations, additive regulations, pesticides and other contaminants, waste disposal, weights and measures, animal and plant quarantine, ISO standards, etc. Other specific standards include special documentation, conformity assessment requirement, etc.

Other Chile's trade barriers are copyright and/or trademark laws. Intellectual property regulation is generally satisfied the WTO suggestion. However, there is an exception, Chilean labor provides for the protection of registered trademarks and places priority on trademark rights according to filing date. The registration trademark is valid for renewable periods of 10 years.

CHAPTER IV RESEARCH METHODOLOGY

4.1. Trade Potential by ITP and Growth Potential Category

ITP has been an indicator to measure trade flow acceleration from one country to another. In order to determine whether a certain product is an export potential in a destination country, its capacity to absorb the products has to be considered. This approach tried to determine the export performance of certain commodities to a destination country and the world. Thus, determine the demand of those commodities in the destination country from the world. Since this thesis intend to determine which Indonesian export products are potential based on Chile's import demand, therefore ITP approach come in handy. Further, this method is also useful to identify which commodities are having the highest potential value to be exported to Chile's market.

Generally, with ITP, the most possible commodity which can be exported by Indonesia to Chile can be determined based on its total export supply or import demand. ITP can also shows how big unutilized Chile's import market, so the policy makers may decide directly which Indonesian export commodity has the most potential market in Chile, ranked from the highest potential to the lowest.

ITP equation is as follows:

$$ITP_{ijk} = \min (X_{iwk}, I_{jwk}) - X_{ijk}$$

Where:

i : Exporting Country, j : Importing Country, w : World

k : Commodity

X : Value of Export

I : Value of Import

X_{iwk} : Value of export exporting country to The World for commodity k

I_{jwk} : Value of import importing country from the World for commodity k

X_{ijk} : Value of export exporting country to importing country for commodity k

There are two ITP values will be exercised in this thesis. The first ITP value is representing Indonesia's potential commodities to be exported to Chile, where it is calculated from Indonesia's total export value to Chile and the world, and Chile's import demand value from the world in one year period. The second ITP value is representing vice versa. Commodities are grouped based on two digit HS code. The resulted value of ITP is in term of US\$. If ITP value is zero or negative for certain commodities, it means there is no trade relation between the two countries for those commodities. Zero trade value means that there's zero growth average for certain commodities.

In the other hand, GPC method to be utilized in this thesis will use growth value from the last 5 years (2003 – 2007). Similar to ITP method, GPC is also resulted into two values. The first GPC value is representing Indonesia's potential commodities to be exported to Chile, where it is calculated from Indonesia's export growth to Chile and the world, and Chile's import demand growth from the world, but in five years period. The second GPC value is representing vice versa.

There are two possibilities values for growth, positive or negative/zero. The combination of those growth value possibilities and the trade flow for 5 years period is described on Table 4.1.

Table 4.1 Growth Potential Category

Potential Export Code	Exp I to J	Exp I to World	Imp J from World	Comments
5	0 or -	+	+	Commodity with high potential in J but undetected by I and significant export growth in other places
4	+	+	+	Commodity with high potential in J and detected by I with significant growth
3	+	0 or -	+	Commodity with high potential in J and detected by I but low in supply
2	0 or -	0 or -	+	Commodity with high potential in J and undetected by I within that market, thus low in supply for export in other places
1	+	+	0 or -	Commodity with low potential in J and detected by I with significant export growth in other places
0	0 or -	+	0 or -	Commodity with low potential in J and undetected by I although there are some export growth in some other places

*Note : I : Exporting Countries, J : Importing Countries

Source: Trade Industrial Policy Strategic (TIPS), 2005

From Table 4.1, it can be inferred that commodity with the highest potential is commodity with Potential Export Code 2 until 5. Code 5 is exporting country export commodity which is the most potential in importing country; therefore this commodity is ranked at the top. Commodity which categorized with code 4 is commodity which potential for exporting country, however it still needed to be complemented with proper policy to build trade facilitation in order to stimulate export of that particular commodity. Commodity with code 2 and 3 are also considered as potential commodity but it's out of reach for policy makers.

Potential commodity for exporting country to be exported to importing country is not calculated only from its export growth, but also measured based on minimal market. Helmers and Pasteels (2006) in their recent study used US\$ 1 million ITP value to determine potential export commodities for a certain country.

The minimal market value gets from the value of ITP which the minimum value is US\$ 1 million, if less then it'll become less interesting. In this analysis, only commodity with potential code 5 or 4 will be chosen, with minimum ITP value US\$ 1 million.

The above ITP calculation and potential category was used to measure Indonesia's potential commodity to Chile and Chile's potential commodity to Indonesia. Therefore, there will be two ITP values, Indonesia's ITP and Chile's ITP, thus its potential category for each.

4.2. Econometric Model

Econometric model which will be used to estimate factors determinant which affects each potential commodity for Indonesia to be exported to Chile and each potential commodity for Chile to be exported to Indonesia using cross section and time series. Econometric equation for export and import formed based on study literature Kalirajan (2007) which using cross section with one year period and Nathalia (2008) using cross section and panel data. In order to observe the impact for few more years with many dependent variables, this equation will be using panel data which combine cross section and time series. The reason of using panel data is to eliminate data limitation problem by keeping satisfying estimation rule with panel data. The years to be analyzed with this equation are during period 1999-2007.

Equations to be exercised in this thesis are as follows:

- a. Model for Export Determinant which will see from Chile side

$$\text{Log Imp}_{ijkt} = \beta_0 + \beta_1 \text{Log GDP}_{jt} + \beta_2 \text{Log RER}_t + \beta_3 \text{Tariff}_{jkt} + \varepsilon$$

Where:

i : Indonesia

j : Chile

Exp_{ijk} : Value import of Commodity k from i to j in t time

GDP_{jt} : Gross Domestic Product of j in t time

RER_t : Real Exchange Rate in t time in term of Rupiah/Peso

Tariff_{jkt}: Simple Average Tariff j of commodity k in t time

ε : error

- b. Model for Import Determinant which will see from Chile side

$$\text{Log Exp}_{ykt} = \beta_0 + \beta_1 \text{Log GDP}_{it} + \beta_2 \text{Log RER}_t + \beta_3 \text{Tariff}_{ikt} + \varepsilon$$

Where:

i : Indonesia

j : Chile

Exp_{ijk} : Value Export of Commodity k from j to i in t time

GDP_{it} : Gross Domestic Product of i in t time

RER_t : Real Exchange Rate in t time in term of Rupiah/Peso

Tariff_{ikt}: Simple Average Tariff i of commodity k in t time

ε : error

Export and import are dependent variable in both equations. Exports for 10 potential commodities Indonesia to Chile are dependent variable for the first equation. Value of 10 export commodities are in thousand US\$ during certain period of time. For the second equation, import of 10 potential commodities Chile to Indonesia will be its dependent variables as well as export, thus it is represented in term of thousand US\$ during certain period of time.

Factor determinant of export and import is also influenced by several variables such as GDP (Gross Domestic Product), Real Exchange Rate, and

Tariff. (Kalirajan, 2007). Narayan and Sharma (2004) described GDP impact to export demand from a particular country. Blanchard (2006) was also describing that GDP is the reflection of the size of market in an export target country, so it can give an opportunity to importer country's export growth. GDP is represented in term of billion US\$ during certain period of time. GDP was in the form of constant GDP and real GDP. Real GDP is generated from nominal GDP divided by GDP deflator.

Real exchange rate is the second dependent variable which can also influence export to a country. Nur, Wiljeweera and Dorelly (2007) explained about Increasing exchange rate in importer country in term of exporting country may cause depreciation for exporting country. In this condition, the price from exporting country when entering importer country's market will be cheaper. Further it will create opportunity for exporting country to sell its product in importing country. During depreciation, exporter country's currency compared with importer country's currency will force the increment of purchasing power in importing country. Real exchange rate represents the ratio between foreign country currency and domestic currency, in terms of US\$ with ratio partner country's currency/US\$.

The last dependent variable is tariff. According to Kalirajan (2007) and Gunawardana (2005), tariff is a barrier to avoid export commodity from entering a country. Although relative price of a product is already very low, it may still be imposed with high tariff to leverage its price in importing country and makes it hard to compete with similar domestic commodities.

4.2.1 Expected Sign for GDP

As GDP of a country getting high the opportunity to absorb commodities from exporting countries is also getting bigger, and vice versa. Therefore GDP gives positive impact to a country's export growth. In this model, it is expected that GDP will give positive sign to export growth. The positive impact GDP was also explained by Blanchard (2006), which stated that GDP increment of a country reflects its income increment which further will increase its ability to receive or buy imported products.

4.2.2 Expected Sign for Real Exchange Rate

Real exchange rate is represented in terms of domestic currency per foreign currency. Real exchange rate is expected to give negative sign for importing country. Exchange rate domestic currency increase in importer countries (domestic currency in appreciation) has caused domestic price became higher and having more purchasing power to consume imported products, otherwise it will cause any country to do more export activities. In terms of export equation, it will use Rupiah/Peso as RER; therefore if RER increases (Rupiah in depreciation state) then it will give positive impact to Indonesia's export to Chile. In the other hand, when RER is Rupiah/Peso and it is increasing (depreciation in rupiah), it means that it will give negative impact to Chile's export to Indonesia.

4.2.3 Expected Sign for Tariff

Tariff may also be a barrier to trade flow between two countries. The higher tariff being imposed by importing country will make exporting country harder to enter and compete in importing country domestic market. In terms of export and import equation, tariff will cause decrease to the number of export and import per commodity.

4.2.4 Data Sources

Data to be utilized in this thesis are taken from several sources. The value of export and import of 10 potential commodities are taken from COMTRADE (WITS). GDP values were taken from electronic data Economic Watch, calculated from GDP at current prices deflating by GDP deflator. Real exchange rate values were taken from electronic data IFS. And Current tariff for certain period of time will be taken from TRAINS (WITS).

4.3. Analysis Panel Data

4.3.1 Models of Panel Data

Data panel is a combination of cross section data and time series data. This thesis will use panel data to observe behavioral of several commodities during certain period of times. Data panel can also be considered as a repetition of cross section data which may give opportunity to any researcher to learn dynamic change within short period of time. According to Gujarati (2003), the combination

of time series data and cross section data could enhance the quality and quantity of data which is impossible by using only one of two demission forms.

Generally panel data are sequence of blocks and cross section data within short period of times. Lois Sayrs (1989) states that under some circumstance the cross-section data may be nested within time. However, there are some conditions that if there are no missing values, the data set is called a balanced panel, but if there are missing values, the data set is referred as an unbalanced panel. There are several types to panel data analysis, as follows: constant coefficients models; fixed effect models; and random effect models.

Constant coefficients model is the same as cross section data or time series data. However, before the regression is made, the data must be collected between cross section data and time series. The combination of the data usually called pooled data. The pooled data reflected as one observation and estimation with OLS (Ordinary Least Square) method.

Fixed Effect models have constants slopes but intercepts differently according to the cross sectional (group) unit. In this type there is no significant temporal effect but there are significant differences among one of variable in several given times. In other word, intercepts would be changed for each variables and times.

The last model is random effects models. In this model the differences between variables and or time reflected with error terms. It shows that errors have correlation in time series and cross section.

4.3.2 Panel Data Test

In order to estimate the data whether it is constant coefficients or fixed effect, F-test or Chow test should be exercised. If the amount of time is more than the amount of variables then panel data would be estimated using fixed effect. In contrary, when amount of time lesser than the amount of variables then panel data would be estimated using random effect.

The Hausmann test is used to check the consistency of OLS. The variables should not have correlation between variables and error terms. The result of Hausmann test will be compared to chi-square statistic, if Hausmann test give significant result then rejects H_0 and the fixed effect model will be used. The

result using random effect model if the condition of Hausmann test is the opposite.

Nachrowi (2006) stated that in order to define which model is more suitable to be used between Fix Effect Model and Random Effect Model, ones can use comparison of n (number of sample) and t (sample period). Detailed as follows:

- If provided panel data has greater “ t ” value than ‘ n ’ then it is suggested to use Fix Effect Model; $t > n \rightarrow \text{FixEffectModel}$.
- If provided panel data has smaller “ t ” value than ‘ n ’ then it is suggested to use Fix Effect Model; $t < n \rightarrow \text{RandomEffectModel}$.

If Hausman test or n and t comparison shows that the model in used is fix effect model, then LM test should be applied next to identify the existence of heteroscedasticity. This LM value will later be compared with chi-square.

If LM value is greater than chi-square statistic value then it shows the indication of heteroscedasticity. Otherwise, it means that there is no heteroscedasticity.

4.4. Tariff Simulation

In order to observe the impact of tariff reduction to each potential commodity, some tariff reduction simulation will be conducted. There are three kinds of tariff reduction impacts, as follows:

- a. 50 % across the board tariff cuts by Indonesia and Chile
- b. 75 % across the board tariff cuts by Indonesia and Chile
- c. 100 % across the board tariff cuts by Indonesia and Chile

CHAPTER V

RESULT AND ANALYSIS

This chapter will elaborate the results of potential commodity identification in Indonesia and Chile market using ITP (Indicative Trade Potential) method. Further, potential commodity will be estimated using export and import formula. This estimation will be simulated in order to observe gains and losses which might be occurred in Indonesia using three tariff derivation methods.

5.1. Identification Potential Commodity Export Indonesia to Chile

This thesis explained identifying a potential commodity based on potential value of export from Indonesia to Chile and also potential value of import from Chile to Indonesia. This ITP calculation can be done for a certain single year period. The highest ITP value identifies the most potential commodity for Indonesia and also might be needed by Chile from Indonesia. Need to mention that other criterions are also imposed to the calculation, such as that it the growth during 5 years period has to be in category 5 or 4. The growths to be observed are the growth of export from Indonesia to Chile, export of Indonesia to the world, and import from the world to Chile.

5.1.1 Potential Commodity based on value of ITP

ITP value was taken from the last year of each 5 years period. There are two ITP values being calculated, they are ITP value in year 2003 and 2007. Commodity is identified based on 2 digits HS, started from 01 until 99. In year 2003, there are 25 commodities with ITP value above US\$ 100 million and there are about 74 commodities with ITP value less than US\$ 100 million. ITP value for year 2007 has different composition. In year 2007, there are 39 commodities with ITP value above US\$ 100 million, and there are 66 commodities with ITP value below US\$ 100 million. It can be inferred that potential commodity based on ITP value was increased from year 2003 to 2007 as much as 56%. This reflects the

growth of trade between Indonesia and Chile. For detailed value during period 2003-2007 can be observed on table 5.1 and table 5.2.

Table 5.1 Potential Commodity Indonesia according to ITP Value in 2003

NO	HS	Description	ITP 2003 Million US\$
1	27	MINERAL FUELS AND OILS	3,297.57
2	84	MACHINERY	2,648.85
3	85	ELECTRICAL EQUIPMENTS	1,490.34
4	39	PLASTIC & PLASTIC ARTICLES	723.39
5	87	VEHICLES OTHER THAN TRAINS	628.51
6	48	PAPER	374.94
7	72	IRON AND STEEL	352.68
8	38	MISCELLANEOUS CHEMICAL PRODUCTS	282.46
9	40	RUBBER AND RUBBER ARTICLES	280.27
10	73	ARTICLES OF IRON OR STEEL	275.19
11	29	ORGANIC CHEMICAL	272.56
12	90	OPTICALS, PHOTOGRAPHIC AND MEASURING EQUIPMENT, MEDICAL INS-	266.97
13	62	CLOTHES (NOT KNITTED OR CROCHETED)	254.57
14	28	CHEMICALS AND ALLIED PRODUCTS	215.35
15	15	FATS, OILS AND WAXES	203.25
16	64	FOOTWEAR	199.32
17	61	KNITTED OR CROCHETED CLOTHES	198.14
18	31	FERTILIZERS	175.43
19	33	ESSENTIAL OILS AND RESINOIDS, PERFUMERY, COSMETICS OR TOILET	153.98
20	76	ALUMINIUM	143.04
21	32	TANS, DYES, PIGMENTS, PAINTS, VARNISHES, INKS	140.81
22	95	TOYS, GAMES AND SPORTS EQUIPMENT	122.26
23	23	FOOD WASTE AND ANIMAL FODDER	119.70
24	94	FURNITURE, BEDDING, LAMPS, ILLUM. SIGNS	110.61
25	30	PHARMACEUTICAL PRODUCTS	104.31

Source: WITS, processed

Based on table 5.1, the most potential commodity in year 2003 is fuels and oils (HS 27), by that time Indonesia export value to Chile was US\$ 17.34 million. The next highest ITP value is machinery (HS 84) and electrical equipment (HS 85) with export value from Indonesia to Chile US\$ 4.5 million and US\$ 6.6 million consecutively. There are several commodities which have high potential value for Indonesia but its export value is not yet significant or even close to zero.

Those commodities are iron and steel (US\$ 0.01 million), chemical products (US\$ 0.01 million), aluminum, food waste and animal podder (US\$ 0.02 million), essential oils and resinoids, perfumery, cosmetics or toilet (US\$ 0.01 million).

In terms of industrial sector, the highest potential commodity for Indonesia's export to Chile is machinery, electrical equipment, plastic & plastic articles, vehicles other than trains. Meanwhile, in terms of agriculture sector, the most potential commodity for Indonesia is rubber and rubber articles.

Table 5.2 Potential Commodity Indonesia according to ITP Value in 2007

NO	HS	Description	ITP 2007 Million US\$
1	27	MINERAL FUELS AND OILS	11,239.73
2	84	MACHINERY	4,664.28
3	85	ELECTRICAL EQUIPMENTS	3,547.70
4	87	VEHICLES OTHER THAN TRAINS	2,100.51
5	39	PLASTIC & PLASTIC ARTICLES	1,524.12
6	26	ORES, SLAG AND ASH	1,188.99
7	72	IRON AND STEEL	902.28
8	48	PAPER	694.94
9	73	ARTICLES OF IRON OR STEEL	649.22
10	40	RUBBER AND RUBBER ARTICLES	584.86
11	62	CLOTHES (NOT KNITTED OR CROCHETED)	583.27
12	29	ORGANIC CHEMICAL	577.92
13	90	OPTICALS, PHOTOGRAPHIC AND MEASURING EQUIPMENT, MEDICAL INS-	517.29
14	38	MISCELLANEOUS CHEMICAL PRODUCTS	515.71
15	61	KNITTED OR CROCHETED CLOTHES	508.50
16	64	FOOTWEAR	414.69
17	28	CHEMICALS AND ALLIED PRODUCTS	400.07
18	15	FATS, OILS AND WAXES	390.35
19	23	FOOD WASTE AND ANIMAL FODDER	322.25
20	94	FURNITURE, BEDDING, LAMPS, ILLUM. SIGNS	295.38
21	76	ALUMINIUM	293.43
22	33	ESSENTIAL OILS AND RESINOIDS, PERFUMERY, COSMETICS OR TOILET	286.40
23	32	TANS, DYES, PIGMENTS, PAINTS, VARNISHES, INKS	261.80
24	95	TOYS, GAMES AND SPORTS EQUIPMENT	243.03
25	31	FERTILIZERS	212.28
26	30	PHARMACEUTICAL PRODUCTS	176.40
27	69	CERAMIC PRODUCTS	160.94

(Continued)

NO	HS	Description	ITP 2007 Million US\$
28	44	WOOD	154.84
29	34	SOAP, WASHING PREPARATIONS, LUBRICATING PREPARATIONS, WAXES	154.30
30	89	SHIPS AND BOATS	141.22
31	63	OTHER TEXTILE ARTICLES AND USED CLOTHING	140.94
32	21	MISCELLANEOUS FOODS	132.24
33	25	SALT, SULPHUR, EARTHS AND STONE, PLASTER, LIME AND CEMENT	130.35
34	83	MISCELLANEOUS ARTICLES OF BASE METALS	126.94
35	42	LEATHER ARTICLES AND TRAVEL GOODS	120.84
36	70	GLASS AND GLASSWARE	104.48
37	55	MAN-MADE STAPLE FIBRES	104.37
38	12	SEEDS AND GRAINS	103.65
39	56	WADDING, FELT AND NON-WOVENS, SPECIAL YARNS AND ROPES	101.55

Source: WITS, Processed

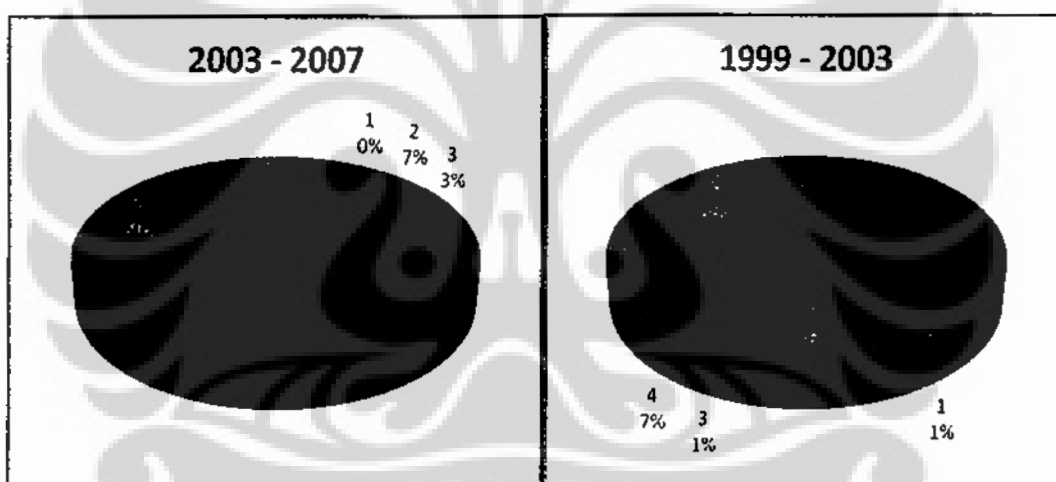
In year 2003 and 2007, the most potential commodity for both years was mineral fuels and oils (HS 27). From table 5.2 can be shown, ITP value of mineral fuels and oils (HS 27) in year 2007 was increased from the previous 5 years as much as 2409.9% valued US\$ 11,239.73 million. Indonesia export value for fuels and oil commodity was increased as much as 199.5% valued of US\$ 51.93 million. Generally, there are no significant different between 2003's 10 most potential commodities with 2007's. It's just that in year 2003, miscellaneous chemical products (HS 38) commodity had high ITP value as much as US\$ 282.46 million. However, there is a commodity in 2007 which was not part of the 10 most potential commodities in year 2003, it is ores, slag, and ash (HS 26) with ITP value as much as US\$ 1,188.99 million.

5.1.2 Potential Commodity based on Potential Category

Potential commodity measurement is not only based on the highest ITP value, but also considered from its growth criterion, as already mentioned in the methodology part. Potential commodities are ranked based on ITP value and potential category with value 5 or 4. Potential category 5 means that Indonesia export growth to Chile is negative, Indonesia export growth to the world is

positive, and Chile import from the world is positive. Potential category 4 means that Indonesia export growth to Chile, Indonesia Export to the world and Chile import from the world are all positive. These two categories are considered as the most potential for Indonesia to develop its export to Chile.

There are two growth values in discussion, each of them for period 1999-2003 and period 2003-2007. During period 1999-2003, there are 35 and 7 commodities categorized as potential 5 and 4 consecutively. During period 2003-2007, there are 49 and 32 commodities categorized as potential 5 and 4 consecutively. This means that Indonesia has more chances to develop its export to Chile; this is due to the fact that Chile's market demand is increasing and Indonesia export capacity is also getting better though not yet optimized. Figure 5.1 shows the composition of potential categories in two different periods.



Source: WITS, Processed

Figure 5.1 Composition Commodity Indonesia based on Potential Category

5.1.3 Potential Commodity based on ITP value and Potential Category

After observing the result of those two criterions above, then the most potential commodity will be identified by combining those two criterions. Table 5.3 and table 5.4 are tables of measurement result of the two categories for both periods of time.

Table 5.3 Top 20 Potential Commodity Indonesia Based on ITP Value 2003 and Potential Category

NO	HS	Description	ITP 2003 (Million US\$)	Category	Tariff Chile 2003 (%)
1	27	MINERAL FUELS AND OILS	3,297.572	5	7
2	39	PLASTIC & PLASTIC ARTICLES	723.387	5	7
3	87	VEHICLES OTHER THAN TRAINS	628.508	5	7
4	38	MISCELLANEOUS CHEMICAL PRODUCTS	282.462	5	7
5	73	ARTICLES OF IRON OR STEEL	275.194	5	7
6	28	CHEMICALS AND ALLIED PRODUCTS	215.347	5	0
7	33	ESSENTIAL OILS AND RESINOIDS, PERFUMERY, COSMETICS OR TOILET	153.985	5	7
8	32	TANS, DYES, PIGMENTS, PAINTS, VARNISHES, INKS	140.808	5	7
9	23	FOOD WASTE AND ANIMAL FODDER	119.696	5	10
10	30	PHARMACEUTICAL PRODUCTS	104.306	5	0
11	26	ORES, SLAG AND ASH	93.022	5	0
12	89	SHIPS AND BOATS	88.521	5	0
13	69	CERAMIC PRODUCTS	85.698	5	7
14	04	DAIRY PRODUCTS	68.796	5	10
15	83	MISCELLANEOUS ARTICLES OF BASE METALS	54.085	5	7
16	18	COCOA AND COCOA PREPARATIONS	49.778	5	7
17	86	TRAINS, PARTS AND SIGNALLING EQUIPMENT	46.569	5	7
18	21	MISCELLANEOUS FOODS	43.559	5	8
19	19	FOOD PREPARED FROM CEREALS, STARCH OR MILK	34.379	5	9
20	22	BEVERAGES, SPIRITS AND VINEGAR	24.256	5	9

Source: WITS and TRAINS, processed

Based on table 5.3, the ten most commodities which have the highest ITP values and also considered as potential category 5 or 4 during period 1999-2003 are almost similar with the result of potential commodity based on ITP value in 2003. This commodity is mineral fuels and oils (HS 27) with import tariff average to Chile are 7. The other 9 commodities are plastic (HS 39), vehicles (HS 87), chemical products (HS 28, 33, 32, 38), steel (HS 73), food waste and animal fodder (HS 23) and pharmaceutical products (HS 30). Most of them are chemical products. The highest Indonesia's export value to Chile was US\$ 17,339.5 thousand from potential commodity. Average tariff for 20 commodities is 7. This

tariff was already considered as low if compared with other country's tariff for the same products.

Table 5.4 Top 20 Potential Commodity Indonesia based on ITP Value 2007 and Potential Category

NO	HS	Description	ITP 2007 (Million US\$)	Category	Tariff Chile 2007 (%)
1	27	MINERAL FUELS AND OILS	11,239.734	5	6
2	39	PLASTIC & PLASTIC ARTICLES	1,524.124	5	6
3	26	ORES, SLAG AND ASH	1,188.994	5	0
4	48	PAPER	694.939	5	6
5	40	RUBBER AND RUBBER ARTICLES	584.863	5	6
6	29	ORGANIC CHEMICAL	577.919	5	6
7	38	MISCELLANEOUS CHEMICAL PRODUCTS	515.714	5	6
8	28	CHEMICALS AND ALLIED PRODUCTS	400.072	5	6
9	15	FATS, OILS AND WAXES	390.351	5	6
10	23	FOOD WASTE AND ANIMAL FODDER	322.253	5	6
11	33	ESSENTIAL OILS AND RESINOIDS, PERFUMERY, COSMETICS OR TOILET	286.402	5	6
12	32	TANS, DYES, PIGMENTS, PAINTS, VARNISHES, INKS	261.8	5	6
13	31	FERTILIZERS	212.276	5	6
14	30	PHARMACEUTICAL PRODUCTS	176.399	5	6
15	44	WOOD	154.836	5	6
16	34	SOAP, WASHING PREPARATIONS, LUBRICATING PREPARATIONS, WAXES	154.301	5	6
17	21	MISCELLANEOUS FOODS	132.244	5	6
18	25	SALT, SULPHUR, EARTHS AND STONE, PLASTER, LIME AND CEMENT	130.351	5	6
19	42	LEATHER ARTICLES AND TRAVEL GOODS	120.842	5	6
20	12	SEEDS AND GRAINS	103.650	5	6

Source: WITS and TRAINS, Processed

Table 5.4 shows similar result with 1999-2003 that same criterion was only agriculture. and other industrial products which were included in the 10 most potential commodities during period 2003-2007. The tariff which was imposed by Chile to Indonesia's export commodity was already considered as low with average 6. However, the ITP value in 2007 was higher than the one in 2003 for 10

potential commodities. This means that Chile's demand growth was increasing while Indonesia's export growth was still negative.

The ten most potential commodities for period 2003-2007 are mineral fuels and oils (HS 27); plastic & plastic articles (HS 39); ores, slag and ash (HS 26); paper (HS 48); rubber and rubber articles (HS 40); organic chemical (HS 29); miscellaneous chemical products (HS 38); chemical and allied products (HS 15) and food waste and animal fodder (HS 23). All with average ITP value US\$ 1,743.9 million.

5.1.4 Top 10 Potential Commodities Indonesia

Potential commodity which yielded based on assorted ITP value and potential category has to be reviewed for its export and import performance between Indonesia and Chile. Commodities to be advised in trade liberalization agreement are commodities which still have tariff among them. As already mentioned before, tariff is one of bilateral trade barriers between two countries. The length of period of trade relation is also can be considered as a factor of whether or not these two countries have dependencies on certain commodities.

Annex I provides information about which commodities are considered as potential commodity and potential category between Indonesia and Chile. Chile's commodities which still have tariff and sorted based on balance trade value between Indonesia and Chile must be verified from those information. Further, commodities which have been traded for at least two consecutive years or have been traded in the last year can be inferred from the verification.

Ten potential Indonesia's commodities are defined based on balance trade value between Indonesia and Chile. If the value is negative, then it shows that it is the main import commodity Indonesia from Chile. Otherwise, it means that it is the main export commodity for Indonesia. Potential commodities selection is based on main export commodity for Indonesia. The potential commodity can be shows from table 5.5.

Table 5.5 10 Potential Commodity Export Indonesia to Chile

No	HS	Description
1	39	PLASTIC & PLASTIC ARTICLES
2	48	PAPER
3	40	RUBBER AND RUBBER ARTICLES
4	29	ORGANIC CHEMICAL
5	38	MISCELLANEOUS CHEMICAL PRODUCTS
6	32	TANS, DYES, PIGMENTS, PAINTS, VARNISHES, INKS
7	34	SOAP, WASHING PREPARATIONS, LUBRICATING PREPARATIONS, WAXES
8	17	SUGARS AND SUGAR CONFECTIONERY
9	20	PRESERVED VEGETABLES, FRUITS AND NUTS
10	18	COCOA AND COCOA PREPARATIONS

Source: WITS and TRAINS, processed

5.2. Identification Potential Commodity Export Chile to Indonesia

This part will elaborate Indonesia's potential commodity which may be fulfilled by Chile. Indonesia's potential commodity is also determined from these two values, ITP value for Chile-Indonesia and potential category of Chile-Indonesia. Chile – Indonesia's ITP measurement based on one certain period, and the period is end of year 2007. Commodity with the highest ITP value is the commodity which potential for Indonesia and may be fulfilled by Chile. The next criteria are export and import growth measurement of Indonesia, Chile and the world during 5 years period. Category to be reviewed is commodity with growth value satisfy category 5 and 4. The growth to be analyzed is Indonesia's export from Chile to Indonesia, Chile's export to the world, and Indonesia's import from the world.

5.2.1 Potential Commodity based on value of ITP

Potential commodity for Indonesia to Chile will be observed only during end of year 2007. Commodity to be identified is the same with Chile's potential commodity to Indonesia, it is based on two digits HS code, beginning with HS 01 up until 99. According to ITP value of Indonesia-Chile in 2007, there are 20 commodities which have value US\$100 million and above, and there are 79 commodities having ITP value less than US\$ 100

million. 20 potential commodities of Indonesia-Chile are shown in the table 5.6.

Table 5.6 Potential Commodity Chile according to ITP Value in 2007

NO	HS	Description	ITP Value Million US\$
1	26	ORES, SLAG AND ASH	1,108.19
2	27	MINERAL FUELS AND OILS	835.77
3	72	IRON AND STEEL	814.43
4	29	ORGANIC CHEMICAL	579.59
5	28	CHEMICALS AND ALLIED PRODUCTS	561.32
6	48	PAPER	524.87
7	23	FOOD WASTE AND ANIMAL FODDER	498.01
8	84	MACHINERY	441.28
9	02	MEAT	399.19
10	39	PLASTIC & PLASTIC ARTICLES	341.51
11	87	VEHICLES OTHER THAN TRAINS	337.44
12	31	FERTILIZERS	212.53
13	73	ARTICLES OF IRON OR STEEL	208.16
14	85	ELECTRICAL EQUIPMENTS	181.23
15	40	RUBBER AND RUBBER ARTICLES	166.46
16	44	WOOD	155.71
17	21	MISCELLANEOUS FOODS	132.15
18	10	CEREALS	107.81
19	12	SEEDS AND GRAINS	105.88
20	22	BEVERAGES, SPIRITS AND VINEGAR	104.60

Source: WITS, Processed

10 Indonesia's commodities which have the highest ITP value are Ores, Slag and Ash (HS 26), Mineral Fuels and Oils (HS 27), Iron and Steel (HS 72), Organic Chemical (HS 29), Chemicals And Allied Products (HS 28), Paper (HS 48), Food Waste And Animal Fodder (HS 23), Machinery (HS 84), Meat (HS 02), and Plastic & Plastic Articles (HS 39). The highest potential commodity is Slag and Ash (HS 26). However, the 10 highest potential commodities are mostly from industrial sector. The average value of those 10 commodities is US\$ 610.42 million.

If compared with ITP value for Chile-Indonesia, Chile has more potential commodity for Indonesia, there are 39 commodities. Therefore, the opportunity

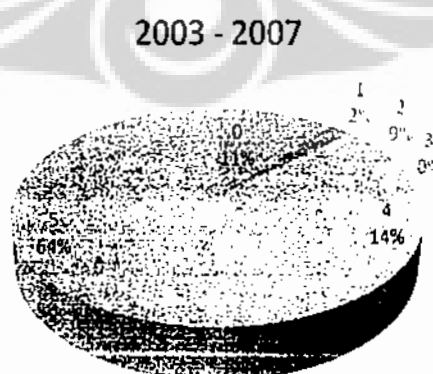
for Indonesia to expand its market to Chile is greater along with more variant compared to the opposite direction.

5.2.2 Potential Commodity based on Potential Category

Since ITP value can only be calculated during end of year, identifying potential commodity should consider its growth during certain period of time. The growth of this commodity's export import may indicate potential commodity. It is considered to be potential if it satisfy category 5 and 4.

The growth of each commodity is classified during period 2003-2007. Each category's growth is observed from the growth of Chile to Indonesia export, Chile export to the world, and Indonesia's import from the world. During this period, there are 74 commodities identified to satisfying category 5 and 4. This fact shows that Indonesia has higher demand to accept commodities imported from Chile. Therefore for Chile, Indonesia is considered as potential market to export Chile's commodities. However, Chile's demand for commodities from Indonesia is higher, there are 81 commodities demanded. This indicates that Indonesia has higher opportunity to export its commodities to Chile than otherwise.

The Figure 5.2 shows the composition of commodities based on its potential category. Most of Indonesia's commodities are potential commodities for Chile. The composition of potential commodities is 78% consists of 63 commodities satisfy category 5 and 14 commodities satisfy category 4, and the rest 22% are commodities which satisfy category 3, 2 and 0.



Source: WITS, Processed

Figure 5.2 Composition Commodity Chile based Potential Category

5.2.3 Potential Commodity based on ITP value and Potential Category

After determining potential commodity using ITP and potential category, both values are joined to have the best combination identifying the most potential commodity for Chile's export to Indonesia. Table 5.7 shows the result of the two criteria combination

Table 5.7 Top 20 Potential Commodity Chile Based on ITP Value 2007 and Potential Category

NO	HS	Description	ITP 2007 Million US\$	Category	Tariff Ina 2007 (%)
1	27	MINERAL FUELS AND OILS	835.77	5	5
2	72	IRON AND STEEL	814.43	5	0
3	28	CHEMICALS AND ALLIED PRODUCTS	561.32	4	5
4	48	PAPER	524.87	5	5
5	84	MACHINERY	441.28	5	2.88
6	02	MEAT	399.19	5	5
7	39	PLASTIC & PLASTIC ARTICLES	341.51	5	18.19
8	87	VEHICLES OTHER THAN TRAINS	337.44	5	15
9	31	FERTILIZERS	212.53	5	0
10	73	ARTICLES OF IRON OR STEEL	208.16	4	11.25
11	40	RUBBER AND RUBBER ARTICLES	166.46	5	5.69
12	44	WOOD	155.71	4	0
13	21	MISCELLANEOUS FOODS	132.15	4	22.26
14	12	SEEDS AND GRAINS	105.88	4	5
15	22	BEVERAGES, SPIRITS AND VINEGAR	104.60	4	120
16	20	PRESERVED VEGETABLES, FRUITS AND NUTS	83.64	4	5
17	62	CLOTHES (NOT KNITTED OR CROCHETED)	75.63	5	35
18	15	FATS, OILS AND WAXES	72.09	5	5
19	76	ALUMINIUM	71.19	5	0
20	38	MISCELLANEOUS CHEMICAL PRODUCTS	68.38	5	7.5

From table 5.7, 10 commodities with the highest ITP value and satisfy category 5 and 4 are Mineral Fuels And Oils (HS 27), Iron And Steel (HS 72), Chemicals And Allied Products (HS 28), Paper (HS 48), Machinery (HS 84), Meat (HS 02), Plastic & Plastic Articles (HS 39), Vehicles Other Than Trains (HS 87), Fertilizers (HS 31), Articles Of Iron Or Steel (HS 73). Imposed tariffs to the 10 Indonesia's potential commodities for Chile are generally low with the lowest 0% and the highest 18.19%, thus the average tariffs is 6.7%.

Two of those 10 potential commodities are no longer imposed with tariff by Indonesia. These commodities are Iron and Steel (HS 72) and Fertilizers (HS 31). Iron and Steel commodity was last imposed with 5% tariff in 2005, which was not imposed by any tariff in the next following years until present. In the other hand, Fertilizers, was last imposed with 0.61% tariff in 1999, and tariff free in the next following years until present. It is also a commodity which needed by Indonesia to upscale the quality of Indonesia's agriculture commodities.

5.2.4 Top 10 Potential Commodity Chile

Potential commodities which measured based on ITP value in the end of year 2007 and potential category identification based on growth during period 2003-2007 has to review. Annex 2 provides Indonesia's potential commodities which have the highest ITP value and satisfy category 5 and 4. Potential commodities with tariff still imposed are also taken into account. Selected potential commodities will then sorted based on balance of trade between Indonesia and Chile. Negative signs of trade balance between Indonesia and Chile show that the commodity is export commodity from Chile to Indonesia. Table 5.8 shows 10 potential commodities export Chile to Indonesia.

Table 5.8 10 Potential Commodity Export Chile to Indonesia

No	HS	Description
1	28	CHEMICALS AND ALLIED PRODUCTS
2	08	FRUIT AND NUTS
3	15	FATS, OILS AND WAXES
4	16	PREPARED MEAT OR FISH
5	22	BEVERAGES, SPIRITS AND VINEGAR
6	21	MISCELLANEOUS FOODS
7	14	VEGETABLE PLAITING MATERIAL (bamboo, rattan etc)
8	51	WOOL, ANIMAL HAIR AND WOVEN FABRIC
9	35	ALBUMINOIDAL SUBSTANCES, MODIFIED STARCHES, GLUES, ENZYMES
10	50	SILK

Source: WITS, Processed

5.3. Result of Export Equation

The first equation is an equation for Indonesia's export to Chile for 10 potential commodities Chile. The flow of Indonesia's export to Chile will be observed through Chile's demand on Indonesia's products. This equation will be using cross section data and panel data in order to identify whether there exist individual effect on this equation, which then will require Chow Test.

In order to identify the result of Chow Test, it can be yielded from pooled test with common intercept and no weighting, and pooled test with fixed effect with no weighting. Hypothesis for Chow Test is as follows:

H_0 = There is no individual effect; PLS approach is preferable.

H_1 = There is individual effect; FEM approach is preferable.

Table 5.9 shows from export equation, it can be concluded that F-Stat value is higher than F-Table value. This higher F-Stat value shows that this equation has individual effect thus Fix Effect Model is the most suitable solution for this equation. The next step is to choose between Fix Effect Model and Random Effect Model. The number of cross section data in this equation is 10, and observation duration is 9 years. Since cross section value is higher than observation duration value then it is concluded that Random Effect Model is the most suitable solution for this equation.

Table 5.9 Chow Test Result of Export Equation

SSR 1	SSR 2	F-stat	F - table		Result	Conclusion
(Common)	(FEM)		α	F - table		
513.6823	93.93022	37.7362	(1%)	5.35	F Stat > F Table	Fixed Effect
			(5%)	3.18		
			(10%)	2.44		
			(25%)	1.59		

The result of this Random Effect Model for Indonesia's import from Chile equation can be seen in table 5.10

Table 5.10 Result Export Equation

Variables	Expected Sign	Random Effect Method	
		Coefficient	Probability
C	+/-	7.615971	0.0122
LOG(GDP_CHL?)	+	0.510664	0.4929
LOG(RER_INA?)	+	0.742617	0.5807
TARIFF_CHL?	-	-0.633701*	0.0017
R-squared		0.829678	

* : Significant at 1% level

Table 5.10 shows the result of export model which has passed Chow Test and FEM or REM selection. REM estimation model for export equation in detail is as follows:

$$\log(\text{imp_chl_ind}) = 7.615971 + 0.510664 \log(\text{GDP_Chl}) + 0.742617 \log(\text{RER_Ina}) - 0.633701 \text{Tariff_Chl}$$

5.3.1 Interpretation from Variable Export Model's

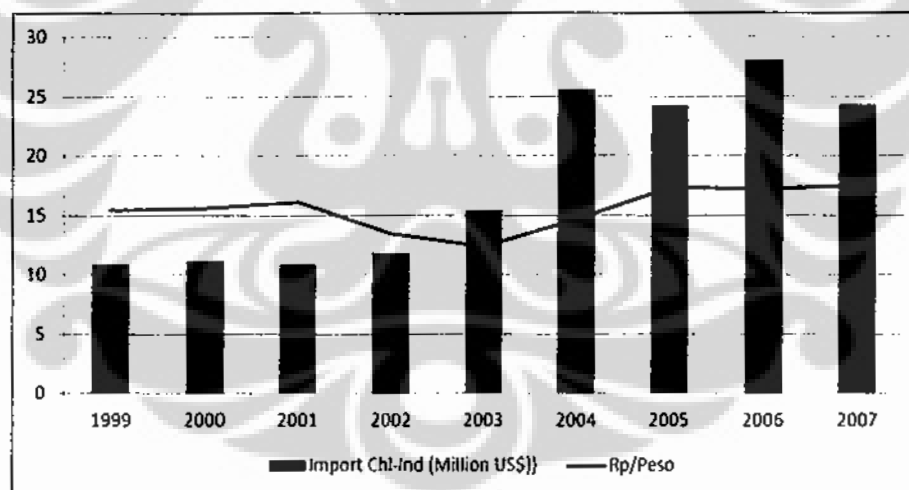
From table 5.10, it can be inferred that export model estimation can explain equation with adjusted R-squared 0.829678, or in other words, the three variables are affecting import changes Chile from Indonesia as much as 83%. All Variables have signs same with the expected sign. Generally, export model estimation result on table 5.7 means that Chile's tariff is the variable which affects the change of Chile's import value from Indonesia. Two variables on export equation, Chile's GDP and Indonesia's RER doesn't have significant effects.

Based on estimation result, Chile's GDP has positive impact to the change of Chile's Import from Indonesia. If Chile's GDP is increased as much as 1%, then it will increase Chile's import from Indonesia as much as 0.51%, ceteris paribus noted. The possibility of making the first type error is about 49% which means it is not significant at 10% level. This relation between Chile's GDP and Chile's import is same with expected sign. Basically, the increase of Chile's GDP would cause increase on Indonesia's commodity export demand. Chile's GDP doesn't show any significant impact to Chile's import from Indonesia since it's

not the biggest trade partner for Chile. The biggest partner countries for Chile are USA, Argentina, Brazil, China and Korea, while Indonesia's export shares for Chile is only 0.49%. Other fact is that Indonesia's potential commodities for Chile are not Chile's highest import commodities. The total share of Indonesia's potential commodities export to Chile is only 0.078%.

Indonesia's RER is having positive impact to the change of Chile's import from Indonesia. When Indonesia's RER is increased as much as 1%, it will increase Chile's import from Indonesia as much as 0.74%, *ceteris paribus* noted. The possibility of making the first type error is about 58% which means it is not significant at level 10%. The relation between variables Indonesia's RER and Chile's import is expected to be positive. Indonesia's RER effect to Chile's import value from Indonesia did not show any significant result.

Based on the growth of Chile's import from Indonesia with exchange rate Rupiah over Peso, it's shown that exchange rate changes was not directly impact Chile's import changes from Indonesia.



Source: WITS, Processed

Figure 5.3 Comparison Total Import Chile from Indonesia and RER (1999 – 2007)

From Figure 5.3, it can be inferred that RER changes is not directly impact in the next following year. RER was slowly affecting Indonesia's export. In year 2001, RER was depreciated; however Indonesia's Export to Chile was just raised in the next following year, 2002. In 2003, it experienced temporary increment,

RER was in appreciating condition, thus Indonesia's export was started to decrease in year 2005. (J-Curve Phenomenon)

Both Indonesia and Chile are having open foreign trade system. Both countries' domestic currencies are not considerably strong enough domestic currency to affect world trade as US dollars. Both countries are relying its trade on US\$ exchange rate. J-Curve theory which was introduced by Meege (1973) or later known better as J-Curve Phenomenon, explain that the change in exchange rate on such short period of time will require 3 adjustment processes on trade balance, they are the currency-contract period, the pass-through period, and the quantity-adjustment period. According to J-Curve theory, the impact of RER which yielded from export model estimation, would not cause direct impact to Chile's import value, instead it will experience quantity adjustment period in prior.

The last variable is Chile's tariff against its import commodity especially from Indonesia. Chile's tariff estimation result shows that it has negative impact to the change of export. If Chile's tariff is lowered as much as 1%, then it will increase Chile's import from Indonesia as much as 0.63%, *ceteris paribus* noted. The possibility of making the first type of error is about 0.17% which means that it is significant at level 10%.

5.3.2 Interpretation from Individuals Effects of Export Model's

Table 5.11 Individual Effect of Export Commodities

HS	Description	Individual Effect
40	RUBBER AND RUBBER ARTICLES	3.828147
48	PAPER	2.182564
20	PRESERVED VEGETABLES, FRUITS AND NUTS	1.779598
29	ORGANIC CHEMICAL	1.386282
39	PLASTIC & PLASTIC ARTICLES	0.421735
18	COCOA AND COCOA PREPARATIONS	-0.85134
32	TANS, DYES, PIGMENTS, PAINTS, VARNISHES, INKS	-1.77181
34	SOAP, WASHING PREPARATIONS, LUBRICATING PREPARATIONS, WAXES	-1.79545
17	SUGARS AND SUGAR CONFECTIONERY	-2.42651
38	MISCELLANEOUS CHEMICAL PRODUCTS	-2.75322

Table 5.11 above shows individual effect of each Indonesia's potential export commodities in *ceteris paribus* condition. The highest imported commodity which will give positive impact of Indonesia Export's is HS 40 (Rubber and Rubber Articles) with 3.83% effect value. It's followed by paper (HS 48), preserved vegetables, fruits and nuts (HS 20), organic chemical (HS 29), plastic & plastic articles (HS 39). However, some commodities showed negative impact to Indonesia's export to Chile. Those commodities are cocoa and cocoa preparations, tans, dyes, pigments, paints, varnishes, inks, soap, washing preparations, lubricating preparations, waxes sugars and sugar confectionery. As for HS 38 (miscellaneous chemical products) is the lowest imported commodity by Chile with -2.75% effect values.

5.4. Result of Import Equation

The second equation is Indonesia's import from Chile equation for 10 potential commodities Indonesia for Chile. Indonesia's import from Chile flows will be observed from the value of Chile's export to Indonesia, which related with Indonesia's demand level for those potential products. In this case, Indonesia's 10 potential commodities for Chile will be used.

The equation will be analyzed using cross section and panel data in order to identify whether there exist individual effect on this equation, which then will require Chow Test.

In order to identify the result of Chow Test, it can be yielded from pooled test with common intercept and no weighting, and pooled test with fixed effect with no weighting. Hypothesis for Chow Test is as follows:

H_0 = There is no individual effect; PLS approach is preferable.

H_1 = There is individual effect; FEM approach is preferable

Table 5.12 Chow Test Result of Import Equation

SSR 1 (PLS)	SSR 2 (FEM)	F-stat	F - table		Result	Conclusion
			α	F-table		
293.7473	82.7621	21.52742	(1%)	5.35	F Stat > F Table	Fixed Effect
			(5%)	3.18		
			(10%)	2.44		
			(25%)	1.59		

The same conclusion with the one inferred from export equation that F-Stat value is higher than F-Table value. This higher F-Stat value shows that this equation has individual effect thus Fix Effect Model is the most suitable solution for this equation. The next step is to choose between Fix Effect Model and Random Effect Model. The number of cross section data in this equation is 10, and observation duration is 9 years. Since cross section value is higher than observation duration value then it is concluded that Random Effect Model is the most suitable solution for this equation.

The result of this Random Effect Model for Indonesia's import from Chile equation can be seen in table 5.13.

Table 5.13 Result Import Equation

Variables	Expected Signs	Random Effect Method	
		Coefficient	Probability
C	+/-	7.545970	0.0376
LOG(GDP_INA?)	+	2.926183*	0.0291
LOG(RER_INA?)	-	-1.574940	0.1401
TARIFF_INA?	-	-0.011647	0.2648
R-squared		0.835602	

* : Significant at 5% level

Similar analysis is also used to explain the condition of import model estimation result. Table 5.13 shows the result of import model estimation which

has passed Chow Test and selection between FEM and REM. REM estimation model for import equation detailed as follows:

$$\log(\text{Exp_Chl_Ind}) = 7.545970 + 2.926183\log(\text{GDP_Ina}) - 1.574940\log(\text{RER_Ina}) - 0.011647\text{Tariff_Ina}$$

5.4.1 Interpretation from Variable Import Model's

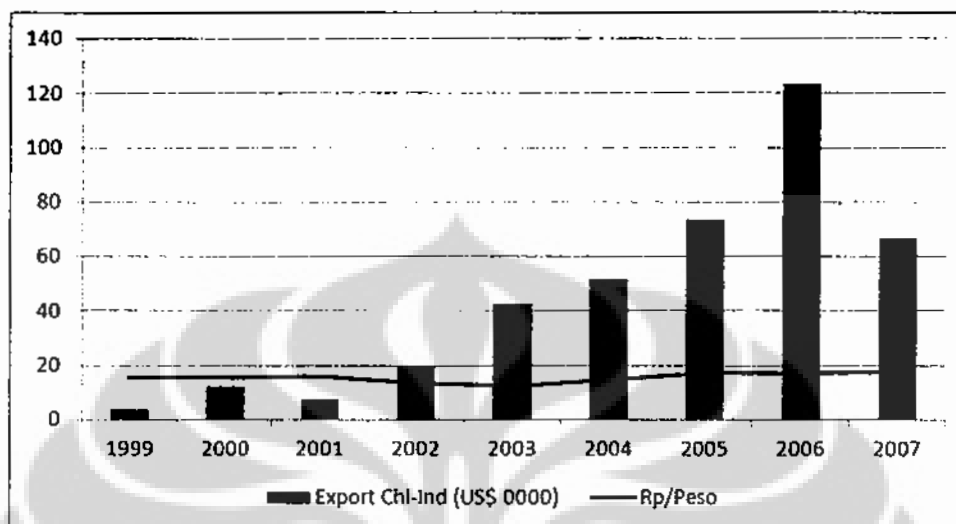
From table 5.13 above can be inferred that import equation estimation result can be explained with adjusted R-squared value as much as 0.835602, or in other words, the estimation result can be explained with probability level 84%. Indonesia's GDP, RER and tariff, all has expected sign. The smallest probability of making the type I error is GDP of Indonesia with probability 2.9% below 10% significant level. On the other hand, Indonesia's RER and Indonesia's tariff are both having 14% and 26% above significant level 10% consecutively.

From the above import model result, it can be explained that Indonesia's GDP is having the greatest impact to the change of Chile's export to Indonesia, while Chile's GDP and Indonesia's tariff are not having significant impact to the change of Chile's export to Indonesia.

Indonesia's GDP variable has positive impact to the change of Chile's export to Indonesia. If Indonesia's GDP is increased as much as 1%, then it will increase Chile's export to Indonesia as much as 2.93%, *ceteris paribus* noted. The possibility of making the type I error is 2.9% which means it is significant at level 5%. The relation between variables both Indonesia's GDP and Chile's export expected to be positive. In other words, if Indonesia's GDP increased, it will raise Chile's export to Indonesia.

Indonesia's RER variable is having negative impact to the change of Chile's export to Indonesia. If Indonesia's RER is increased by 1%, it will decrease Chile's export to Indonesia as much as 0.012%, *ceteris paribus* noted. The possibility of making type I error is 14% which means that it is not significant at level 10%. The relation between variables of both Chile's RER and Chile's export to Indonesia is expected to be negative. The increase of Indonesia's RER in term of Rupiah/Peso is expected to decrease Chile's export to Indonesia due to the fact that Indonesia is decreasing import product consumption.

RER condition on import equation shows the same impact with RER condition on export. This means that RER does not directly impact export and import of Indonesia or Chile. However, RER will still give indirect impact in the form of lag or adjustment from RER changes to export and import value changes.



Source: WITS, Processed

Figure 5.4 Comparison Total Export Chile to Indonesia and RER (1999 – 2007)

Figure 5.4 shows comparison of Chile's export of its potential commodities to Indonesia which moves slowly against the changes of RER. In year 2000, RER was depreciated, however Chile's export to Indonesia was not decreased in the same year, it was started to decrease in year 2001. The same thing happen in year 2004, RER was depreciated but Chile's import was not decreased since its previous. Chile's export to Indonesia experienced slow adjustment.

Indonesia's tariff variable was giving negative impact to the change of Chile's export to Indonesia. If Indonesia's tariff is lowered by 1%, it will raise Chile's export to Indonesia as much as 0.063%, *ceteris paribus* noted. The probability of making type I error is 26% which means it is not significant at level 10%. Indonesia's import tariff shows some effect to Chile's export to Indonesia, but it didn't show any significant impact. Chile's export share of its potential commodities to Indonesia was only 3.49 from total export of all Chile's commodities to Indonesia during period 1999-2007. Since its share was low, it

shows that those commodities demanded from Indonesia, tariffs only gave a small impact.

5.4.2 Interpretation from Individuals Effect of Import Model's

Table 5.14 Individual Effect of Import Commodities

HS	Description	Individual Effect
08	FRUIT AND NUTS	1.957528
15	FATS, OILS AND WAXES	1.694473
22	BEVERAGES, SPIRITS AND VINEGAR	1.518831
28	CHEMICALS AND ALLIED PRODUCTS	1.267871
16	PREPARED MEAT OR FISH	0.143437
51	WOOL, ANIMAL HAIR AND WOVEN FABRIC	-0.8623
35	ALBUMINOIDAL SUBSTANCES, MODIFIED STARCHES, GLUES, ENZYMES	-1.27296
21	MISCELLANEOUS FOODS	-1.48166
14	VEGETABLE PLAITING MATERIAL (bamboo, rattan etc)	-1.61729
50	SILK	-2.94009

Table 5.14 shows the result of import model estimation for each Indonesia's import from Chile commodity. The highest change is on HS 08 (fruits & nuts), followed fats, oils and waxes, beverages, spirits and vinegar, chemicals and allied products, prepared meat or fish, wool, animal hair and woven fabric, albuminoidal substances, modified starches, glues, enzymes, miscellaneous foods, vegetable plaiting material (bamboo, rattan etc.), and silk is considered to have the smallest impact.

5.5. Result of Tariff Simulation

Continuing from both model results above, in this part it will be simulated when there is decrease in tariff between two countries for each commodity. There are three tariff decrement simulation to be proceeded, they are reduction as much as 50%, 75%, and 100%. Tariff reduction 100% is meant to give illustration of when the two countries bound themselves in an FTA (Free Trade Agreement). In prior, Indonesia must take review on what happen to the potential commodity to

be exported to Chile. Shown on the model above, tariff reduction can only affect significantly on Chile's import from Indonesia. Therefore, the next simulation below is tariff reduction simulation for Indonesia's export commodities against the value of Indonesia's export to Chile.

5.5.1 Result of Tariff Simulation on Export Commodities

In this part tariff reduction simulation is for Chile's tariff reduction against Indonesia's export commodities. Indonesia's potential export commodity which will be chosen are sugars and sugar confectionery (HS 17), cocoa and cocoa preparations (HS 18), preserved vegetables, fruits and nuts (HS 20), organic chemical (HS 29), tans, dyes, pigments, paints, varnishes, inks (HS 32), soap, washing preparations, lubricating preparations, waxes (HS 34), miscellaneous chemical products (HS 38), plastic & plastic articles (HS 39), rubber and rubber articles (HS 40) and paper (HS 48). In average, for all Indonesia's export commodity, Chile applied 6% import tariff.

Table 5.15 Result of Simulation Tariff for Export Commodity

HS	Changes Export (%)			Predicted Export Value (US\$ 000)		
	SIM 1	SIM 2	SIM 3	SIM 1	SIM 2	SIM 3
40	9.54	10.49	11.44	13,947	36,083	93,351
48	7.90	8.85	9.80	2,690	6,960	18,007
20	7.49	8.45	9.40	1,798	4,652	12,035
29	7.10	8.05	9.00	1,213	3,139	8,121
39	6.14	7.09	8.04	462	1,196	3,096
18	4.86	5.81	6.76	129	335	867
32	3.94	4.89	5.84	52	133	345
34	3.92	4.87	5.82	50	130	337
17	3.29	4.24	5.19	27	69	179
38	2.96	3.91	4.86	19	50	129

Table 5.15 shows that generally Chile's tariff reduction to Indonesia's export commodities caused export value increment. Tariff reduction for each commodity individually increased Indonesia's export to Chile. Tariff decrement for the three simulations above shows the same result that tariff reduction has impact to the increase of Indonesia's commodities export to Chile. Indonesia's

export of its potential commodities sorted from the highest experiencing increment to the lowest are as follow: rubber and rubber articles (HS 40), paper (HS 48), preserved vegetables, fruits and nuts (HS 20), organic chemical (HS 29), plastic & plastic articles (HS 39), cocoa and cocoa preparations (HS 18), tans, dyes, pigments, paints, varnishes, inks (HS 32), soap, washing preparations, lubricating preparations, waxes (HS 34), sugars and sugar confectionery (HS 17), miscellaneous chemical products (HS 38).

Commodity which experienced the highest increase is Rubber and Rubber Articles (HS 40) which increased 9.54% in the first simulation and when Chile's import tariff for this commodity was eliminated, Indonesia's export to Chile was increased as much as 11.44% or equal to US\$ 93.4 million. In the other hand, commodity which experienced the lowest increase is miscellaneous chemical products (HS 38), with only 4.86% increment when its tariff was eliminated. Its export value was approximately reaching US\$ 129.4 thousands.

The average tariff for Indonesia's export of its potential commodities to Chile was 6% therefore the tariff reduction which imposed by Chile to Indonesia's export commodities was similar. Rubber and rubber articles (HS 40) was commodity with the highest export value in 2007 if compared with others potential export commodities, therefore the tariff reduction would increase Indonesia's export value to Chile. Lubricating preparations and waxes commodity was the commodities which have the lowest export value in 2007 compared to other 9 commodities. However, this commodity was not experienced the lowest increment. Compared to miscellaneous chemical products (HS 38), Lubricating preparations and waxes commodity experience increment as much as 5.82% or predicted as much as US\$ 337.1 (336% changes from its export value in 2007).

5.5.2 Result of Tariff Simulation on Import Commodities

Tariff reduction simulation for Indonesia's import from Chile was also using the same scenario; they are tariff reduction 50%, 75%, and 100%. Commodities to be simulated are Indonesia's potential commodities for Chile as follows: Chemicals and Allied Products (HS 28), Fruit and Nuts (HS 08), Fats, Oils and Waxes (HS 15), Prepared Meat Or Fish(HS 16), Beverages, Spirits and Vinegar(HS 22), Miscellaneous Foods(HS 21), Vegetable Plaiting Material

(Bamboo, Rattan etc.) (HS 14), Wool, Animal Hair and Woven Fabric(HS 51), Albuminoidal Substances, Modified Starches, Glues, Enzymes (HS 35), and Silk (HS 50). The average tariff which imposed by Indonesia for the 10 import commodities is 18.8%. The highest tariff was 120% for Beverages, Spirits and Vinegar (HS 22) commodity and the lowest was 3.3% for Vegetable Plaiting Material (Bamboo, Rattan etc.) (HS 14) commodity.

Table 5.16 Result of Simulation Tariff for Import Commodity

HS	Changes Export (%)			Predicted Import Value (US\$ 000)		
	SIM 1	SIM 2	SIM 3	SIM 1	SIM 2	SIM 3
08	9.474	9.489	9.503	13,022	13,213	13,407
15	9.211	9.226	9.240	10,010	10,157	10,306
22	8.366	8.715	9.065	4,298	6,096	8,646
28	8.785	8.799	8.814	6,534	6,629	6,727
16	7.660	7.675	7.689	2,122	2,153	2,185
51	6.625	6.655	6.684	754	776	799
35	6.244	6.258	6.273	515	522	530
21	5.935	5.999	6.064	378	403	430
14	5.909	5.919	5.929	368	372	376
50	4.562	4.584	4.606	96	98	100

Similar with the case of Indonesia, Chile's potential commodities export to Indonesia would increase if Indonesia reduces its tariff to those commodities. These are commodities sorted by its increment from the highest to the lowest: Fruit and Nuts (HS 08), Fats, Oils and Waxes (HS 15), Beverages, Spirits and Vinegar(HS 22), Chemicals and Allied Products (HS 28), Prepared Meat Or Fish(HS 16), Animal Hair and Woven Fabric(HS 51), Albuminoidal Substances, Modified Starches, Glues, Enzymes (HS 35), Miscellaneous Foods(HS 21), Vegetable Plaiting Material (Bamboo, Rattan etc.) (HS 14) and Silk (HS 50).

The third commodity which has the highest change due to tariff reduction was fruit and nuts (HS 08) with export value increment from Chile to Indonesia as much as 9.5%, valued approximately US\$ 13.4 million. Commodity with the lowest change was silk (HS 50) with export value increment 4.6% or as much as US\$ thousands after tariff reduction. In the case of Beverages, Spirits and Vinegar

(HS 22), its tariff was 120%, Chile's export value to Indonesia was increased 9.1% or US\$ 8.6 million after tariff elimination.

From the simulation of Indonesia's export commodities and Indonesia's import commodities against Chile, it can be inferred that Indonesia and Chile trade cooperation on tariff reduction may still be established even there's only a small impact to Indonesia and Chile export. However, the decline in tariff for Chile and Indonesia has little impact to the exports so that other trade barriers that needs to be considered by Indonesia to boost trade. The other trade barrier beside tariff is Non-Tariff Barriers. Indonesia is still having little trade cooperation if compared with other countries especially if compared with Chile. For Indonesia, Chile is not considered as a threat since Chile is not Indonesia's export competitor to the world. Indonesia and Chile trade cooperation using Indonesia's potential commodities will not affect significantly for Indonesia since those selected commodities were not the main Indonesia's export commodities. Therefore, this trade cooperation will educate Indonesia in order to form the next mutual bilateral trade. However, further preparations and analysis to these commodities will be pointed out in this trade cooperation.

Trade cooperation between Indonesia and Chile can be established with gradual tariff reduction in both countries. This gradual tariff reduction will give necessary time for both countries to prepare themselves prior to forming *free trade agreements*. The existence of ZOFRI (Zone Franca de Iquique) in Chile is considered as a mean to increase trade volume for Indonesia. However geographical distance has become a barriers that needs to be solved by creating export direct facilities to Chile such as direct flight from Indonesia to South America and vice versa, enhancing and developing more ports, thus initiates more Spanish learning institutes.

CHAPTER VI

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

Indonesia and Chile had engaged in bilateral relation for years on mutual benefits. Despite the distance disadvantage, both countries agreed to establish trade cooperation to increase trade volume. Indonesia will utilize the trade cooperation with Chile to expand market access to South America region. By observing potential commodity based on trade flow and potential category, it can be conclude that:

- Potential commodities were being reselected based on net export value between Indonesia and Chile. Higher export value of certain commodities from Indonesia to Chile indicates that Indonesia has a potential to increase its export to Chile. Those commodities are plastic & plastic articles (HS 39), paper (HS 48), Rubber and Rubbers articles (HS 40), organic chemical (HS 29), miscellaneous chemical products (HS 38), tans, dyes, pigments, paints, varnishes, inks (HS 32), soap, washing preparations, lubricating preparations, waxes (HS 34), sugars and sugar confectionery (HS 17), preserved vegetables, fruits and nuts (HS 20) and cocoa and cocoa preparations (HS 18)
- Chile's export potential commodities to Indonesia are Chemicals and Allied Products (HS 28), Fruit and Nuts (HS 08), Fats, Oils and Waxes (HS 15), Prepared Meat Or Fish(HS 16), Beverages, Spirits and Vinegar(HS 22), Miscellaneous Foods(HS 21), Vegetable Plaiting Material (Bamboo, Rattan Etc) (HS 14), Wool, Animal Hair and Woven Fabric(HS 51), Albuminoidal Substances, Modified Starches, Glues, Enzymes (HS 35), and Silk (HS 50).

Econometric model was applied to identify factors that influence trade between countries. The results of the econometric model are as follows:

- The first equation is export model, based on Chile's demand for Indonesia's export commodities. This equation was using Indonesia's export potential commodities to Chile.
- In export model, Chile's GDP and RER didn't show any significant impact to the change of export. However, Chile's tariff to these commodities has a significant impact. It affected mostly on rubber and rubber articles (HS 40), in contrary was chemical products (HS 28).
- The second model is import model, based on Chile's supply of its export to Indonesia. This equation was using Chile's export potential commodities to Indonesia.
- In import model, Indonesia's RER and tariff for Chile's export commodities was not showing any significant impact. On the other hand, Indonesia's GDP shows significant impact to the change of Chile's export to Indonesia. It affected mostly on fruits & nuts (HS 08) in contrary was silk (HS 50).

Tariff simulation of Indonesia's export commodities to Chile and tariff simulation of Chile's export commodities to Indonesia showed some facts as follows:

- Indonesia's export potential commodities to Chile sorted from the one having the largest change to the smallest are rubber and rubber articles (HS 40), paper (HS 48), preserved vegetables, fruits and nuts (HS 20), organic chemical (HS 29), plastic & plastic articles (HS 39), cocoa and cocoa preparations (HS 18), tans, dyes, pigments, paints, varnishes, inks (HS 32), soap, washing preparations, lubricating preparations, waxes (HS 34), sugars and sugar confectionery (HS 17), and miscellaneous chemical products (HS 38).
- Chile's export potential commodities to Indonesia sorted from the one having the largest change to the smallest are Fruit and Nuts (HS 08), Fats, Oils and Waxes (HS 15), Beverages, Spirits and Vinegar(HS 22), Chemicals and Allied Products (HS 28), Prepared Meat Or Fish(HS 16), Animal Hair and Woven Fabric(HS 51), Albuminoidal Substances, Modified Starches, Glues, Enzymes

(HS 35), Miscellaneous Foods(HS 21), Vegetable Plaiting Material (Bamboo, Rattan Etc) (HS 14) and Silk (HS 50).

- Trade cooperation between Indonesia and Chile can be established with gradual tariff reduction in both countries. This gradual tariff reduction will give necessary time for both countries to prepare themselves prior to forming *free trade agreements*.

6.2 Recommendation

- Trade cooperation with Chile will be very beneficial for Indonesia. Some of those benefits are as follows:
 - Indonesia has 39 export potential commodities to Chile, while Chile only has 22 potential commodities to Indonesia.
 - If Indonesia will upgrade their cooperation to the *free trade agreements* with Chile, some commodities may be proposed are rubber and rubber articles (HS 40), paper (HS 48), preserved vegetables, fruits and nuts (HS 20).
- This study covers only the main categories of commodities (2 digits HS code); deeper analysis to include 4 digits or 6 digits HS code has to be further exercised.
- Given that Indonesia and Chile's tariff rates had been lowered, Chile still has other trade barriers, it is Non-Tariff Barriers. These barriers were also need to be considered in establishing trade cooperation with Chile.
- In each trade cooperation negotiation, a mature preparation to analyze every possibility is needed if this bilateral trade is to be upgraded to trade agreements. Government is advised to analyze the impact of this cooperation not only from its tariff measurement but also from any other perspectives; therefore a comprehensive preparation is essential since tariff rates between Indonesia and Chile already low.

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Annex I

Potential Commodity Export Indonesia to Chile Sorted on Balance Trade between Indonesia - Chile

No	HS	Description	Sector	ITP 07 (US\$000)	Bal.ind - Chl '07,(US\$ 000)	Tariff chl (%)	Tariff.ind (%)
					Category07		
1	84	MACHINERY	Industry	4,664,276.41	6,274.05	6.00	2.88
2	87	VEHICLES OTHER THAN TRAINS	Industry	2,100,514.81	7,273.47	6.00	15.00
3	39	PLASTIC & PLASTIC ARTICLES	Industry	1,524,123.98	198.17	6.00	18.19
4	48	PAPER	Industry	694,939.27	1,111.99	6.00	5.00
5	73	ARTICLES OF IRON OR STEEL	Industry	649,223.83	167.50	6.00	11.25
6	40	RUBBER AND RUBBER ARTICLES	Industry	584,863.18	18,317.49	6.00	5.69
7	29	ORGANIC CHEMICAL	Industry	577,918.63	1,772.64	6.00	5.00
8	38	MISCELLANEOUS CHEMICAL PRODUCTS	Industry	515,713.99	104.02	6.00	7.50
9	28	CHEMICALS AND ALLIED PRODUCTS	Industry	400,071.57	-3,324.88	6.00	5.00
10	15	FATS, OILS AND WAXES	Industry	390,350.88	-633.29	6.00	5.00
11	23	FOOD WASTE AND ANIMAL FODDER	Industry	322,253.08	-6,458.18	6.00	0.00
12	76	ALUMINIUM	Industry	293,430.50	-48.34	6.00	0.00
13	32	TANS, DYES, PIGMENTS, PAINTS, VARNISHES, INKS	Industry	261,799.92	478.85	6.00	5.00
14	31	FERTILIZERS	Industry	212,276.44	7,770.95	6.00	0.00
15	30	PHARMACEUTICAL PRODUCTS	Industry	176,399.17	-121.09	6.00	4.78
16	44	WOOD	Agriculture	154,835.86	505.10	6.00	0.00
17	34	SOAP, WASHING PREPARATIONS, LUBRICATING PREPARATIONS, WAXES	Industry	154,300.94	77.11	6.00	7.50
18	70	GLASS AND GLASSWARE	Industry	104,476.87	2,601.46	6.00	5.00
19	17	SUGARS AND SUGAR CONFECTIONERY	Industry	94,093.94	87.76	6.00	5.00
20	20	PRESERVED VEGETABLES, FRUITS AND NUTS	Industry	83,133.18	1,449.85	6.00	5.00

(Continued)

NO	HS	Description	Sector	ITP 07 (US\$000)	Category07	Bal.Chl-Ind '07 (US\$ 000)	Tariff chl (%)	Tariff Ind (%)
21	08	FRUIT AND NUTS	Agriculture	68,971.96	5	-1,232.67	6.00	5.00
22	18	COCOA AND COCOA PREPARATIONS	Agriculture	64,645.02	5	304.20	6.00	15.00
23	16	PREPARED MEAT OR FISH	Industry	49,514.93	5	-364.77	6.00	5.00
24	74	COPPER	Industry	45,825.68	4	-100.35	6.00	0.00
25	35	ALBUMINOIDAL SUBSTANCES, MODIFIED STARCHES, GLUES, ENZYMES	Industry	33,270.30	5	-18.04	6.00	5.00
26	03	FISH	Agriculture	22,323.77	5	-635.19	6.00	5.00
27	50	SILK	Agriculture	329.25	4	-3.40	6.00	7.50
28	14	VEGETABLE PLAITING MATERIAL (bamboo, rattan etc)	Industry	180.32	5	-69.51	6.00	3.33

Annex II
Potential Commodity Export Chile to Indonesia Sorted on Balance Trade between Indonesia - Chile

No	HS	Description	Sector	IIP:07 (US\$'000)	Category 07	Bal Ind Chl:07 (US\$ '000)	Tarif Ind (%)	Tarif Chl (%)
1	28	CHEMICALS AND ALLIED PRODUCTS	Industry	561,321.06	4	-3324.88	5	6
2	08	FRUIT AND NUTS	Agriculture	67,626.06	5	-1232.67	5	6
3	15	FATS, OILS AND WAXES	Industry	72,086.65	5	-633.293	5	6
4	16	PREPARED MEAT OR FISH	Industry	49,124.46	4	-364.774	5	6
5	22	BEVERAGES, SPIRITS AND VINEGAR	Industry	104,595.66	4	-287.683	120	6
6	21	MISCELLANEOUS FOODS	Industry	132,152.59	4	-91.955	22.26	6
7	14	VEGETABLE PLAITING MATERIAL (bamboo, rattan etc)	Industry	1117.04	5	-69.509	3.33	6
8	51	WOOL, ANIMAL HAIR AND WOVEN FABRIC	Agriculture	16,009.39	5	-35.143	10	10
9	35	ALBUMINOIDAL SUBSTANCES, MODIFIED STARCHES, GLUES, ENZYMES	Industry	16,713.42	5	-18.036	5	6
11	50	SILK	Agriculture	1858.87	4	-3.395	7.5	6
12	25	SALT, SULPHUR, EARTHS AND STONE, PLASTER, LIME AND CEMENT	Mining Products	48,956.21	5	0.85	5	6
13	33	ESSENTIAL OILS AND RESINOIDS, PERFUMERY, COSMETICS OR TOILET	Industry	65,057.85	5	4.38	87.5	6
10	06	VEGETABLE PRODUCTS	Agriculture	12,863.29	5	-16.6	15	8
16	49	PRINTED MATERIALS	Industry	49,459.15	5	35.44	5	5.21
20	34	SOAP, WASHING PREPARATIONS, LUBRICATING PREPARATIONS, WAXES	Industry	9,872.99	5	77.11	7.5	6
23	96	MISCELLANEOUS MANUFACTURED ARTICLES	Industry	5,187.44	5	136.32	10	6
33	48	PAPER	Industry	524,867.60	5	1111.99	5	6
34	20	PRESERVED VEGETABLES, FRUITS AND NUTS	Industry	83,636.63	4	1449.85	5	6
35	54	MAN-MADE FILAMENTS	Industry	9,008.38	5	2334.57	15	6
36	70	GLASS AND GLASSWARE	Industry	47,985.22	5	2601.46	5	6

(Continued)

No	HS	Description	Sector	ITP-07 (US\$ 000)	Category 07	Bal Chl- Ind 07 (US\$ 000)	Tariff Ind (%)	Tariff Chl (%)
37	62	CLOTHES (NOT KNITTED OR CROCHETED)	Industry	75,630.53	5	3054.88	35	6
38	12	SEEDS AND GRAINS	Agriculture	105,879.11	4	3125.45	5	6
39	55	MAN-MADE STAPLE FIBRES	Industry	27,017.03	5	4367.58	10	6
14	58	SPECIAL WOVEN FABRICS AND TRIMMINGS	Industry	2,136.89	5	4.891	20	6
40	84	MACHINERY	Industry	441,280.69	5	6274.05	2.88	6
41	87	VEHICLES OTHER THAN TRAINS	Industry	337,435.37	5	7273.47	15	6
42	40	RUBBER AND RUBBER ARTICLES	Industry	166,464.67	5	18317.5	5.69	6
15	83	MISCELLANEOUS ARTICLES OF BASE METALS	Industry	34,397.72	4	26.042	30	6
17	71	PEARLS, PRECIOUS STONES AND METALS, AND IMITATION JEWELLERY	Mining Products					
18	56	WADDING, FELT AND NON-WOVENS, SPECIAL YARNS AND ROPES	Industry	22,055.75	5	53.874	5	6
19	68	ARTICLES OF STONE, PLASTER, CEMENT, ASBESTOS AND MICA	Industry	6,625.36	5	54.453	7.5	6
43	27	MINERAL FUELS AND OILS	Oil and Mining	30,268.71	5	66.955	15	6
21	17	SUGARS AND SUGAR CONFECTIONERY	Industry	835,767.75	5	80683.6	5	6
22	38	MISCELLANEOUS CHEMICAL PRODUCTS	Industry	24,579.48	5	87.762	5	6
24	73	ARTICLES OF IRON OR STEEL	Industry	68,375.06	5	104.017	7.5	6
25	39	PLASTIC & PLASTIC ARTICLES	Industry	208,163.08	4	167.504	11.25	6
26	18	COCOA AND COCOA PREPARATIONS	Agriculture	341,509.77	5	198.165	18.19	6
27	82	TOOLS AND CUTLERY	Industry	37,859.45	5	304.197	15	6
28	63	OTHER TEXTILE ARTICLES AND USED CLOTHING	Industry	12,590.01	5	309.792	6	6
29	59	INDUSTRIAL TEXTILE FIBRES	Industry	12,733.27	5	430.226	15	6
30	69	CERAMIC PRODUCTS	Industry	3,297.73	4	500.176	10	6
31	92	MUSICAL INSTRUMENTS	Industry	22,484.08	5	544.359	10	6
32	37	PHOTOGRAPHIC OR CINEMATOGRAPHIC GOODS	Industry	340.70	5	632.828	25	6
			Industry	2,164.64	5	944.402	7.14	6

Annex III
Indonesia – Chile Data
Import Value Potential Commodity Export Indonesia to Chile (1999 - 2007)

No HS	Description	Impor Chile - Indonesia (US\$ 000)							
		1999	2000	2001	2002	2003	2004	2005	2006
1 39	PLASTIC & PLASTIC ARTICLES	598.819	423.685	348.620	272.127	107.882	380.321	584.207	
2 48	PAPER	1,624.070	4,234.157	2,248.611	2,159.164	1,831.796	2,007.102	2,283.753	
3 40	RUBBER AND RUBBER ARTICLES	6,748.150	4,528.610	6,803.492	6,698.748	10,890.756	19,290.035	16,863.910	
4 29	ORGANIC CHEMICAL	225.225	676.733	642.081	712.450	868.445	2,530.107	1,385.299	
5 38	MISCELLANEOUS CHEMICAL PRODUCTS	9.320	10.111	11.927	14.654	25.061	12.130	12.539	
6 32	TANS, DYES, PIGMENTS, PAINTS, VARNISHES, INKS	1.520	7.085	3.315	45.629	124.130	67.372	78.063	
7 34	SOAP, WASHING PREPARATIONS, LUBRICATING PREPARATIONS, WAXES	2.934	33.518	72.948	192.100	2.020	78.262	142.671	
8 17	SUGARS AND SUGAR CONFECTIONERY	0.800	0.955	10.330	0.850	13.023	147.443	111.147	
9 20	PRESERVED VEGETABLES, FRUITS AND NUTS	1,702.103	1,231.858	720.016	1,042.940	869.131	1,002.979	2,722.372	
10 18	COCOA AND COCOA PREPARATIONS	10.654	12.164	72.158	726.861	728.643	66.872	63.321	

Source : *Wits (processed)*

Tariff Chile to Potential Commodity Export Indonesia to Chile (1999 - 2007)

No HS	Description	Tariff Chile (%)							
		1999	2000	2001	2002	2003	2004	2005	2006
1 39	PLASTIC & PLASTIC ARTICLES	9	8	7	7	6	6	6	6
2 48	PAPER	9	8	7	7	6	6	6	6
3 40	RUBBER AND RUBBER ARTICLES	9	8	7	7	6	6	6	6
4 29	ORGANIC CHEMICAL	9	8	7	7	6	6	6	6
5 38	MISCELLANEOUS CHEMICAL PRODUCTS	9	8	7	7	6	6	6	6
6 32	TANS, DYES, PIGMENTS, PAINTS, VARNISHES, INKS	9	8	7	7	6	6	6	6
7 34	SOAP, WASHING PREPARATIONS, LUBRICATING PREPARATIONS, WAXES	9	8	7	7	6	6	6	6
8 17	SUGARS AND SUGAR CONFECTIONERY	9	9	9	9	6	6	6	6
9 20	PRESERVED VEGETABLES, FRUITS AND NUTS	9	8	7	7	6	6	6	6
10 18	COCOA AND COCOA PREPARATIONS	9	8	7	7	6	6	6	6

Export Value Potential Commodity Export Chile to Indonesia (1999 - 2007)

No	HS	Description	Ekspor Chile - Indonesia (US\$ 000)						
			1999	2000	2001	2002	2003	2004	2005
1	28	CHEMICALS AND ALLIED PRODUCTS	94.977	260.406	20.625	69.534	1,514.661	955.541	831.040
2	08	FRUIT AND NUTS	83.109	631.034	293.356	260.476	1,012.468	3,125.104	2,211.552
3	15	FATS, OILS AND WAXES	80.067	131.545	82.400	1,272.852	1,473.020	541.514	3,703.913
4	16	PREPARED MEAT OR FISH	18.233	66.927	110.304	84.003	72.151	213.874	256.815
5	22	BEVERAGES, SPIRITS AND VINEGAR	34.300	4.050	64.736	85.303	134.054	267.545	251.247
6	21	MISCELLANEOUS FOODS	0.000	34.600	0.000	89.203	40.300	6.096	16.534
7	14	VEGETABLE PLAITING MATERIAL (bamboo, rattan etc)	38.893	43.615	19.777	18.432	13.047	1.820	20.872
8	51	WOOL, ANIMAL HAIR AND WOVEN FABRIC	18.400	45.957	125.660	80.640	5.576	20.520	44.455
9	35	ALBUMINOIDAL SUBSTANCES, MODIFIED STARCHES, GLUES, ENZYMES	23.492	17.930	31.490	15.719	0.000	49.712	24.477
10	50	SILK	0.000	2.800	0.000	9.916	4.200	3.600	0.000

Source : Wits (Processed)

Tariff Indonesia to Potential Commodity Export Chile to Indonesia (1999 - 2007)

No	HS	Description	Tariff Chile (%)								
			1999	2000	2001	2002	2003	2004	2005	2006	2007
1	28	CHEMICALS AND ALLIED PRODUCTS	5	5	5	5	5	5	5	5	5
2	08	FRUIT AND NUTS	15,71	5	5	5	5	5	5	5	5
3	15	FATS, OILS AND WAXES	6,67	5	5	6,25	5	6,25	7,5	5	5
4	16	PREPARED MEAT OR FISH	20,83	5	5	5	5	5	5	5	5
5	22	BEVERAGES, SPIRITS AND VINEGAR	156,67	143,33	143,33	156,67	163,33	160	162	120	120
6	21	MISCELLANEOUS FOODS	5	5	5	5	5	26,29	5	22,26	22,26
7	14	VEGETABLE PLAITING MATERIAL (bamboo, rattan etc)	0	0	0	5	5	5	5	3,33	3,33
8	51	WOOL, ANIMAL HAIR AND WOVEN FABRIC	23,75	12,5	10	10	10	10	10	10	10
9	35	ALBUMINOIDAL SUBSTANCES, MODIFIED STARCHES, GLUES, ENZYMES	5	5	5	5	5	5	5	5	5
10	50	SILK	25	20	20	20	20	20	20	15	15

Annex IV

Estimation Result

PLS Result for Export Equation

Dependent Variable: LOG(IMP_CHL_INA?)

Method: Pooled Least Squares

Date: 11/06/09 Time: 15:50

Sample: 1999 2007

Included observations: 9

Number of cross-sections used: 10

Total panel (balanced) observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.296086	6.319668	0.679796	0.4985
LOG(GDP_CHL?)	-0.096392	1.648212	-0.058483	0.9535
LOG(RER_INA?)	2.744585	2.926064	0.937978	0.3509
TARIFF_CHL?	-0.992868	0.420504	-2.361139	0.0205
R-squared	0.101617	Mean dependent var		5.347003
Adjusted R-squared	0.070278	S.D. dependent var		2.534671
S.E. of regression	2.443982	Sum squared resid		513.6823
F-statistic	3.242526	Durbin-Watson stat		0.318248
Prob(F-statistic)	0.025926			

Fix Effect Result for Export Equation

Dependent Variable: LOG(IMP_CHL_INA?)

Method: Pooled Least Squares

Date: 11/06/09 Time: 15:50

Sample: 1999 2007

Included observations: 9

Number of cross-sections used: 10

Total panel (balanced) observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(GDP_CHL?)	0.524163	0.750371	0.698539	0.4869
LOG(RER_INA?)	0.698100	1.355823	0.514890	0.6081
TARIFF_CHL?	-0.625715	0.197481	-3.168475	0.0022
Fixed Effects				
_HS39-C	8.120657			
_HS48-C	9.917742			
_HS40-C	11.59721			
_HS29-C	9.105064			
_HS38-C	4.880326			
_HS32-C	5.881946			
_HS34-C	5.857823			
_HS17-C	5.209324			
_HS20-C	9.506479			
_HS18-C	6.821367			
R-squared	0.835725	Mean dependent var		5.347003
Adjusted R-squared	0.810123	S.D. dependent var		2.534671
S.E. of regression	1.104479	Sum squared resid		93.93022
F-statistic	32.64379	Durbin-Watson stat		1.573924
Prob(F-statistic)	0.000000			

Random Effect Result for Export Equation

Dependent Variable: LOG(IMP_CHL_INA?)

Method: GLS (Variance Components)

Date: 11/06/09 Time: 15:51

Sample: 1999 2007

Included observations: 9

Number of cross-sections used: 10

Total panel (balanced) observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.615971	2.974412	2.560496	0.0122
LOG(GDP_CHL?)	0.510664	0.741546	0.688648	0.4929
LOG(RER_INA?)	0.742617	1.339381	0.554448	0.5807
TARIFF_CHL?	-0.633701	0.195033	-3.249203	0.0017
Random Effects				
_HS39-C	0.421735			
_HS48-C	2.182564			
_HS40-C	3.828147			
_HS29-C	1.386282			
_HS38-C	-2.753220			
_HS32-C	-1.771808			
_HS34-C	-1.795445			
_HS17-C	-2.426512			
_HS20-C	1.779598			
_HS18-C	-0.851340			
GLS Transformed Regression				
R-squared	0.820757	Mean dependent var	5.347003	
Adjusted R-squared	0.814504	S.D. dependent var	2.534671	
S.E. of regression	1.091664	Sum squared resid	102.4888	
Durbin-Watson stat	1.444202			
Unweighted Statistics including Random Effects				
R-squared	0.835419	Mean dependent var	5.347003	
Adjusted R-squared	0.829678	S.D. dependent var	2.534671	
S.E. of regression	1.046060	Sum squared resid	94.10485	
Durbin-Watson stat	1.572868			

PLS Result for Import Equation

Dependent Variable: LOG(EKS_CHL_INA?)

Method: Pooled Least Squares

Date: 11/06/09 Time: 16:25

Sample: 1999 2007

Included observations: 9

Number of cross-sections used: 10

Total panel (unbalanced) observations: 83

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.138834	6.132827	1.000979	0.3199
LOG(GDP_INA?)	2.520848	2.296336	1.097770	0.2756
LOG(RER_INA?)	-1.080726	1.836674	-0.588415	0.5579
TARIFF_INA?	-0.001491	0.004809	-0.310086	0.7573
R-squared	0.047076	Mean dependent var		4.475831
Adjusted R-squared	0.010889	S.D. dependent var		1.938880
S.E. of regression	1.928295	Sum squared resid		293.7473
F-statistic	1.300913	Durbin-Watson stat		0.453830
Prob(F-statistic)	0.280038			

Fix Effect Result for Import Equation

Dependent Variable: LOG(EKS_CHL_INA?)

Method: Pooled Least Squares

Date: 11/06/09 Time: 16:26

Sample: 1999 2007

Included observations: 9

Number of cross-sections used: 10

Total panel (unbalanced) observations: 83

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(GDP_INA?)	2.833756	1.299632	2.180429	0.0326
LOG(RER_INA?)	-1.599410	1.041903	-1.535084	0.1293
TARIFF_INA?	-0.036200	0.018421	-1.965201	0.0534
Fixed Effects				
_HS28-C	9.125408			
_HS08-C	9.880404			
_HS15-C	9.592550			
_HS16-C	7.985265			
_HS22-C	12.88236			
_HS21-C	6.430000			
_HS14-C	6.039103			
_HS51-C	7.050758			
_HS35-C	6.450298			
_HS50-C	5.026871			
R-squared	0.731518	Mean dependent var		4.475831
Adjusted R-squared	0.685492	S.D. dependent var		1.938880
S.E. of regression	1.087343	Sum squared resid		82.76205
F-statistic	15.89374	Durbin-Watson stat		1.590416
Prob(F-statistic)	0.000000			