The Impact of Anti-Dumping Policy on Import Volume of Steel Product in Indonesia

Case Study of Anti-Dumping Policy on Cold Rolled Coil/Sheet (CRC/S)

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List of Acronyms

ADA	Anti-Dumping Agreement
AIC	Akaike Information Criterion
BIC	Bayesian Information Criterion
BPS	Badan Pusat Statistik/ Central Bureau of Statistics Indonesia
CRC/S	Cold Rolled Coil/Sheet
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
H-O	Heckscher-Ohlin
HS	Harmonized System
IMF	International Monetary Fund
KADI	Komite Anti-Dumping Indonesia/Committee of Anti-Dumping of Republic of Indonesia
MC	Marginal Cost
MFN	Most Favoured Nation
MR	Marginal Revenue
MP3EI	Acceleration and Expansion Indonesian Economic Development (MP3EI)
OECD	Organization for Economic Cooperation and Development
OLS	Ordinary Least Square
PRC	Peoples Republic of China
REM	Random Effect Model
USA	United Nations
WESP	World Economic Situation and Prospects
WSA	World Steel Association
WTO	World Trade Organization

Abstract

The present research study investigates the impact of anti-dumping policy on import volume of steel product in Indonesia specifically on Cold Rolled Coil/Sheet (CRC/S) using time series monthly data from January 2008 until March 2015. This study compare the impact of anti-dumping policy on two cluster countries namely 'named countries' as the country who become the subject of anti-dumping policy and 'non-named countries' who become non-subject of this policy. This research also employs two main research methods such as econometric method as well as descriptive analysis method. In addition, the variables namely duty, market share and dummy dumping period are the key variables to examine the trade restriction effect and trade diversion effect of anti-dumping policy.

Several empirical studies have addressed the impact of anti-dumping policy in developing country. However, this research focuses to investigate specific product in steel industry namely CRC/S which is the newest dumping case in Indonesia. The empirical result shows that anti-dumping policy has negative significance to the import volume of Cold Rolled Coil/Sheet (CRC/S) from 5 (five) 'named countries' namely Japan, China, South Korea, Taiwan and Vietnam, while it has found positive significance to the increase in the import volume from 'non-named countries'. The descriptive analysis method shows that both trade restriction effect as well as trade diversion effect proven from 'named' to 'non-named countries'.

Relevance to Development Studies

Anti-dumping policy has become the soul of international trade policy in the last few years. Almost all of the World Trade Organization (WTO) members have ratified this anti-dumping agreement since it formulated in 1994. At first, developed country become the active users of this policy interestingly developing countries become new active users of anti-dumping policy nowadays. In this trade liberalization era, governments become the shield to restrain the import flow from other countries in order to protect their domestic industry from 'unfair' trade as the negative side of the free trade. Although the literature concerning the impact of anti-dumping policy to developing countries still limited due to the limited data however this study will contribute to empirical literature on anti-dumping. This study put a concern to the trade restriction effect as well as trade diversion effect as the main impacts of anti-dumping policy in the context of Indonesian steel industry.

Keywords

Anti-dumping, restriction effect, trade diversion

Chapter 1: Introduction

"*Nowadays, many businessmen, while proclaiming their belief in free trade as a theoretical ideal, tell you at the same time that, as a matter of practical fact, free trade is a myth. Everybody is cheating.*" (The Economist, as cited in Marsh, 1998).

1.1 Background of the study

WTO (2015) data show that anti-dumping policy is a new trend of trade policy worldwide, however its effectiveness is still vague (Prusa, 2005). According to the Anti-dumping Agreement (1994)[1], dumping occurs when the price of a product sold in the market of an importing country is cheaper than that in an exporting country's market. If the importing country is able to prove that its domestic industry is being damaged by dumping, then an anti-dumping duty can be imposed on dumped goods from the exporter country. On the one hand, the proponents of anti-dumping such as Viner (1823), Deardorff (1989), and Marsh (1998) argue that anti-dumping is an efficient instrument to insulate domestic firms from discriminatory pricing behavior of foreign firms.

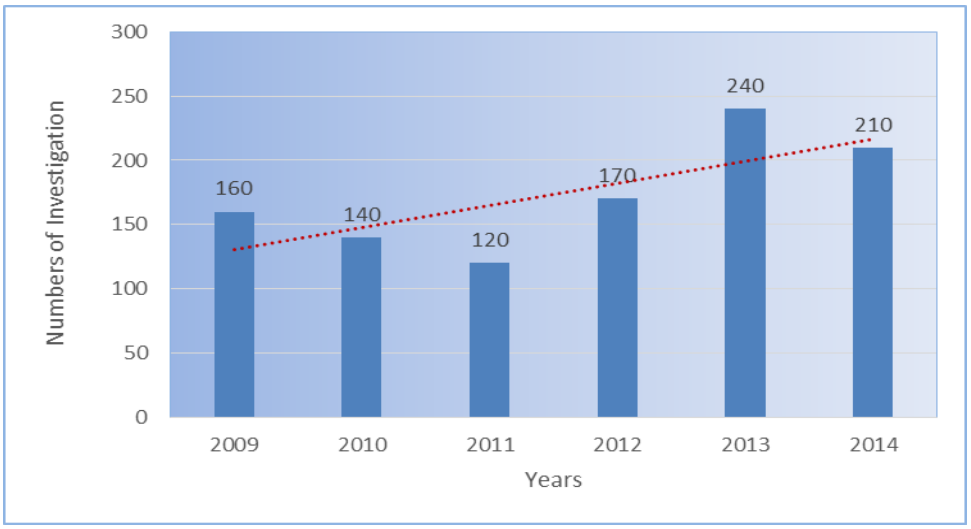
Moreover, Tharakan (1995) also argues that anti-dumping measures are more ideally suited to the economy than import quotas since the charges imposed on dumped goods will not lead to substantial increase in additional cost borne by consumers should the demand rise. Whereas in the import quota, it sticks supply of imported goods which exerts upward pressure on cost if there is an increase in demand. On the other hand, anti-dumping duties are deemed to have an adverse impact in the long run to the export-oriented domestic firms if the 'named' country decides to react. It also jeopardizes domestic economy since it escalates prices directly at the expense of domestic buyers (Klitgaard and Schiele, 1998).

Since Safeguard and Countervailing become more expensive and intricate to implement, anti-dumping's unique rules and ease to implement have encouraged many countries to use it the intent to elude them from 'unfair' trade (Tharakan 1995, Neufeld 2001, and Prusa 2011). WTO report data (2015) show that anti-dumping policy has become a new trend in International Trade

[1] Anti-Dumping Agreement (ADA) postulated under the Article VI GATT framework which provides the forth rules and the provision to impose anti-dumping duty.

especially for developing countries nowadays. From the inception of the anti-dumping agreement, developed countries have become the most active players in anti-dumping. Interestingly, in the recent years, developing countries tend to be an anti-dumping's active users (see Figure 1).

Figure 1.1: Anti-dumping Investigation Initiations by G-20 member (2009-mid-May 2014)



Source: WTO Secretariat as cited in Trade Report on G20, (Mid-October 2014 to Mid-May 2015), 2015, WTO

The graph above illustrates that anti-dumping cases initiated by developing countries increased rapidly and reached its peak in 2013 with almost 250 cases although there is a slightly decline in number of dumping investigation in 2014 by approximately 5 % to 210 cases. But the data however still show the increasing trend in 2013-2014 compared to 2010-2011 that only had 120 cases on average. In line with the trend, Indonesia also became an active player in anti-dumping with 114 cases of anti-dumping investigation initiations since Indonesian Anti-Dumping Committee (KADI) established in 1996 (KADI report,2015).[2] On the contrary, anti-dumping cases which initiated by developed countries only accounted almost 40% from the whole anti-dumping cases globally (WTO report, 2014).

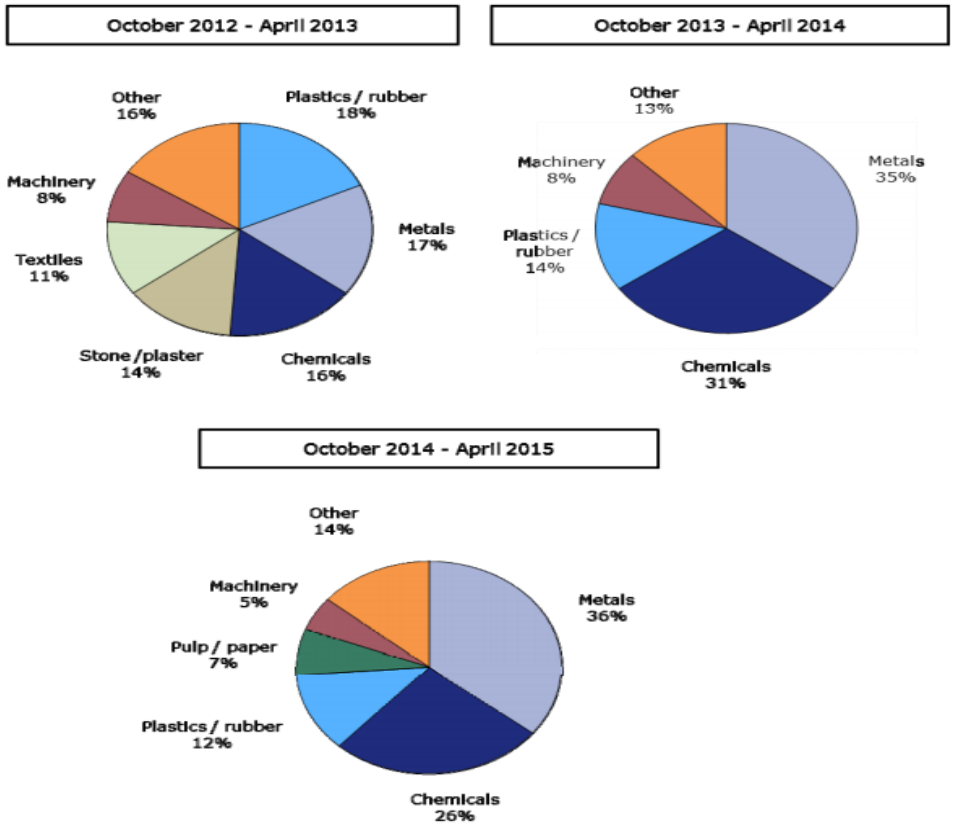
The increasing number of anti-dumping cases in developing countries particularly in Indonesia is motivated by the trend of trade deficit that occurs

[2] Indonesian Anti-Dumping Committee (KADI) is body which obliged to disseminate the rules and regulations from Anti-dumping agreement (WTO, 1994) which has been ratified by Government Regulation No 34/1996.

in the recent years. Central Bureau of Statistics of Republic Indonesia (2014) concludes that the trend of imports volume for 2000-2014 rice dramatically approximately 18% per year, outstripping the export trend that only shares 11.3% per year for the same period. Additionally, in 2013 Indonesia's trade deficit reached its highest score at 4.1 billion US$. This trend of high trade deficit was the first time for Indonesia since 1968 (IMF, 2014). In order to maintain the import value and import volume from foreign market as well as to protect domestic market, Indonesia then focuses on trade protectionism policies to prevent the country from 'unfair' trade. One of the policies is the imposition of the anti-dumping policy in Steel industry specifically on cold Rolled Coil/Sheet (CRC/S) product in Indonesia.

Figure 1.2

Anti-dumping Initiations by Product



Source: WTO Secretariat as cited Trade Report on G20, 2015, WTO

Based on figure 1.2 above, metal/steel products became the most products that suffered the impact of dumping actions in all regions in the world. In period 2013-2014 metal products experienced an increase in Anti-dumping

Petition approximately by almost 10% contrast to petitions in 2012-2013. Furthermore, In 2014, metal products shared 35% and increase slightly 1% in 2015 by 36% as the biggest product of anti-dumping petition followed by chemical and plastic products which accounted by 25% and 18% on average (WTO trade report, 2015). Based on the data, metal products specifically steel product has become the main target of the anti-dumping policy globally. One of the steel product which has the crucial role as a raw material is Cold Rolled Cold/Sheet (CRC/S). For Indonesia as a developing country, it is quite obvious that steel industry has played an essential role as driving force of economic performance through its primary function as raw materials producers for physical infrastructure development.

The impact of anti-dumping policy literature in developing country still relatively limited (Ganguli, 2008). Accordingly, this study explores the gap of knowledge by analyzing several impacts of this policy with two methods on specific product in steel industry. The author will focuses on steel product specifically Cold Rolled Coil/Sheet product due to its function as the largest raw material that is used for manufacture, automotive, as well as coating in Indonesia (Krakatau Steel Report, 2014). Moreover, anti-dumping in Cold Rolled Coil/Sheet (CRC/S) also is the newest dumping case in steel product in Indonesia since Indonesia implemented the Anti-dumping Agreement (ADA) in 1996 (KADI report, 2015). Therefore, this study will focuses to investigate the impact of the anti-dumping policy on the import volume of *Cold Rolled Coil (CRC/S)* product with *Harmonized System* (HS) Code No. 7209189900 that comes from 'Named' and 'Non-named countries'[3].

[3] The terms 'named countries' and Non-'named countries' firstly introduced by Stagemann (1990) and followed by many authors such as Leidy (1996), Prusa (1999), Lasagni (2000), Bown and Crowley (2001) and many other authors who conducted research about anti-dumping. Furthermore, based on anti-dumping journals mentioned previously, the terms 'named countries' refer to countries who become the subject/targeted of the anti-dumping policy. Meanwhile, 'Non-named countries' refer to the countries who not become the subject/targeted of anti-dumping policy. This terms later used widely to become the specific parlance to explain about targeted countries ('named countries') and non-targeted countries (non-'named countries') in anti-dumping literature.

1.2 Statement of The problem

The desirability of levying anti-dumping duties to counter dumping practices has been at the heart of international trade discourses for nearly a century since Viner (1923) suggested that dumping was a 'problem in International Trade'. Furthermore, the investigation will focus on the case of anti-dumping in metal product especially in steel industry in Indonesia. In 2011, Indonesia's biggest steel company, Krakatau Steel Company, claimed that they had suffered because the introduction of cheaper imported steel on product Cold Rolled Coil/Sheet (CRC/S) into the domestic market (KADI report, 2011). In May 2011, Krakatau Steel Company sent the petition for investigation concerning allegation of dumping actions on Cold Rolled Coil/Sheet (CRC/S) with *Harmonized System* (HS) Code No. 7209189900 that came from China, Japan, Korea, Taiwan and Vietnam as countries who became the subjects of the anti-dumping policy ('named countries') to the Indonesian Anti-Dumping Committee (KADI Report, 2011). The investigation for this case started in June 2011 and ended in February 2013. This research will focus to investigate the trade impact of anti-dumping duty for this Cold Rolled Cold/Sheet product from January 2008 until March 2015 (monthly data set) and will compare the results of the import volume from 'named countries' with the import volume flow from 'Non-named countries' for this product to know precisely the effectiveness of the anti-dumping policy for Cold Rolled Coil/Sheet (CRC/S) in Indonesia.

1.3 Relevance and Justification

The positive trend of developing countries as an active users of anti-dumping policy evokes some questions whether this rapid use of anti-dumping policy is in line with the positive implication to rise welfare for developing countries in terms of gain from trade. Prusa (2001) argues that anti-dumping has breathtaking effects on trade, supporting Viner's (1923) argument stating that dumping is the 'trouble in International trade'. Hence, investigating the anti-dumping action on steel industry in Indonesia will not only present a vivid picture of the correlation between the anti-dumping measures and trade flow, but also give an empirical rational that fits the recent trend and condition for developing countries' anti-dumping policy-making in the future. It is important

to give the policy implication about the effectiveness of the anti-dumping policy in steel industry in Indonesia.

1.4 Objective of the Study and Research Question

The nexus of anti-dumping policy and import volume is tricky and unpredictable. Niels (2013), Lasagni (2000) and Konings et al. (2001) find strong restricted effects from anti-dumping duty on import volume. On the other hand, Brenton (2001) and Prusa (1999) do not find significant restricted effects from anti-dumping policy on import volume. This study aims to contribute to the trade literature by investigating the impacts of anti-dumping duty on import volume of Cold Rolled Coil/Sheet (CRC/S) with HS (Harmonized System) code no 7209189000. The impacts of anti-dumping duty that we want to investigate consist of:

1) The investigation effect which is the precise effect of anti-dumping duty from the period when the investigation started until there was the final affirmative decision for five countries who became the subjects of anti-dumping ('named countries') for Cold Rolled Coil (CRC/S) product. This investigation period started in June 2011 and ended in February 2013. The investigation effect will examine the impact of anti-dumping policy on import volume when investigation period started. Moreover, this impact also capture the change of import volume trend when investigation period started in January 2008.
2) The restricted effect, which can be captured in the first period and the second period of the imposition of dumping duty that started from March 2013 until March 2015.
3) The trade diversion effect from countries who became the subjects of the anti-dumping policy ('named countries') to non-subjects of the anti-dumping policy (non-'named countries'). From the trade diversion effect we can analyze whether the restricted effect can result in increasing import volume for non-'named countries' after the duty levied.

From the objectives of this study, the research questions are defined as follows:

Research Questions

1. What is the impact of anti-dumping duty on import volume of Cold Rolled Coil/Sheet (CRC/S) from 'named countries'?
2. Are there any trade diversion effects from the anti-dumping policy in Indonesia for product Cold Rolled Coil/Sheet (CRC.S)? Who benefits from this more, domestic firms or the non-'named countries'?

1.1 Organization of the paper

This research paper is organized as follows:
Chapter 2 provides the brief overview and the ground theories of dumping and anti-dumping in International trade literature, the evolution of anti-dumping agreement and discusses previous research conducted by many authors who analyzed the effects of anti-dumping policy. In chapter 3 we will provides a general overview about steel industry in Indonesia to get vivid insights about both the domestic steel market as well as world steel market. In addition, this chapter also will examines the role of Committee of Anti-Dumping Indonesia (KADI).

Moreover, chapter 4 explains the methodology being used in this research, the model specification and the measurement applied to construct the model estimation. Chapter 5 directly discusses the estimation result, the descriptive analysis and the findings. In this chapter we will compare the results between 'named countries' and 'non-named countries' to obtain a clear picture of the effectiveness of the anti-dumping policy in Steel industry in Indonesia. Finally, chapter 6 provides the conclusion and some policy implications of this research paper.

Chapter 2: Conceptual Framework and Literature Review

2.1 Analytical Framework Dumping in International Trade

2.1.1 International Trade

International trade has been treated as a loophole to boost economic performance since Smith (1776) in his book '*The Wealth of Nations*' acquainted the eminent term '*invisible-unseen hand*' which refers to the creation of free market. Trade in days of yore started with a traditional way such as exchanging goods, but as time goes by trade becomes an indispensable activity which affects not only the economy of one country but also the global economy. Moreover, some authors conclude several main points concerning the importance of International trade in the global economy. The first point is that International trade would broaden and would enlarge market product (Krugman and Obstfeld, 2003). Hereinafter, International trade also becomes the preeminent income for every country mainly developing countries because it would expand the production; nevertheless, it would become more efficient if every country has its own specialization in goods and services that it produces (Salvatore, 2001).

In International trade framework there are several views about the fundamental trade theories. Initially, Adam Smith first came out with his reliant ideas about the nerve centre of trade namely the 'absolute advantage' that emphasises on how one country produces goods facilely and efficiently compared to other countries (Salvatore, 2001). For example, if Indonesia can produce coffee and tea more efficiently compared to Malaysia both from the natural resource and the labour factors, it means that Indonesia leads on 'absolute advantage' compared to Malaysia in producing coffee and tea. As a consequence, Indonesia will become a country that specializes in producing coffee and tea. A few years later, Ricardo (1817) showed up with his criticism to the 'absolute advantage' theory by introducing a new concept of international trade theory which put an attention on 'opportunity cost'. It means that a country will decide to import coffee, for example, if the cost to

establish the company to produce coffee is higher than to import it from another country.

Subsequently, an influential theory was introduced based on Ricardian model namely '*Heckscher-Ohlin* (H-O)' theorem (Golub and Hsieh, 2000). This theory was developed by teacher-student from Stockholm School of Economics, Eli Heckscher and Bertil Gotthard Ohlin, who affirm that a country who rich in capital will export the goods with capital intensive meanwhile a country bountiful in labour resource and endowment will focus to export labour oriented products or goods to other countries (Helpman, 1981). Although these theorems have become the bases of international trade framework, they still attract many critiques. The first point is concerning its accuracy when faced the fact that many countries who lead in capital still have to import capital-oriented goods. Next critique is about the excluding of unemployment factor and the assumption stating that all countries have the same production function or homogeneous whereas it cannot applicable to all countries which have various and different resources. And the last is the assumption which gives less focus on the analyses of the least developed countries in International Trade groundwork (Stewart, 1989).[4]

2.1.2 Dumping and Import Volume in International Trade Framework

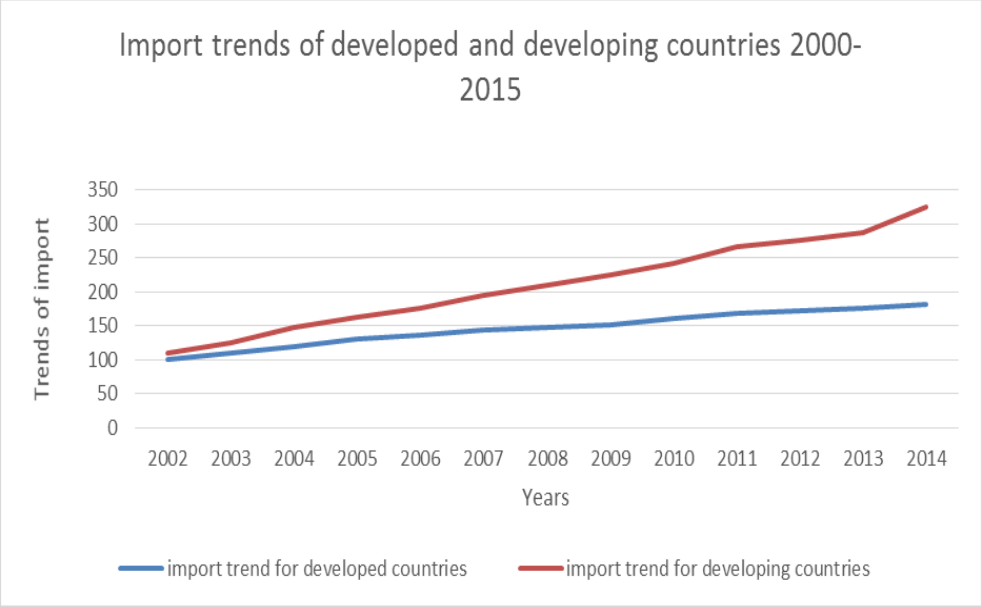
Exportation and Importation are the core activities in International trade. With the spirit of free trade, the World Trade Organization (WTO) tries to postulate the regulation in order to implement the trade liberalization through the eradication of trade barriers. The phenomenon of trade liberalization is like the two sides of a coin: on the one side, many countries experience the increase in their economic performance because their export rises dramatically due to the removal of trade barriers. But on the other side, this trade liberalization also has negative impacts on the balance of trade from many countries because it will inflict a financial loss for certain sectors. In this free trade era, governments become the shield to withstand the import flow from other

[4] The critiques to Heckscher-Ohlin model become the push factor of the inception of the alternative trade theories namely New Trade Theory, New New Trade Theory, Gravity Model, and Ricardian Theory.

countries in essence to protect their domestic industry or domestic market from 'unfair' trade as the negative side of trade liberalization.

According to WTO data in the World Economic Situation and Prospects (WESP) 2014, it may be concluded that the global trade will rise by degrees. While the trend of import volume in developed countries increases slightly, the trend of import volume from developing countries rises dramatically heretofore, and is expected to keep rising (see Figure 3). The graph also describes different trend of economic performance between developed and developing countries. To conclude, it is evident that developing countries still rely on imported goods from developed countries to fulfil their needs.

Figure 2.1



Source: World Economic Situation and Prospects, United Nations, 2014

Based on the data of the trend of import volume in developing countries that increases gradually, it triggers awareness of many countries especially the developing countries to put a halt to import flow from exporter countries in the form of protectionism. Various methods in terms of protectionism policies can be classified such as subsidy, impose tariff, quota, safeguard, countervailing and anti-dumping duty (WTO, 1994). Departing from the evidence from many countries showing that safeguard and countervailing are more difficult and more expensive to implement, anti-dumping policy now becomes the most popular protectionism instrument in the world with almost 100% countries in

the world has employed the anti-dumping law (Aggarwal, 2002). As a result, in the recent years the number of anti-dumping investigations has increased impressively.

From the table below (see Figure 4) it may be concluded that anti-dumping investigations conducted by the G-20 members increase gradually year by year. The table shows the number of anti-dumping investigations divided into three (3) clusters: the first cluster is the period of anti-dumping investigations from 1st October 2012 until 30th April 2013, the second cluster is from 1st October 2013 until 30th April 2014, and the last cluster is from 1st October 2014 until 30th April 2015. In the second and third periods of anti-dumping investigations, the data show that the number of investigations increased and reached its peak in period 2013-2014 with 118 cases and slightly decreased in period 2014-2015 by 115 cases, contrary to the number of anti-dumping investigations in period 2012-2013 that only had 88 cases.

Table 2.1

Number of Anti-Dumping Investigation

G-20 Member	1 October 2012 – 30 April 2013	1 October 2013 – 30 April 2014	1 October 2014 – 30 April 2015[a]
Argentina	14	4	5
Australia	5	15	12
Brazil	18	35	10
Canada	5	-	1
China	4	2	3
European Union	4	2	6
India	15	15	28
Indonesia	-	-	6
Japan	-	1	-
Korea, Rep. of	4	6	2
Mexico	4	2	10
Russian Federation	-	4	2
South Africa	3	5	-
Turkey	9	4	16
United States	3	23	14
Total	**88**	**118**	**115**

Source: WTO Secretariat, June 2015

Despite the fact of breathtaking increases of anti-dumping investigations especially in developing countries, there are many contradicting views among scholars concerning the effectiveness of the anti-dumping policy to prevent 'unfair' trade. Some scholars deem that the anti-dumping policy is not an effective tool to protect domestic industry due to its obscure definition

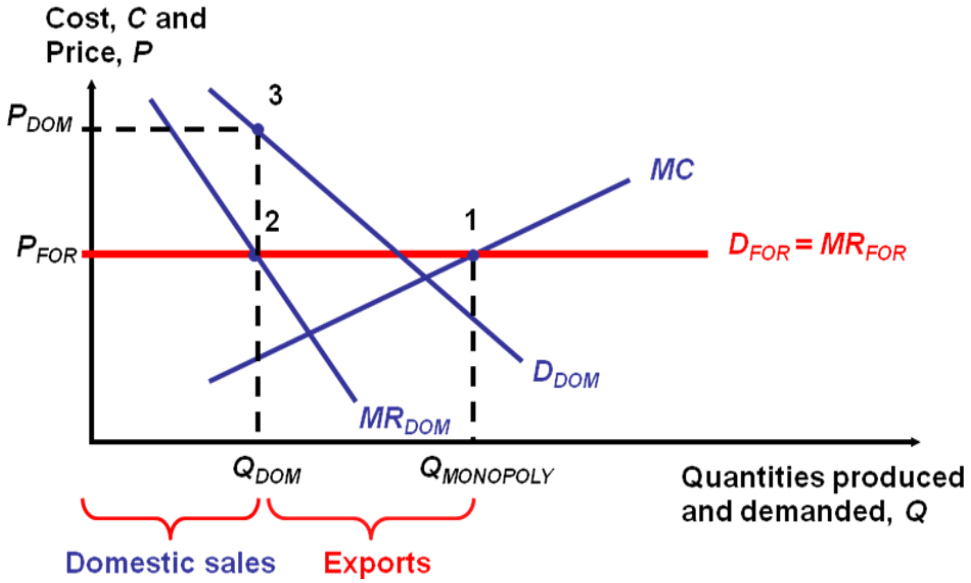
regarding the term 'dumping' in the Anti-dumping Agreement which can be interpreted in various different meanings in every country (Tharakan, 2001).

2.2 Understanding Dumping

Dumping action become the most prevalent issue in International trade discourse since it can cause substantial losses to domestic industry. Dumping is one of the forms of 'price discrimination' and 'pricing' strategy conducted by importers to gain market power (Gifford et al, 2009). Krugmann and Obstefeld (2006) argue that dumping is regarded as 'unfair' practice in International trade, thus it has become a controversial discourse in International trade framework due to its effectiveness and ambiguity in its meaning. Moreover, anti-dumping policy as 'price discrimination' practice can only occur in two specific circumstances namely imperfect market and segmented market (Krugmann and Obstefeld, 2006).

Figure 2.2

Dumping



Source: Krugman and Obstefeld (2006)

From the figure above, we can see that in order to escalate profit then the company has to set 'Marginal Revenue' (MR) equal to 'Marginal Cost' (MC). When selling in the foreign market it has to keep in the constant price P_{FOR}, thus marginal revenue for each additional unit is P_{FOR}. Furthermore, Krugman

and Obstefeld (2006) state that in order to gain the higher profit (MR=MC), the total output that must be taken out is $Q_{MONOPOLY}$. The production cost from one additional unit of output is P_{FOR} which is a marginal acceptance from export (MP_{FOR}) that eventually will be equal with the marginal acceptance obtained from domestic sales activities (Krugmann and Obstefeld, 2006).

2.2.1. The History of Anti-Dumping Agreement

Viner (1921) affirms that the anti-dumping rule is formerly derived from competition law perspective. Then, Canada came as the first country who applied the provision of anti-dumping apart from the competition law code in 1904 (Ciuriak, 2005). Ciuriak, 2005 adds that Canada's first case in anti-dumping is the case in steel industry against Unites State of America's (USA) firm. Nelson and Hylke (2005) assert that the definition of dumping in that time is the "*situation where the exporter's home price is higher than the price charged by the exporter in the importing countr*". The main difference between the concepts of anti-dumping provision previously and now is that dumping was previously solely defined as a price difference. Canada's anti-dumping rule did not include the analysis of market behavior in their investigation stage, and they had the tendency to give fines as a punishment for violations of the anti-dumping rule (Ciuriak, 2005). Later on, South Africa (1914), Australia (1906), New Zealand (1905), England (1921) and United State of America (USA) followed Canada to agree to the term '*exchange dumping*' (Aggarwal, 2003). Aggarwal (2003) affirms that anti-dumping provision was regulated for the first time in 1947, beforehand it was not in practice in any international states.

Table 2.2

The Evolution of Anti-dumping Agreement

No	Period	The History
1.	1947	The first round of negotiation of GATT that took place in Havana Cuba. Several countries didn't agree with the plan to including the article concerning the imposition of anti-dumping duty in GATT framework because

		they believed it may become new boundary to free trade.
2.	1967	The Kennedy Round. In this round, all the members focus to formulate new instrument to lowering tariff. Anti-dumping agreement start to formulated in this round. Anti-dumping agreement signed by 17 countries in this round.
3.	1979	The Tokyo Round. In this round all the members agree to concentrate to diminish the tariff. Developed country criticized because they become the most active petition in anti-dumping in which developing country become the single target of this policy to protect domestic market of developed country. During this round, Anti-dumping agreement revised for the first time to diminish the ambiguity of the dumping's definition and add many fundamental clause (united Nations, 2006).
4.	1994	The Uruguay Round. In this Round, Anti-dumping Agreement become the main issue due to its controversy. Developing country start become an active petition in anti-dumping investigation. Almost all members of WTO has ratified anti-dumping agreement.
5.	2001	The Doha Round. This round become the latest trade round in WTO framework. To boost the economic performance especially for developing country then anti-dumping code become the main agenda in this round. Notwithstanding the spirit to amendment the agreement was extremely immense but its end

		up with unsatisfactory result for some members. Broadening its scope on anti-dumping authorities is not the appropriate egress to ameliorate the basis concept of anti-dumping rule, provision and objective (see Hindley, 2008).

Source: WTO Agreement on Anti-Dumping, United Nations (2006)

2.2.2. Dumping in WTO Framework

According to Article VI of GATT (General Agreement on Tariffs and Trade), every country can take actions to prevent domestic 'injury' from dumping action taken by other countries. When dumping action brings harm to the industry and market by the importer's action, the affected country can initiate an investigation for maximum of 2 years and impose anti-dumping duties to restrict the import of relevant products (Anti-dumping Agreement, 1994). The trend of the dumping as the new trade protectionism spreads dramatically all over the world. Taken from Article VI of General Agreement of Tariff and Trade (GATT), dumping is literally quoted as:

"…*by which products of one country are introduced into the commerce of another country at less than the normal value of the products, is to be condemned if it causes or threatens material 'injury' to an established industry in the territory of a contracting party or materially retards the establishment of a domestic industry".* (GATT, 1994)

Based on the Anti-dumping Agreement, dumping should have several significant characteristics. Dumping is considered as the behavior of selling products at the price 'less than the normal value'. The action is categorized as 'dumping' if it lead to substantial harm or threat of substantial damage to the relevant industries in the importing countries (Lee et al, 2013). Furthermore, according to GATT Agreement (1994), dumping criteria which are prohibited by the WTO are the dumping by countries that adheres the following requirements:

1) There must be a dumping measure LTFV (*less than fair value*)[5].
2) There must be a material loss in the importing country.
3) A causal link between dumping prices with losses exists.
4) In the event of dumping is less than fair value but not causing any harm, then the dumping is not prohibited.

Moreover, According to the Anti-Dumping Agreement (United Nation, 1994), there are several main points to determine that the 'injury' caused by dumping action occurs. The first point is that there is a decline in domestic sales, lowering the domestic firm's profit, declining the firm's production output and a decrease in the rate of return of investment rate. The next point is that there is an interference or pressure on the prices of goods in domestic country, an increase in inventory, a decrease in employee salary. The last point is concerning the existence of a causal relationship between the importers who does the less than fair trade value with the losses. The determination of 'material 'injury'' is the vital process to calculate the anti-dumping duty. It determined based on the domestic industry 'injury' calculation, 'injury' margin, and the facts as well as the findings about the causal link between dumping action and domestic 'injury'.

The term "*less than its normal value*" become the focus analysis since it is the main criteria to impose anti-dumping duty. In the Article VI GATT the improvement has already been formed by Article 2 concerning the implementation of article VI of GATT, which is explained as follow:

> *"For the purpose of this agreement, a product is to be considered as being dumped, i.e. introduced into the commerce of another country at less than its normal value, if the export price of the product exported from one country to another is less than the comparable price, in the ordinary course of trade, for the like product when destined for consumption in the exporting country".*

Aside from the trade agreement code, the term of dumping is also explained in the dictionary of economic law; dumping can be defined as an action when a

[5] *Less Than Fair Value* is the measurement of dumping action required to fulfill in order to impose anti-dumping duty based on Anti-Dumping Agreement (WTO, 1994).

producer sells goods on a large scale with a lower price than the price in the seller's domestic country in order to broaden their market share. Basically, the hardest part in the anti-dumping agreement is when the anti-dumping authority has to verify and authenticate whether the action of selling goods at a lower price gives 'injury' to domestic industry and is considered as one of the criteria to impose the anti-dumping duty. Consequently, the investigation stage is crucial as the first gate to start the anti-dumping procedure.

2.3. The Impact of Anti-Dumping Policy to Importer Country and Exporter Country

According to Marceau as cited in Syahyu (2004), the effect of anti-dumping policy can be divided into two standpoints namely from the side of the importing country and from the side of the exporter country.

1. The impact of anti-dumping policy for Importer country

    a. The impact of anti-dumping policy in the importing country may be seen from several points of view. The first point is from the production level which can be regarded as the output level. This production level describes the total output of the circumstances under price discrimination which may be larger than that in the country under a single monopoly price. Nevertheless, the fact tells that if every buyer is willing to pay based on the demand curve, the total output will have the same tendency with the output from the competitive situation in industry. Therefore, for the importer country the price discrimination in international trade tends to decrease the production output which comes from their domestic rival producer.

    b. The second point is from the income distribution. On the one side, a local competitor who is also a producer of similar goods could lose profits due to this anti-dumping practice. Therefore, the shareholders will lose some dividends and some workers also will lose their job for a while. On the other side, goods will be lower than before, thus it will be beneficial for consumers. In

International Trade discourse, basically dumping action seems favorable for the downstream industry in the importing country. When the producer sells an imported product with a lower price, generally in the form of raw material, it will increase the profit for the domestic industry who uses it.

2. The Impact of Anti-Dumping Policy for Exporter Country

Recalling Syahyu (2004) who declares that in the pattern of International price discrimination, the less elastic market is very rigid. Generally, the inelastic market tends to impose higher price for domestic consumers. On the other hand, by expanding the export market opportunities, the price discrimination in the form of dumping would benefit the consumers in the country who allows for low production costs. It also would increase the investment to the higher level for the new products, and increase the production capacity that can raise the welfare of the consumers. As a consequence, there will be restrictions on the domestic selling on those products. In addition, there will be a tendency concerning the market closing from the exporter country against similar products from foreign countries, especially if there is subsidization for those dumping products (Syahyu, 2004).

2.4. The Forms of Dumping

Pugel (2007) states that dumping can be defined by two main points. Firstly, dumping is when sellers export goods at very low prices below the normal price in their domestic market, and secondly, dumping can be considered as selling at the price below the 'average costs' (AC) of production. In practice, however, dumping as price discrimination is usually regarded as the corporate business strategy for the purpose of maximizing profit and creating market power in foreign countries (Krugman and Obstefeld, 2006). Moreover, Wilig (1998) as cited in Tavares (2001) states that dumping can be categorized into 5 (five) types, namely:

1. Market expansion dumping. For this type of dumping, the objective from the company is to maximize the profit by marking up the price due to the higher elasticity of demand. This type of dumping does not create any 'injury' because it is considered as common practice in International trade;
2. Cyclical dumping. The motive from this type of dumping arises from the marginal cost which is low or unclear. This happens only because of an unintentional consequence of the low costs but it is only temporary, so it will not result in losses to the industry of similar goods from the export destination countries;
3. State Trading Dumping. This type of dumping does not create "injury" losses to the industry of similar goods from the export destination countries because it is only temporary.
4. Strategic dumping. This type of dumping happens when companies cut export prices and there are restrictions on the entry of the same products to the exporting country. Dumping of this kind can result in losses to the similar goods industry in the export destination country because it would create 'unfair' competition. Nevertheless, the losses that are suffered by the company's competitors in the export destination countries are usually still on a small scale.
5. Predatory Dumping. The term of predatory dumping refers to the exports with a lower price with the motive of getting rid of the rivals with the same product. The worst result from this type of dumping is the collapse of the companies that produce similar goods. The losses that are suffered by the company's competitors in the export destination countries are very significant.

Definition of dumping is also considered when a countries trading a product below the 'normal value' (Sukarmi, 2002: 27):

1) The price of a similar product in the domestic market. In this case the price comparison (comparable price) should be based on the calculation of the 'ex-factory' price (the price outside the factory) from domestic sales with the calculation of the factory price of export sales (Van Marion, 2013).

2) If there is no price in the importing country can be compared to in the exporting country, then the normal price is exclude from factory price which derived from the calculation of the price of similar products in the country which exports to a third country.
3) The cost of production in the country of origin plus administrative costs, marketing costs and normal profit are to use a definition number price of a similar product.

2.5 Previous Studies

The statement that 'dumping is a problem in International trade' argued by Viner (1923) has become the heart of our discussion. In accordance with this, Neufeld (2001) claims that anti-dumping is the appropriate tool to diminish the negative impact of the open economy system. In other words, anti-dumping provision is essential to create fair trade in this competitive industry era. In the recent years, our global focus has been shifted to developing countries as the most active members of anti-dumping petitions in recent years. It is contrast with the initial period when anti-dumping agreement postulated in 1994 where developed countries dominated as an active users while developing countries became the main target. Bown (2008) adds that in period 1995-2004 developed countries just shared around 30% cases from all anti-dumping cases worldwide compare to developing countries who became active user of anti-dumping policy.

Considering the phenomenon of the rapid growth of anti-dumping users in developing countries, it is essential to examine what the trade impact of anti-dumping policy is in those countries. Ganguli (2008) asserts that the import volume plummet approximately 50% (percent) in line with the start of the investigation process of an anti-dumping case on Steel industry in India. In other words, the investigation period is effective to give the shock effect to named country. In line with the previous findings, Vandenbussche and Zanardi (2010) conclude that decreasing import volumes will become the main effect when an investigation of anti-dumping is started. Hence, this study will explore and examine the investigation effect to know whether the investigation period will have an effect on lowering import volume.

Moreover, in addition to investigation effect, Prusa (1996) and Malhotra et al. (2008) identify that the impact of anti-dumping duty can be categorized into two standpoints namely trade restrictions (trade restriction effect) and the effect of the transfer trade (trade diversion effect). Prusa (1996) uses the data of anti-dumping in United States of America (USA) to examine the effectiveness of the impact of anti-dumping protection by using the panel data of 1978-1993 period. The analysis result shows evidence that the larger the anti-dumping tariffs are imposed, the larger the trade diversion is. Due to the magnitude of the trade diversion effect, the study gives an indication that the anti-dumping tariffs have the effect of restriction trade smaller than what is alleged by the domestic industry (Prusa, 1996). Similar with the previous result, Konings et al. (2001) who use the data of anti-dumping in European Union (EU) also found trade diversion effect for 'non-named countries' but less the trade diversion in United Stated of America (USA) that conducted by Prusa (1996). Although have the same objective but the different result exist due to the different market condition and the "*lack of transparency*" of market system in European Union (see Konings, 2001).

Unlike the previous research about the use of anti-dumping cases that took place in developed countries, Ganguli (2008) conducted an empirical study about the impact of anti-dumping in India as one of the most active countries in the petition of anti-dumping in Asia after China. The data used are the Indian case of anti-dumping in period 1992-2002 by using data aggregation HS 6-digit. The study shows that the impact of anti-dumping restrictions is significant. Trade diversion to the country which is not subjected to anti-dumping indeed reduces profits for Indian domestic industry, but the overall impact of the anti-dumping policy helps in controlling imports. Moreover, Lee et al. (2013) analyzed empirically the impact of US anti-dumping against Peoples Republic of China (PRC). The results show that the effects of trade restrictions and trade diversion exist. The effect of trade restrictions occurred only in a short term and the investigation process helped reduce US imports from China sharply. In addition, the US anti-dumping measures stood against China instead of the opportunities for the entry of goods imported from other countries except China.

Interestingly, Mendieta (2004) examined the comparison effects for named and 'non-named countries' to find whether the trade destruction and trade diversion of anti-dumping existed in Mexico. He found that the anti-dumping duty from the 'named country' was successful in lowering the import volume. On the contrary, for the 'non-named country' the duty was fruitful in increasing their import volume to Indonesia instead. Thus, if the import volume from the non-named country increases in line with the lowering import from the named country, it can be interpreted that the anti-dumping duty is ineffective to withstand the import volume (Mandieta, 2004). In addition, Bown and Crowley (2004) found that in Japan, both trade destruction and trade diversion happened. In other words, anti-dumping has a dramatically impact on trade through its influence to determine the trade flow. Different results also exist between Niels (2013), Lasagni (2000), Konings et al. (2001) who found strong restricted effects from anti-dumping duty on import volume with Brenton (2001) and Prusa (1999) who did not find strong restricted effects from anti-dumping policy on import volume in the USA. They claim the differences occurs due to the different characteristics in the industry that they investigated, which is not the main industry with a big market share.

In Indonesia, the newest research concerning anti-dumping policy was conducted by Alhayat (2014) who investigated the effectiveness of the anti-dumping action in Indonesia for period 1996 until 2010. The focus of this study was to examine two standpoints of the effects of the anti-dumping policy which were differentiated into trade restriction effect and trade diversion effect. With the combination of two methods such as the econometric method and the analysis statistic descriptive he found that the anti-dumping policy in Indonesia was not effective to withstand the import volume from the countries who were the subjects of the anti-dumping policy although there was a decrease in the import volume though slightly; hence, it was not quite significant to protect the domestic industry in Indonesia. At the end, Hindley and Messerlin (1996) conclude that literature which discusses the impact of anti-dumping on trade in developing countries is limited. They state that although the discussion about dumping is an important issue in international trade literature, unfortunately literature on this topic is still limited due to the lack of data presented (Messerlin, 1996).

This research will try to fill the gap about the impact of anti-dumping duty on volume import Cold Rolled Coil/ Sheet (CRC/S) by using monthly data sets to capture the vivid picture about the dynamic movement of the import volume more precisely. The empirical evidence that compare between import volumes from 'named countries' as well as from 'non-named countries' relatively scarce notably in Indonesia. The selection of this product is because the dumping case on Cold Rolled Coil/Sheet (CRC/S) is the newest dumping case in Indonesia since the Indonesian Anti-Dumping Committee was established in 1996. Moreover, in this study the author also tries to combine two methods namely the econometric statistic method and the analysis descriptive method. On the one hand, the econometric method can be regarded as the tool to forecast the significance of the variables and the correlation among variables based on the model that we constructed (Reiss, 2007). On the other hand, the descriptive analysis method will help to visualize clearly the behavior as well as the change of the import volume patterns both from the named and non-'named countries' (Lankford, et al, 2002). In previous studies, commonly the researchers only focused to investigate the impacts of anti-dumping duty on import volume from 'named countries'. However, in this study the author examines not only 'named countries' but also 'non-named countries' to investigate the trade diversion effect accurately.

Table 2.3

Previous Research

No	Authors	Research Title	Year	Empirical Evidence and Research Technique
1	Corinne Krupp and Patricia S Pollard	Market Responses to Antidumping Laws: Some Evidence from the US Chemical Industry	1996	trade diversion effect that favored non-'named countries' in about 50% from all cases anti-dumping that occurs in period 1976-1988 in US
2	T Llyod, O Morrissey and G	Estimating the impact of anti-dumping and anti-cartel actions using	1998	Plot the model with monthly data for the period 12 years they Use

	Reed	intervention analysis		intervention analysis approach to investigate the impact of anti-dumping duty on polypropylene film imports and price from on 1982 in European Union. Trade diversion effect to non-named country not proven but the import and price decreased significantly.
3	Thomas J Prusa	On the Spread and Impact of Antidumping'	1999	used Pooled Regression to investigate 3 period of time namely two year before initiation, the year of initiation, and six years after initiation
4	Lasagni	Does Country Targeted Antidumping Policy by the EU Create Trade Diversion?'	2000	Anti-dumping proved create trade diversion effect to non-named country in European Union in period 1982-1992
5	Chad P Bown and M.A Crowley	Policy externalities: how US antidumping affects Japanese exports to the EU.	2001	trade destruction and trade diversion proven in Japan
6	Josef Konings	Import Diversion under European Antidumping Policy'	2001	With compare the value, volume and price of imports from both named and non-named country he conclude that import trade diversion can be seen as an

				indication of the effectiveness of antidumping policy
7	Gunnar Niels	Diversion and Destruction Effects of Antidumping Policy :Empirical Evidence From Mexico	2003	Find strong trade restriction effect and trade diversion effect that effect the import volume in Mexico due to anti-dumping policy.
8	Bodhisattva Ganguli,	The Trade Effects of Indian Antidumping Actions	2008	import volume falls down over 50 % in line with the start of investigation process of anti-dumping case on Steel industry in India
9	Hylke Vandenbussche and Maurizio Zanardi	The Chilling Trade Effects of Antidumping Proliferation	2010	In developing country the effect of anti-dumping duty can be capture by reduction of import volume.
10	Minsoo Lee, Donghyun Park and Aibo Cui	Invisible Trade Barriers : Trade Effects of US Antidumping Actions Against the People's Republic of China	2013	Antidumping effectively declined volume imports but only in the short term. Due to diversion effect then the remedy effect on domestic market is still low.
11	Aditya P Alhayat	The Effectiveness of Anti-Dumping Action in Indonesia 1996-2010	2014	With two combination method such as econometric method and analysis statistic descriptive he found that anti-dumping policy in Indonesia

				not effective to withstand import volume from the countries who become the subject of anti-dumping policy

Source: Authors compilation based on Anti-dumping Journals, 2015

Chapter 3: Overview of Anti-dumping Policy on Volume Import of Steel Products in Indonesia

3.1 Dumping Policy in Indonesia

3.1.1 Indonesian Anti-dumping Committee and Stages of Investigation of Dumping Case

Anti-dumping arrangements formulated in GATT Article VI which contains the rules and the provisions to impose anti-dumping Duties (WTO,1994). This provision essentially requires member states to implement the anti-dumping provisions of GATT in their respective national laws (WTO, 1994). Basically, almost all the members of World Trade Organization (WTO) already ratified this agreement (WTO Report on anti-dumping measures, 2015). Given the provisions of Article VI is only a broad outline of antidumping regulation, This anti-dumping code begin agreed by all the WTO members and start to implement in Tokyo Round which held in 1979. The provisions of this implementation ware later replaced by the 1994 Antidumping Code premises titles 'Agreement on Implementation of Article VI of GATT 1994' (WTO, 1994). Antidumping Code 1994 is one of the Multilateral Trade Agreement signed in conjunction with the establishment agreement of World Trade Organization (WTO) in Marrakesh in 1994. Thus the Antidumping Code is no longer an additional agreement but be a part of the WTO agreement itself.

Indonesian Anti-dumping Committee (KADI) is the only instrument which can be used to prevent domestic industries from 'unfair' competition (KADI, 2015). The establishment of the Anti-Dumping Committee Indonesia (KADI) is based on the Government Regulation No. 34 of 1996 so that the producers in Indonesia will get protection and defense from the Indonesian Anti-dumping Committee (KADI, 2015). In line with the tasks carried by KADI, then the committee is obliged to disseminate and ratified the rules and regulations from World Trade Organization (WTO) (KADI, 2015).

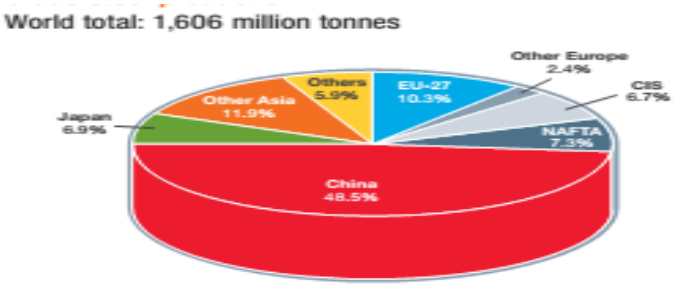
Furthermore, Indonesian Anti-dumping Committee (KADI) based on the Government Regulation No. 34/1996 (1996) has the main task as follows:

1) Conduct investigations into allegations of dumping goods or goods containing subsidies that cause harm to the domestic industry of similar goods.
2) Collect, examine and process the evidence and information regarding the allegations of dumping and goods or goods containing subsidies.
3) Proposes the imposition of anti-dumping duties and customs duties or remuneration to the Minister of Industry.
4) Handle and analyze other duties as assigned by the Minister of Industry and Trade.
5) Develop further explanation of a technical nature and top administrative provisions relating to dumping or subsidies.
6) Propose to the Minister of Industry and Trade to impose provisional measures concerning antidumping duty.
7) Propose to the Minister of Industry and Trade of the results of an assessment of the bid adjustment measures.
8) Conducting assessment of anti-dumping duties re-imposition of import duties or remuneration.
9) Propose to the Minister of Industry and Commerce to revoke or continue the imposition of anti-dumping duties or customs duties for remuneration.
10) Publish the decisions relating the dumping case and have to handling dumping or subsidies case.

From the inception of Indonesian Anti-dumping Committee in 1996 then Indonesia Anti-dumping Committee become the main body in Indonesia to protect domestic industry as well as domestic market from anti-dumping action which can omit the spirit of fair trade in this trade liberalization era.

3.2 Overview of Steel Industry in the World

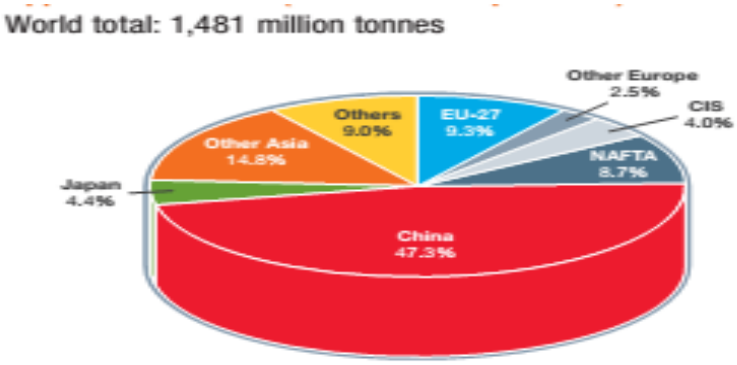
Figure 3.1: the Proportion of Crude Steel Production in the World



Source: World steel Association, 2014

The graph illustrates the proportion of crude steel in the world from 2010 until 2013. China become the largest producer of crude steel by almost 50% from all of the crude steel worldwide. In other words, steel industry dominated by China by almost a half of world crude steel production. China leads the market by produce almost 800 million tons of crude steel followed by other Asia countries such as South Korea, Japan as well as Taiwan by 11.9% and European Union who produce crude steel by 10.3% (World steel Association, 2014).

Figure 3.2: The Proportion of Finished Steel Production in the World



Source: World steel Association, 2014

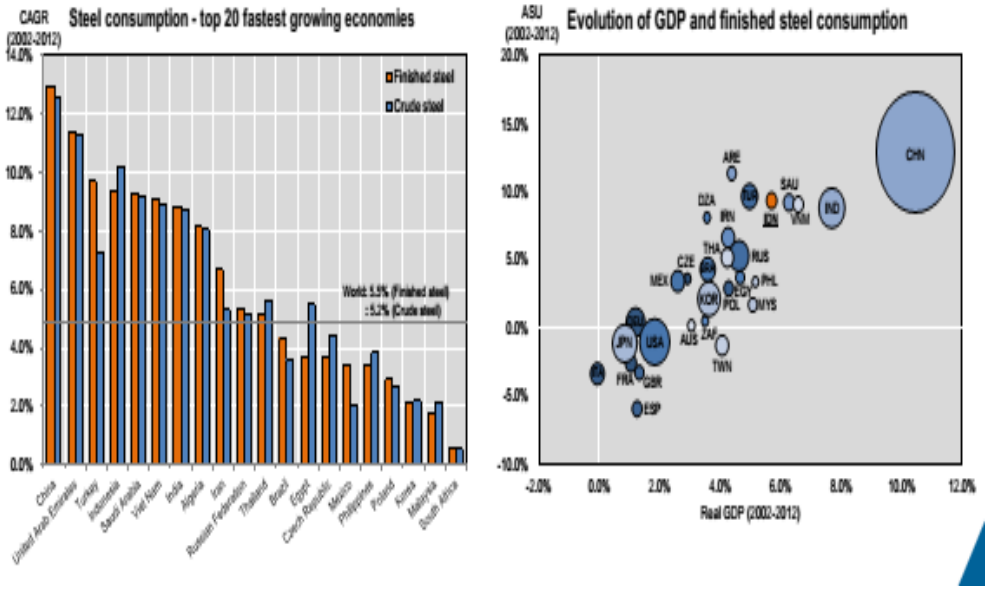
The similar trend of China hegemony also occurred in explains the finished steel production in the world. China still dominated the world finished steel market as the largest producer of finished steel product in the world. China

finished steel product leads the world market due to the China predominance in produce the crude steel. Hence, China leads the world finished steel market by almost a half of the whole finished steel product globally. With approximately 47.3% of the world finished steel market share dominated by China which almost 700 million tons finished steel product produce by China to fulfill world market demand.

3.3. Overview of Steel Industry in Indonesia

3.3.1 Indonesia's Steel Consumption

Figure 3.3 Top 20 Fastest Growing Economies and Evaluation of GDP and Finished Steel Consumption



Source: OECD Secretariat according on GDP and Steel Consumption data From IMF and the World Steel Association, 2013

In the last few decade Indonesia become one of the leader as the growing market country in the world. Indonesia is the big five as the fastest growing countries after China, UEA and Turkey. This position in line with the steel consumption which needed as a raw material for construction and infrastructure development (OECD, 2013). Moreover, the figure above also shows that Indonesia is the big three in finished steel consumption after China and United State of America (USA). China as the leader in finished steel production dominate and control global steel market (World Steel Association,

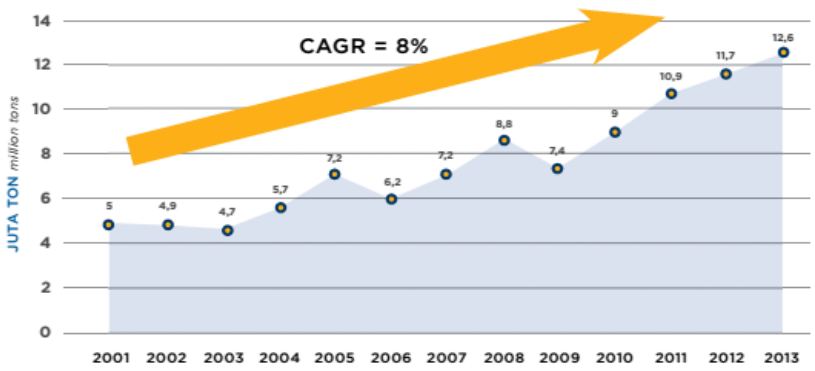
2014). This fact explains the trend that the domestic steel industry and domestic steel price in Indonesia are influenced by the slowdown rate of China's economic growth (Krakatau Steel Report Data (2014).

The demand for steel in the domestic market in 2013 increased concurrently with the rate of Indonesian economic performance. However, the increase in steel demand was not able to boost prices and this condition was also worsened by the weakening of the Indonesian rupiah against US dollar (Ernest and Young Report, 2014). Based on the World Steel Association (WSA) report (2014), in the year of 2014 there was a remedy of the world's steel demand along with the improvement of economic conditions in various developed countries. However, China, which is the main driver of growth in the world's steel demand, would experience a deceleration in growth. On the other hand, there are various risks associated with stable financial market conditions, a variety of structural issues and political instability in many developing countries.

The growth in many sectors that needed steel as their raw material was driven by the economic recovery and the projects in the Master Plan for the Acceleration and Expansion of Indonesian Economic Development (MP3EI) (Annual Report Krakatau Steel, 2014). Moreover, in the year of 2014, the domestic steel demand was expected to grow by at least 8% with regard to the industrial sector's growth and the demand's growth for steel in recent years as shown in the following chart (Annual Report Krakatau Steel, 2014).

Figure 3.4

Indonesia Steel Consumption 2001-2013



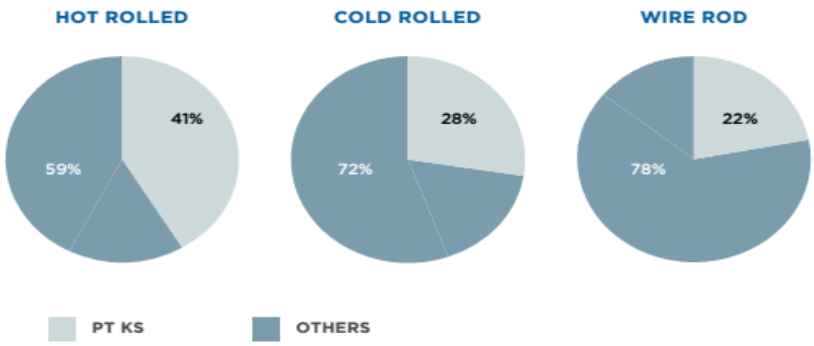
Source: Krakatau Steel Company, 2013

The graph above describe about the Indonesia's steel consumption from 2001 until 2013. The Trend shows that the steel consumption in Indonesia rise gradually until reached its peak in 2013 by 12.6 million tons. Moreover, in 2015, an estimated domestic steel demand still continues to grow. The domestic steel demand in 2015 is expected to rise by 15 million tons, greater than the demand for steel in 2014 which only amounted to 13.4 million tons, an increase by about 12%. The Minister of Industry of the Republic of Indonesia projected that the growth of steel demand would continue to climb as the realization of a number of projects materializes, such as the 2015-2019 Indonesian infrastructure development plan. Unfortunately, the inflating steel demand in Indonesia was not sufficiently supplemented by the surge of domestic steel production. The steel production capacity in Indonesia was only about 8 million tons. This led to the steel requirements in Indonesia fulfilled by steel imports from China which shared 55% of the national demand for steel.

3.3.2 Indonesia's Market Share of Steel Product

Figure 3.5

Market Share of Steel Product



Source: Krakatau Steel Company, 2013

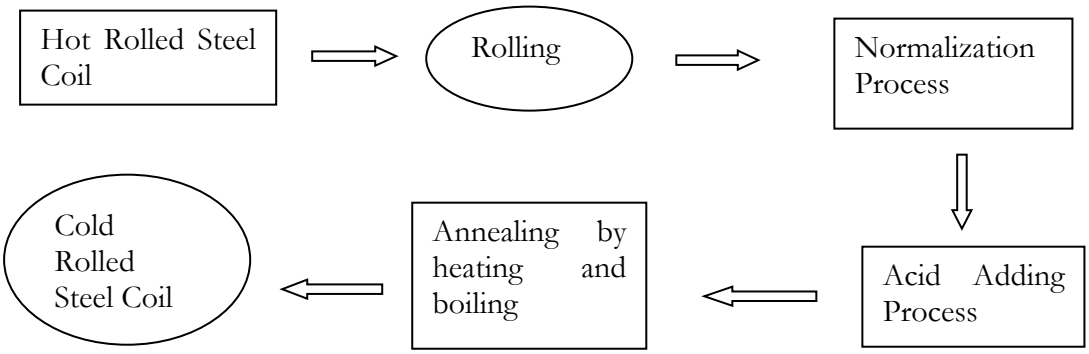
Krakatau Steel as the biggest steel company in Indonesia produces three main products namely Hot Rolled Coil (HRC), Cold Rolled Coil (CRC) and Wire Rod. For Hot Rolled Coil (HRC), Indonesia can only produce 41% of the whole hot rolled production. It means the 59% of the domestic steel demand has to be supplied from imports. For Cold Rolled Coil (CRC) product, which is the essential raw material for infrastructure and transportation, it only shares 28% (percent) of the whole market. In other words, Indonesia still depends on

imported goods from foreign exporters to fulfill the domestic demand for these products.

3.3. Overview of Cold Rolled Coil/Sheet (CRC) product

Cold Rolled Coil/Sheet (CRC/S) is one form of steel product which become the important commodity due to its function to infrastructure development. Cold Rolled Coil (CRC/S) which familiar as 'white steel' also completely differ from another form of steel Hot Rolled Coil (HRC). Cold Rolled's surface element is more excellent than Hot Rolled and the shape also slimmer and lighter compare to Hot Rolled Coil product.(Krakatau Steel Report, 2014). This category product generally used as primary material for automotive industry, food and beverage industry, construction products, computer and electronic appliance, as well as for manufacture industry (Todd et al, 1994).

Figure 3.6 Production Flow of Cold Rolled Steel Coil/Sheet



Source: Krakatau Steel Indonesia Report (2014) compiled by author (2015)

The most important step to produce cold rolled coil (CRC/S) product is recrystallization process (Krakatau Steel Indonesia report, 2014). The cold temperature will normalize the metal surface before processes to the next step. After the temperature become normal (normalization process), then the next process is adding acid in order to change the material become smoother. After rolling process with extremely low temperature then the final process is 'annealing and skin passing' process which the metal boiled and heated until it formed as a bar, sheet or other forms and ready to sell (Krakatau Steel Indonesia report, 2014).

Chapter 4: Data, Model Specification and Methodology

This chapter present data, source of data, and methodology that being use by this research paper. It also describes the specification model that consist definition of all variables and the measurement of all variables and Hypothesis that build the model.

4.1 Data

"*In God we Trust, all others must bring data*"

(W. Edwards Deming)

"*Statistics are like bikinis. What They Reveal is Suggestive, but What They Conceal is Vital*" (Aaron Levenstein)

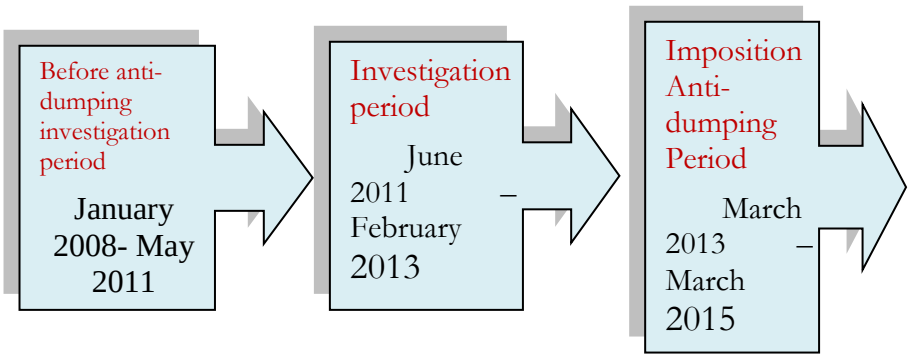
Data are an essential weapon for the statistical analysis to shed the light in order to find rigorous answers for the research objective. Furthermore, this research paper uses the quantitative research methods which try to find the impact of anti-dumping policy on steel industry by compiling numerical data that are analyzed using mathematical and statistics approaches (Aliaga and Gunderson, 2000). This chapter portrays a vivid picture about the impact of the anti-dumping policy on the import volume of steel product in Indonesia by using time-series monthly data from January 2007 until March 2015 for 5 (five) countries which become the subjects of the anti-dumping duties namely Japan, South Korea, Taiwan, China and Vietnam and 7 (seven) 'Non-named countries' namely Australia, Bangladesh, India, Malaysia, Uni-Emirates Arab (UEA), Thailand and Singapore.

The data on the import volume and import value of cold rolled coil/sheet product have been collected for the periods of eight years from January 2008 until March 2015 (87 months). It consists of 41 months before the anti-dumping investigation process (January 2007- May 2011), while anti-dumping investigating process started on June 2011 and need 21 months to doing anti-dumping investigation process (June 2011- February 2013); and

25 months (March 2013-March 2015 after investigation (imposition duty). Before investigation process

Table 4.1:

The Period of Anti-Dumping Case on Cold Rolled Coil/Sheet In Indonesia



Source: Author's calculation, 2015

Most of the data such as Import volume, import value, unit price and market share for product cold rolled coil/sheet (CRC/S) gained from Ministry of trade of Republic Indonesia. The value of Anti-dumping duty for this product collected from Indonesian Anti-dumping committee. While the other data such as tariff as well as exchange rate gathered from Directorate General of Customs and Excise of Republic Indonesia and International Financial Statistics (IFS).

Table 4.2 Data and the Source of Data

No	Data	Source of Data
1	Import Volume and Value of Cold Rolled Coil/Sheet (CRC/S)	Ministry of Trade of Republic Indonesia
2	Anti-dumping Duty for product Cold Rolled Coil/Sheet (CRC/S)	Anti-dumping Committee of Indonesia
3	Unit Price for product Cold Rolled Coil/Sheet (CRC/S)	Ministry of Trade of Republic Indonesia

4	Import Tariffs for product Cold Rolled Coil/Sheet (CRC/S)	Directorate General of Customs and Excise of Republic Indonesia
5	Market share of product Cold Rolled Coil/Sheet (CRC/S)	Ministry of Trade of Republic Indonesia
6	Exchange Rate	International Financial Statistics (IFS),http://elibrary-data.imf.org/DataExplorer.aspx (Accessed in May 1st 2015)

Source: Author compilation (2015)

4.2 Model Specification and Description of Variables

The main objective in this chapter is to find the impact of the anti-dumping duty on the import volume for both 'named' and 'non-named countries'. This study also aim to track out trade restriction effect and trade diversion effect for the case of the anti-dumping policy on Cold Rolled Coil/Sheet with ten (10) digits HS Code (Harmonized System Code) namely 7209189000. The model specification is based on the model constructed by Lee, et al. (1996) and Niels (2003) who investigated the impact of anti-dumping duty on volume and price of imports from both named as well as 'non-named countries'.

4.2.1 Model Specification

The model is constructed using the panel data estimation method, the basic model specification namely:

$$\ln M_{i,t} = \alpha + \beta_0 Duty_{i,t} + \beta_1 \ln Price_{i,t} + \beta_2 Marketshare_{i,tj} + \beta_3 Lagmarketshare + \beta_4 Dump1_{i,t} + \beta_5 Dump2_{i,t} + \beta_6 Dump3_{i,t} + \beta_7 Crisis + \beta_8 ER_{i,t} + \varepsilon_{i,tj}$$

(t = January 1998 – March 2015)

4.2.2 Description of Variables

This model explains as follow:

4.2.2.1 Import Volume

$M_{i,t}$ is the dependent variable that explains the import volume of Cold Rolled Coil/Sheet (CRC/S) from both named and 'non-named countries' at time t (Tons). Blanchard (2006) declares that import is the domestic demand to foreign goods, thus the aggregate import volume constructed is expected to be the precise measure of the effectiveness of the dumping policy to restrict foreign goods especially in this case referring to Cold Rolled Coil product (CRC/S) from 5 (five) countries namely Japan, South Korea, Taiwan, China, Vietnam.

4.2.2.2 Anti-Dumping Duty

Duty is the size of the anti-dumping duty for the 'named countries' at time t (%). This variable indicates the magnitude of the anti-dumping duty that is enforced to 5 (five) subject countries ('named countries') and 7 (seven) non-subject countries of the anti-dumping policy on Cold Rolled Coil (CRC/S), which is measured by percentage.

4.2.2.3 Price

Price is the unit price for product cold rolled coil/sheet (CRC/S) gathered from import value that is expressed by percentage (%) from each country who becomes the subject of the anti-dumping on cold rolled coil (CRC/S) product and countries who are not the subjects of this anti-dumping policy, divided by import volume that is expressed by Tons.

4.2.2.4 Market Share

Market share is variable which refers to the 'named countries" market share of product Cold Rolled Coil/Sheet (CRC/S) in Indonesia. The market share can be gained by the import volume of CRC/s from the 'named countries' and 'non-named countries' to Indonesia divided by the import volume of CRC/S to Indonesia from the whole world. The importance of the 'non-named countries' market for Indonesian domestic market can be represented by this

variable (Lee et al., 2013). This variable can describe the dependency of Indonesian domestic market to the 'named countries" market.

4.2.2.5 Lag Market Share

Lagmarketshare is variable which used as the control variable to predict the current values of market share variable according to current period and past period. Konings (2001) uses this variable to examine the evolution of market share before investigation period starts.

4.2.2.6 Exchange Rate

ER variable refers to Exchange Rate nominal, the rate at which Indonesian currency exchanges (Rp) to the 'named countries' currencies. The exchange rate variables are included to control macroeconomic condition month by month (Niels, 2003).

4.2.2.7 Dummy Dumping

Dump variable is dummy variable time to explain about three periods of time to figure out the impact of the anti-dumping policy in the investigation period and after the anti-dumping duty is charged to the 'named countries'.

4.2.2.7.1 Dump1

Dump1 is a dummy variable which refers to investigation period. It equals to 1 (one) when the anti-dumping investigation on cold rolled coil/sheet (CRC/S) product was implemented from June 2011 until February 2013 (41 Months). This dummy variable aims to figure out the impact of the anti-dumping policy to the import volume from the 'named countries' as well as 'non-named' in the investigation period.

4.2.2.7.2 Dump2

Dump2 is dummy variable which explains the first period of dumping duty (12 month). It equals to 1 (one) when the anti-dumping duty for product Cold Rolled Coil (CRC/S) was enforced for the 'named' and 'non-named countries' from March 2013 until February 2014 and 0 (zero) otherwise. This dummy variable aims to figure out the

effectiveness of the anti-dumping policy after the duty was charged in the first period (12 months).

4.2.2.7.3 Dump3

Dump3 is a dummy variable which refers to the second period of dumping duty (12 month). It equals to 1 (one) when the anti-dumping duty for product Cold Rolled Coil (CRC/S) was enforced for the named and 'non-named countries' from March 2014 until March 2015 and 0 (zero) otherwise. This dummy variable aims to figure out the effectiveness of the anti-dumping policy after the duty was charged in the second period (12 months).

4.2.2.8 Dummy Crisis

Crisis is a variable which refers to an impact of the financial crisis that occurred in 2008 and 2009 in Indonesia. It equals to 1 (one) for period 2008-2009 and 0 (zero) otherwise. This variable tries to capture that the decrease in the import volume in 2008-2009 occurred due to the financial crisis, not due to the anti-dumping policy (Alhayat, 2014).

4.3 Hypothesis

Empirical studies have shown various results on the impact of anti-dumping policy on import volume in many regions in the world. The effectiveness of this policy in International trade literature still constitutes the backbone of contention issues since century. However, based on the trade theory, tariff or duty can become an effective tool to protect domestic market from foreign importers (Prusa, 2005). In other worlds, when dumping duty is affirmed to 'named countries' it is expected to give direct effects to restrict the flow of import volume from importer countries to domestic market. Moreover, dumping duty expected to restore the stability of the domestic market being injured by the dumping action (KADI, 2011).

Furthermore, price is also expected to influence import flow from importer countries in a direct way. It is expected that an increase in price for a product will lower the import flow from importer countries. Similarly, market share

also constitutes an essential part. In other words, when market share shows positive significance, it indicates bigger proportion of market share from the 'named countries' in Indonesian domestic market that will lower restriction effect and increase the dependency of Indonesian domestic market to foreign market. Thus, based on the dependent and independent variables explained before, the measurement and the expected sign from the independent variable used in this study explain as follows.

Table 4.3: Measurement and expected sign of independent variables that used in this study about the impact of anti-dumping policy on import volume of Cold Rolled Coil/Sheet (CRC/S) in Indonesia

No	Variable	Measurement	Expected Sign of Coefficient	References
1	Duty	Percentage (%)	Negative	Prusa (1996), Niels (2003), Lee et al (2013)
2	Price	US ($)	Negative	Niels and Kate (2004)
3.	Market Share	Percentage (%)	Positive	Lee at all (2013)
4.	Exchang e Rate	Domestic Currency/Foreign Currency	Negative	Niels (2003)
5	Dump	Dummy time for investigation period, first and second period dumping duty	Negative	Prusa (1996), Niels (2003), Lee et al (2013)
6	Crisis	Dummy	Negative	Raz et al (2012), Alhayat (2014)

7	**Lagmark etshare**	**Percentage (%)**	**Positive**	**Konings (2001)**

Source: Author's compilation based on Anti-dumping Journals (2015)

4.4 Methodology

This research aims to figure out the impact of the anti-dumping policy on the import volume of Cold Rolled Coil (CRC/S) product in Indonesia. This product is examined due to the importance of steel industry for developing countries especially for infrastructure development in Indonesia. Moreover, this research specifically observes product Cold Rolled Coil (CRC/S) because this steel case is the newest dumping case that occurs in Indonesia despite its essential function in the domestic steel industry. This product has 10 (ten) digits HS (Harmonized System) 7209189000. The observation was levied on 5 (five) countries who become the subjects of the anti-dumping duty (Cross section) and 7 (seven) countries who become the non-subjects of the anti-dumping policy. The observation occurred from January 2008 until March 2015 (time series).

According to the characteristics of the data, this research estimates by using panel data for a linear model which uses OLS, fixed effects and random effects for estimation purposes. By using a fixed-effect model, unobservable heterogeneity can be controlled by assuming that every country has its own effects which can affect the dependent variable (Bester and Hansen, 2009). Moreover, in this model, the heterogeneity of each country is captured by the interception, and is associated with the independent variables (Bester and Hansen, 2009). Interestingly, the heterogeneous characteristics of fixed effects could prevent any bias in the estimation that makes the model always give consistent results (Clark and Linzer, 2015). The existence of fixed effects can be tested by performing the F-test. Another model is the random-effect models which assume that the variation across countries is random and uncorrelated with the independent variable. Unlike the fixed-effect models, random effects existence can be tested using the test Breusch Pagan Lagrange Multiplier (Clark and Linzer, 2015).

Chapter 5: Analysis and Findings

This chapter will try to answer the research question from this study by analyzing the estimation result as well as descriptive result to know precisely the impact of anti-dumping policy on steel industry in Indonesia. Moreover, this chapter will addresses the nexus among dependent and independent variables using panel data method and calculates it using STATA13 statistic software.

5.1 Summary Statistics

The objective of this study is to figure out the impact of the anti-dumping policy on the import volume of Steel product in Indonesia specifically for the product Cold Rolled Coil/Sheet (CRC/S) from the 'named countries' who become the subjects of this policy in order to capture the trade restriction effect and from the 'non-named countries' who become the importers of Cold Rolled Coil/Sheet (CRC/S) product but not the subjects of this policy to examine the trade diversion effect. Descriptive statistic on the import volume and the independent variables are represented in table 5.1 below, which can give essential information about the average trend concerning all variables.

Table 5.1: Descriptive statistics dependent and independent variables from named country

No	Variable	Obs	Mean	Std. Dev.	Min	Max
1	import volume	391	14.211	1.770	9.104	16.916
2	Duty	435	9.805	17.195	0.000	55.600
3	Price	391	(0.273)	0.185	(1.044)	0.236
4	Exchange Rate	435	3.411	3.186	(2.489)	7.640
5	marketshare	435	0.152	0.154	0.000	0.692
6	dump1	435	0.276	0.447	0.000	1.000
7	dump2	435	0.168	0.374	0.000	1.000
8	dump3	435	0.147	0.355	0.000	1.000
9	dutycrisis	435	0.276	0.447	0.000	1.000

Source: Author's calculation using Stata 13 Software (2015)

Since this study uses monthly-series data sets from January 2008 until March 2015, from the table of descriptive statistics above, the import volume can be

interpreted as follow. During January 2008 to March 2015 Indonesia on average imported 14.21 Million Tons of Cold Rolled Coil/Sheet (CRC/S) with Code HS 7209189000 from global steel market that comes from 5 'named countries' such as Japan, China, Taiwan, Korea and Vietnam. In tandem with the increasing trend of the import volume, the unit price of Cold Rolled Product/Sheet averagely decreased by approximately 0.273 US$ each month. This trend encouraged the domestic demand for imported steel product to rise. It can also be explained by the trend represented by market share, the market share for product Cold Rolled Coil still increased each month, by approximately 0.152 % (percent) for five 'named countries'. In other world, the dependency of the domestic market to foreign steel importers still increased each month. The Indonesian exchange rate nominal compared to the five 'named countries' was approximately 3.41 on average, which seems considerable low.

Table 5.2: Descriptive statistics dependent and independent variables from non-named country

No	Variable	Obs	Mean	Std. Dev.	Min	Max
1	import volume	231	13.100	2.575	1.609	15.839
2	duty	609	0.307	0.462	0.000	1.000
3	price	231	-0.111	0.745	-0.901	7.115
4	Exchange Rate	609	7.094	1.791	4.331	9.841
5	marketshare	609	0.030	0.069	0.000	0.600
6	dump1	609	0.256	0.437	0.000	1.000
7	dump2	609	0.158	0.365	0.000	1.000
8	dump3	609	0.149	0.357	0.000	1.000
9	dutycrisis	609	0.276	0.447	0.000	1.000

Source: Author's calculation using Stata13 Software (2015)

The trend is slightly similar with the 'named countries' since Indonesia also imports Cold Rolled Coil/Sheet (CRC/S) product from 7 (seven) non-'named countries' namely Australia, Bangladesh, India, Malaysia, Uni Emirate Arab (UEA), Thailand and Singapore due to the insufficiency of domestic steel production. The table above informs that during January 2008 to March 2015 Indonesia on average imported 13.1 million tons of Cold Rolled Coil/Sheet (CRC/S) from seven 'non-named countries'. In line with the increasing trend

of the import volume, the unit price of Cold Rolled Product/Sheet (CRC/S) on average decreased by approximately 0.111 US$ each month. This trend also caused the domestic demand of imported steel product to rise. From the market share trend it can be deduced that the market share for the product of Cold Rolled Coil still increased each month, by approximately 0.03% (percent) for seven countries who became the non-subjects of the anti-dumping duty. It is slightly different with the average market share from the 'named countries', and it means that the dependency of the CRC/S's domestic market to foreign steel importers still increased each month although the imposition of the anti-dumping policy had been applied to the 'named countries'. Meanwhile, Indonesian exchange rate nominal compared to the seven 'non-named countries' was approximately 7 on average, which seems stronger compared to the Indonesian exchange rate nominal to the 'named countries'.

5.2 Regression Result

To figure out the impact of the anti-dumping policy on the import volume for Cold Rolled Coil (CRC/S) product that comes from the named and 'non-named countries', the regressions were conducted and divided into 3 (three) models. Each of which of the model is run twice by using both Ordinary Least Square (OLS) and the fixed-effect model. The first model assumes that the import volume for cold rolled coil (CRC/S) only depends on the size of duty, unit price, market share and variable control exchange rate to control macroeconomic condition in each month. On the flip side, in the second model we try to add 3 (three) dummy time variables, namely dump0 that aims to track out the impact of the anti-dumping policy in the investigation period, and dump1 and dump2 which aim to figure out the impact of the anti-dumping policy after the anti-dumping duty was levied in the first and second period. In the last model we add a dummy crisis as a control variable. This variable will capture the decrease of the import volume in 2008-2009 in Indonesia as the result from the financial crisis that occurred globally.

Table 5.3 Regression Result from Named Country

	named1(ols)	named1(fe)	named2(ols)	named2(fe)	named23(ols)	named3(fe)
	lnimportvolume	lnimportvolume	lnimportvolume	lnimportvolume	lnimportvolume	lnimportvolume
duty	-0.0207***	-0.0161***	-0.0217***	-0.0122**	-0.0232***	-0.0135**
	(-8.14)	(-5.81)	(-5.63)	(-2.85)	(-5.97)	(-3.16)
lnprice	-1.987***	-1.559***	-1.872***	-1.494***	-1.917***	-1.556***
	(-8.20)	(-5.84)	(-7.48)	(-5.50)	(-7.68)	(-5.78)
lner	-0.0407**	-0.122***	-0.0381*	-0.112***	-0.0376*	-0.141***
	(-2.72)	(-3.96)	(-2.53)	(-3.48)	(-2.52)	(-4.25)
marketshar	466.7***	459.5***	481.1***	463.7***	470.2***	443.3***
	(19.52)	(18.61)	(18.75)	(17.20)	(18.13)	(16.14)
lagmarkets	2.947***	2.525***	2.830***	2.448***	2.920***	2.434***
	(8.13)	(6.45)	(7.70)	(6.20)	(7.94)	(6.23)
dump1			-0.202	-0.159	-0.349**	-0.320*
			(-1.75)	(-1.35)	(-2.67)	(-2.50)
dump2			0.0169	-0.251	-0.0995	-0.410*
			(0.09)	(-1.33)	(-0.53)	(-2.11)
dump3			-0.110	-0.291	-0.167	-0.366*
			(-0.63)	(-1.64)	(-0.96)	(-2.06)
dutycrisis					-0.298*	-0.408**
					(-2.33)	(-3.08)
_cons	12.56***	13.01***	12.65***	13.08***	12.81***	13.42***
	(126.56)	(78.99)	(113.81)	(76.96)	(98.87)	(66.96)
r2		0.665		0.668		0.676
aic	.	982.4	.	984.5	.	976.8
bic	.	1006.2	.	1020.2	.	1000.5
t statistics in parentheses						
="* p<0.05	** p<0.01	*** p<0.001"				

Source: Author's Calculation (2015) Using STATA13 Software (2015)

According to the regression result above, the best model is depicted by model 3 using the fixed-effect model since the estimations of this model are the most robust compared to the other models. The decision to choose the fixed-effect model corresponds with the advantages of using this model to control differences across countries and figure out time-specific shocks across countries using both dummy period as well as dummy crisis (Clark and Linzer, 2015). Previously, the Haussmann test was also conducted and gave the result showing that the fixed-effect model is more preferable than the random-effect model because the differences between the fixed effect and random affect is significant (Clark and Linzer, 2015). (see Appendix 1).

Furthermore, the model selection is based on the *Akaike Information Criterion* (AIC), which is the measure to figure out the quality of each model compared

with other models and the *Bayesian Information Criterion* (BIC) to find the lowest value of AIC and BIC. The lower the value of AIC and BIC, the better the model we have. According to the value of AIC and BIC from the three models, the third model with fixed effect gains the lowest value of AIC and BIC, therefore we choose the third model for our estimation. Based on the value of R-squared it may be concluded that 67.6 percent (%) of all independent variables can explain the dependent variables in this model.

Table 5.4: Comparison Result between Named Country and Non-Named Country

	named (fe)	**NonNamed(fe)**
	lnimportvolume	Lnimportvolume
duty	-0.0135**	0.279
	(-3.16)	(-0.48)
lnprice	-1.556***	-1.998***
	(-5.78)	(-16.36)
lner	-0.141***	-0.882
	(-4.25)	(-0.88)
marketshare	443.3***	1272.6***
	-16.14	-11.07
lagmarketshare	2.434***	-0.522
	-6.23	(-0.48)
dump1	-0.320*	0.158
	(-2.50)	-0.57
dump2	-0.410*	0.492
	(-2.11)	-0.77
dump3	-0.366*	0.536
	(-2.06)	-0.83
dutycrisis	-0.408**	0.325
	(-3.08)	-1.11
_cons	13.42***	17.53*
	-66.96	-2.54
r2	0.676	0.734
t statistics in parentheses		
="* p<0.05	** p<0.01	*** p<0.001"

Source: Author's Calculation (2015) Using STATA13 Software (2015) (see Appendix)

The table also describes the comparison of regression result between 5 'named countries' and 7 'non-named countries'. Two different models' estimations use the fixed-effect (Fe) method which controls differences across countries and figure out time-specific shocks across countries more precisely (Clark and

Linzer, 2015). The first model shows the estimation result from the 'named countries' while in the second cluster it shows the regression result from the 'non-named countries'. All of the signs confirm the expected signs based on the theory and previous study. The variable of the anti-dumping duty for the 'named countries' succeeds to decrease the import volume by 1.3 % (percent). In the other words, the anti-dumping duty is the proper instrument to lower the import volume from 'named countries' although the decreasing value is not quite significant to boost the domestic production for Cold Rolled Coil/Sheet (CRC/S) product.

On the other hand, the variable duty of the 'non-named countries' show the positive sign in line with the expected sign. It means that the anti-dumping duty that has been applied to the 'named countries' since 2013 succeeds to boost the import volume of Cold Rolled Coil/Sheet (CRC/S) from countries, which are not the subjects of this policy, to Indonesia. This different trend also occurs for the dummy variables Dump1, Dump2 and Dump3. While for the 'named countries', all the dummy variable periods show the negative result, which means the investigation period and the imposition period succeed to decrease the import volume by approximately 0.35% percent on average. On the flip side, for the 'non-named countries' all the dummy variable periods show the positive result, meaning that the investigation period and imposition period are successful to increase the import volume on Cold Rolled Coil (CRC/S) product to Indonesia by 0,45% percent on average.

5.2.1 Analysis the Result of Dependent and Independent Variables

5.2.1.1 Anti-dumping duty and volume import

From the estimation result, it shows that for the 'named countries' it is statistically significant under 5 percent (%) significance level ($\alpha = 5\%$), and it has a negative coefficient sign to the import volume. Thus it can be interpreted that for 1 percent (%) rise in the anti-dumping duty it will lower the import volume for product of Cold Rolled Coil/Sheet (CRC/S) 2015 by 1, 35% (percent) each month during the period of January 2008 until March 2015. While for the 'non-named countries' for 1 percent (%) increase in the anti-dumping duty it will increase the import volume on Cold Rolled Coil/Sheet

(CRC/S) product by 27 % (percent) each month during the investigation and imposition periods. The result confirms prior research and hypothesis about the impact of anti-dumping policy which will lower the import volume from the 'named countries'. Although dumping duty has been proven as an appropriate tool to protect the domestic market and to have the impact on lowering the import from the 'named countries' on product of Cold Rolled Coil/Sheet (CRC/), the coefficient shows a considerable low value. It can be explained by several reasons: firstly, Indonesian Steel Company cannot fulfill the domestic demand on product of Cold Rolled Coil (CRC/S) which is still increasing due to its vital function as a raw material for the infrastructure and industry in Indonesia. Secondly, Indonesia still has a high level of dependency to foreign importers for product of Cold Rolled Coil/Sheet (CRC/S) because the biggest steel company in Indonesia, Krakatau Steel Company, cannot produce Cold Rolled Product to supply the domestic demand.

Moreover, from the regression result from the 'non-named countries' it may be concluded that the non-'named countries' benefit more compared to the domestic producer in Indonesia from the anti-dumping policy on Cold Rolled Coil/Sheet (CRC/S) product to Indonesia because the fact that their import volume increases dramatically in line with the decreasing import volume from the 'named countries'. Thus, although it shows that dumping duty has negative and significant effects on lowering the import volume, the elasticity coefficient of dumping duty is considerably low to restrict the import flow from the 'named countries' for product of Cold rolled Coil/Sheet (CRC/S). The small elasticity of coefficient of anti-dumping duty also occurs on previous research. Prusa (1996) who conducted the research about the impact of anti-dumping in United State of America had the elasticity of coefficient of duty -0.06, which means 1% rise in anti-dumping duty will reduce the import volume by 0.6% (percent). Similarly, Lee et al. (2013) also had the small elasticity of coefficient -0.13 when conducting the research of anti-dumping in the United State of America against China. Prusa (1996) affirms that the negative coefficient in his study is because the industry that he examined still has huge market share from foreign importers, therefore this policy becomes less significant.

5.2.1.2 Price and Import Volume

In order to lower the import from the subjects of anti-dumping for product of Cold Rolled Coil/Sheet in Indonesia, the unit price has an important role. Based on the estimation result, it shows statistically significant under 0.1 percent significance level and has negative coefficient which confirms prior hypothesis. The estimation result can be translated that for 1% (percent) rise in the unit price for product of Cold Rolled Coil/Sheet (CRC/S) it will lower the import volume by 1.55% (percent) each month during January 2008 until March 2015. While from the regression result for the non-'named countries' it shows that for 1% (percent) increase in the International unit price for product of Cold Rolled Coil/Sheet (CRC/S) it will decrease the import volume for Cold Rolled Cold/Sheet (CRC/S) product by almost 2% (percent).

5.2.1.3 Market Share and import volume

The market share has an essential role on the trade flow especially for the import volume for product of Cold Rolled Coil/Sheet (CRC/S) from the 'named countries' to Indonesia during January 2008 until March 2015. According to estimation result, it may be concluded that the market share has a positive significant relationship with the import volume under 0.1 percent of significance level. In other words, for 1 percent (%) rise in the market share of Indonesia to every named country for product of Cold Rolled Coil (CRC/S) it will increase the import volume from the 'named countries' by 443 tons. The market share has indeed a very significant effect to increase the import volume for this product. It shows that the dependency level of Indonesia to product of Cold Rolled Coil/Sheet (CRC/S) from Japan, South Korea, China, Taiwan and Vietnam is still high.

The high percentage of the market share also becomes the answer for the low coefficient of the anti-dumping duty to lower the import product CRC/S. On the other hand, from the estimation result of the non-'named countries' it may be concluded that 1 percent (%) rise in the market share of Indonesia to every non-named country for product of Cold Rolled Coil (CRC/S) will increase the import volume from the non-'named countries' by 1272 tons. It means that the market share in the non-'named countries' for this product dramatically increases in line with the anti-dumping duty imposed to the 'named countries',

coupled with the fact that the Indonesian domestic producer cannot supply all of the domestic demand for cold rolled coil/sheet product after the anti-dumping duty is levied.

5.2.1.4 Exchange Rate and Import Volume

The proxy for the exchange rate used in this paper is the domestic currency unit of foreign currency which is computed by dividing the domestic currency (Rupiah) by the 'named countries" currencies and the 'non-named countries" currencies (Nominal Exchange Rate) (Murshed, 1997). The coefficient sign confirms the prior research concluding that when the exchange rate increases, the Indonesian (domestic) currency depreciates, resulting in an increase in the import flow from the 'named countries' for product of Cold Rolled coil (CRC/S). Based on the estimation result from the 'named countries', it shows that 1% (percent) increase in the exchange rate of Indonesia to the exchange rate of the 'named countries' will lower the import volume by 0.14% (percent).

On the other hand, the estimation result from the 'non-named countries' shows that 1% (percent) increase in the Indonesian exchange rate to the exchange rate of the 'non-named countries' will lower the import volume by 0.8%. The weak Indonesian currency occurs because the 12 named and non-'named countries' have stronger economic performance compared to Indonesia. The weakening of macroeconomic condition in Indonesia also becomes the main reason why Indonesian nominal exchange rate gets lower. Unstable economic condition and fluctuation in the world primary commodity price as well as the global exchange rate become the driven trigger of lower Indonesia's exchange rate.

5.2.1.5 Investigation Anti-dumping Period and Import Volume

One of the objectives of this research is to figure out the investigation period effect on lowering the import volume from the 'named countries'. According to estimation result, it shows negative significance under α=0.1% of significance level. When the investigation process for the anti-dumping case on Cold Rolled Coil/Sheet product with the subject dumping from 5 (five) countries namely Japan, China, South Korea, Taiwan, and Vietnam started on June 2011 until February 2015, it is found significant in lowering the import

volume by 0.5 (%) percent. In other words, the investigation period is significant to restrict the import volume for the 'named countries' to Indonesia for product of Cold Rolled Coil/Sheet (CRC/S). Unfortunately, this trend of lowering import volume concurs with the increasing import volume from the non-'named countries' in the investigation period. The regression result also shows that the import volume from the 'non-named countries' increases by 0.16%. In other words, when the investigation period was started by the Committee of Anti-Dumping Indonesia to the 'named countries', the 'non-named countries' gain benefits instead.

5.2.1.6 Period of Imposition of Dumping Duty and Import Volume

From the periods of the imposition of dumping duty for 5 (five) countries which become the subjects of anti-dumping on Cold Rolled Coil/Sheet (CRC/S) product starting on March 2013 until February 2014 (first period) and March 2014 until March 2015 (second period), it shows negative significance under α=1% of significance level. In other words, the first period of the imposition of dumping duty can reduce the import volume of Cold Rolled Coil (CRC/S) by 0.76% (percent), and the second period lowers the import volume of Cold Rolled Coil/Sheet (CRC/S) by 0.77% (percent). The periods of the imposition of dumping duty can measure the restricted effect to figure out the effectiveness of the anti-dumping duty after the duty is charged to the 5 (five) 'named countries'.

Although the restricted effect has been proven to restrain the import volume for Cold Rolled Coil (CRC/S) from the 'named countries', the trade diversion effect is also proven for the 'non-named countries'. Based on the regression result from the non-'named countries' it may be concluded that the import volume keeps rising gradually by 0.49% in the first period of the imposition of anti-dumping duty to the 'named countries' and by 0.53% in the second period, accordingly. In conclusion, both of the trade restriction effect and the trade diversion effect are proven in the study.

5.2.1.7 Indonesia Financial Crisis (2008-2009)

Based on the estimation result, the crisis that happened in 2008-2009 has the negative coefficient and is statistically significant to the import volume. In such a way, statistically, the financial crisis that happened in Indonesia has the impact of lowering the import volume by 0.3% (percent) at α=5% of significance level. This variable is constructed in this model as the control variable to capture the impact of lowering the import volume in the period before the investigation started.

5.2.2 Conclusion from the Estimation Result

From the estimation result we may conclude that the restriction effect proven can withstand the import volume flow from the 'named countries' although it is not quite significant to remedy the steel domestic injury. Moreover, according to the regression result comparing the estimation results between the 'named countries' and the 'non-named countries', we may see that not only trade restriction effect is proven in this case, but also trade diversion effect. The table 5.4 shows that the import volume from the 'non-named countries' increases dramatically along with the plummeting trend of the import volume for Cold Rolled Coil/Sheet (CRC/S) product for the 'named countries'. Thus, based on the regression result, both trade restriction as well as trade diversion effects are proven. According to the estimation result, we also can capture the value and the significance of the market share and how its pattern influences the flow of the import volume from the named and 'non-named countries'.

Apparently, the market share from both the named and 'non-named countries' still dominates the domestic steel industry in Indonesia. The regression result shows that the dependency level of Indonesian steel industry to foreign importers is still high by approximately 500 tons on average in each month. This is the rational background behind the less effectiveness of the anti-dumping policy to restrain the import volume from the 'named countries'. Prusa (2014) states that the larger market share, the weaker the impact of anti-dumping policy will be. Hence, there are two points that become the policy implication for this case. First, Indonesia needs a new protection instrument to protect the domestic industry from 'unfair' trade and to remedy the injury

because of the negative sides of free trade. And the next point is Indonesia should boost the performance of the domestic industry so that Indonesia can seize the domestic market share more than the importers do. Increasing the domestic steel production is also crucial to protect the domestic industry from dependency to foreign importers. If the economic performance in Indonesia is still weak, all of the trade protection instrument will be vain.

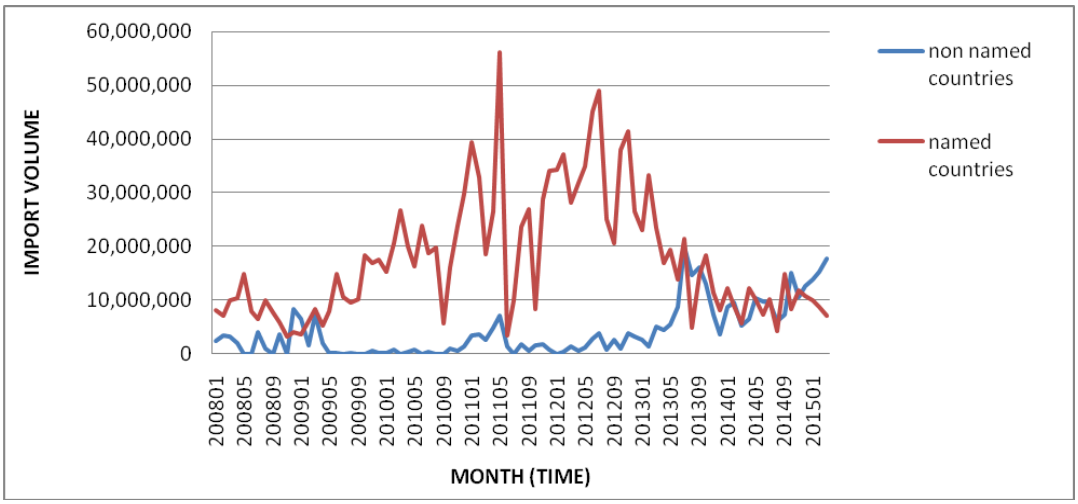
5.3 Descriptive Analysis

5.3.1. Analysis of Import Volume on Cold Rolled Coil/Sheet (CRC/S) product from Named and Non-Named Country

It is like the two sides of a coin; on the one side, anti-dumping policy can restrict the import volume from 'named countries'. On the other side, anti-dumping also leads to the increase in the import volume by 'non-named countries'. The side effect of the trade restriction is called trade diversion effect. Both Prusa (1996) and Krupp and Pollard (1996) find the trade diversion effect from 'named countries' to 'non-named countries' as a result of the anti-dumping policy in the United State of America. Similarly, Alhayat (2014) finds the trade restriction effect from 'named countries' to 'non-named countries' as the impact of the anti-dumping duty in Indonesia.

Figure 5.1

Trade Diversion Effect to Non-'named countries'



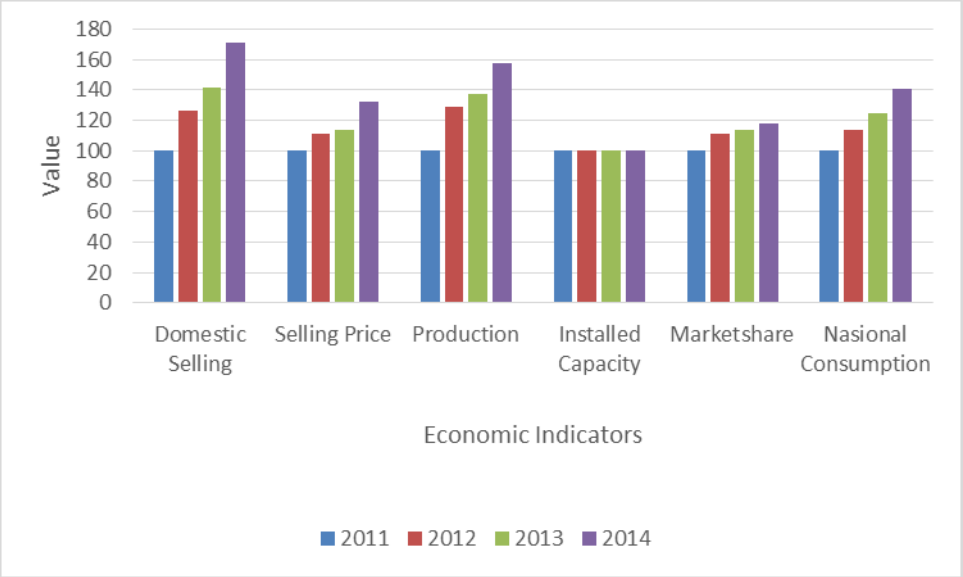
Source: Author's calculation (2015) based on import volume data from Ministry of Trade of Republic of Indonesia

From the Figure 5.1 above, there are two clusters of countries. 'named countries' are a group of countries which consist of 5 (five) countries namely Japan, South Korea, China, Taiwan and Vietnam who become the subjects of the anti-dumping policy on product of Cold Rolled Coil/Sheet (CRC/S) in periods from March 2013 until March 2015. 'Non-named countries' are a group of countries which consist of 7 (seven) countries who also become importers of Cold Rolled Coil/Sheet (CRC/S) but not become the subjects of the anti-dumping action. From the graph, we can see the trend of lowering import volume from the 'named countries' starting from June 2011, which is the time when the investigation period started for Cold Rolled Coil/Sheet (CRC/S) product. The import volume from the 'named countries' increased dramatically until reaching its peak in March 2011. But when the investigation period started in June 2011 the import volume plummeted from almost 60 million in March 2011 to less than 10 million in June 2011. It may be deduced that the restriction effect occurred effectively in the investigation periods.

In the period of the imposition of dumping duty that started in March 2013, the import volume fell gradually by approximately 10% (percent). This trend shows that the imposition period of dumping duty was effective to restrict the import volume from the 'named countries'. Interestingly, this trend is in line with the increase of the import volume from the 'non-named countries'. They got benefits from big Indonesian market share for product of Cold Rolled Coil/Sheet (CRC/S) which was still high in demand but the domestic production of this product was still limited. As a result, the import volume from the 'non-named countries' increased gradually by approximately 7% (percent) starting from the period of the imposition of dumping duty for the 'named countries' in October 2013 until March 2015, and it is projected to keep rising. This trend shows that the trade diversion effect occurred from the 'named countries' to the 'non-named countries' due to the imposition of dumping duty for product of Cold Rolled Coil/Sheet (CRC/S).

5.3.2. Steel Domestic Industry

Table 5.2: Economic Performance in Steel Domestic Industry in Indonesia



Source: Krakatau Steel Report, 2015

This graph shows the Indonesian economic performance in steel industry in the recent year for product of Cold Rolled Coil/Sheet (CRC/S). From this graph we may see several indicators of economic performance which can be described as the latest condition after the anti-dumping duty for Cold Rolled Coil/Sheet (CRC/S) was levied. Fahmi (2015) who worked as the Chief Investigator in the Committee of Anti-Dumping of Indonesia for Cold Rolled Coil/Sheet (CRC/S) case concludes that although all the economic indicators show the positive trends, the actual increase is only slight and is not sufficient to remedy the injury that is caused by the dumping action conducted by the 'named countries'.

The increase in market share and domestic production does not sufficiently supplement the increase of the national consumption of Cold Rolled Coil/Sheet (CRC) product and the installed capacity. In addition, steel market still dominated by China as the largest steel producer nowadays. China hegemony and the lack of installed capacity as well as production in Indonesia are the main reason why Indonesian steel industry still has a high dependency level to the importers from foreign countries to fulfill the domestic demand for Cold Rolled Coil (CRC/S) product.

Chapter Six:

Conclusion

The aim of this research paper is to contribute to the empirical literature on anti-dumping. Specifically, the objective of this study is also to estimate the impact of the anti-dumping policy on the import volume of Steel product in Indonesia for Cold Rolled Coil/Sheet (CRC/S). The research compares the impact of the anti-dumping policy between 5 (five) subject countries ('named countries') and 7 (seven) non-subject countries ('non-named countries') to examine 3 (three) main effects such as investigation effect, trade restriction effect and trade diversion effect. The research methods used are the combination between the econometric method and the descriptive analysis method.

This study has found that the anti-dumping policy has negative significance to the import volume of Cold Rolled Coil/Sheet (CRC/S) from 5 (five) 'named countries' namely Japan, China, South Korea, Taiwan and Vietnam, while it has found positive significance to the increase in the import volume from non-'named countries'. Although the imposition of the anti-dumping duty caused the decline in the import volume from the 'named countries', but the impact was relatively small. By contrast, from the estimation result it finds that the market share for Cold Rolled Coil/Sheet (CRC/S) is high. In other words, the domestic demand of Cold Rolled Coil/sheet (CRC/S) product and the level of dependency to foreign market are relatively still high because Indonesian steel company can only share 28% (percent) from the whole product of Cold Rolled Coil/Sheet (CRC/S) in Indonesia.

During the anti-dumping investigation, the trends show that the import volume from the 'named countries' have already been affected, which is consistent with the previous literature on the investigation effect. It means that when the investigation started the import volume from the 'named countries' started to fall sharply. Moreover, it is in line with the trend in the imposition periods, the first and second period when the dumping duty is affirmative. The trend shows that the import volume declines gradually. By way of explanation,

the restrictive effect is effective in the imposition of dumping duty periods although the fall is not quite significant.

Interestingly, this research also finds evidence of trade diversion because of the anti-dumping duty. Countries which are not the subject of anti-dumping ('non-named countries') take benefits due to the anti-dumping duty that is levied to the 'named countries'. The estimation result and the descriptive analysis method show that the trend is different for the 'non-named countries'. The import volume from the 'non-named countries' increases in line with the start of the investigation period for the anti-dumping case in Cold Rolled Coil/Sheet product. In other words, it shows that the trade diversion effect is proven to exist from the 'named countries' to the 'non-named countries'.

Due to the ineffectiveness of this policy to withstand the import volume and to protect the domestic industry, hence some policy recommendations can be suggested to formulate a new trade protection instrument which can benefit the domestic industry more. Improving the infrastructure, expanding the capacity and rising the domestic production should also become the priority agenda for the Indonesian Government to reform the macroeconomic condition in Indonesia. With a strong foundation of economic performance, Indonesia can diminish the dependency level to foreign importers and can create a stable domestic industry in the future.

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Appendices

Appendix 1

Hausman Test

```
                    b = consistent under Ho and Ha; obtained from xtreg
         B = inconsistent under Ha, efficient under Ho; obtained from xtreg

  Test:  Ho:  difference in coefficients not systematic

              chi2(7) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                      =       87.00
            Prob>chi2 =      0.0000
            (V_b-V_B is not positive definite)
```

Appendix 2

Fixed Effect Estimation Result for Named Country

```
. xtreg lnimportvolume duty lnprice lner ms lagmarketshare dump1 dump2 dump3 dutycrisis, fe

Fixed-effects (within) regression               Number of obs      =       391
Group variable: countries                       Number of groups   =         5

R-sq:  within  = 0.6919                         Obs per group: min =        61
       between = 0.8947                                        avg =      78.2
       overall = 0.7523                                        max =        87

                                                F(9,377)           =     94.07
corr(u_i, Xb)  = 0.3126                         Prob > F           =    0.0000

------------------------------------------------------------------------------
lnimportvolume |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
---------------+--------------------------------------------------------------
          duty |  -.0136062    .004208    -3.23   0.001    -.0218804    -.005332
       lnprice |  -1.214988   .2648118    -4.59   0.000    -1.735682   -.6942953
          lner |  -.1355907   .0325018    -4.17   0.000    -.1994983   -.0716832
            ms |   7.080754   .4136154    17.12   0.000     6.267472    7.894036
lagmarketshare |   1.781925   .3923464     4.54   0.000     1.010464    2.553386
         dump1 |  -.0283583   .1224995    -0.23   0.817    -.2692262    .2125095
         dump2 |  -.4720867   .1895718    -2.49   0.013    -.8448373   -.0993362
         dump3 |  -.4329674   .1726569    -2.51   0.013    -.7724585   -.0934763
    dutycrisis |  -.8090238   .1255605    -6.44   0.000     -1.05591   -.5621371
         _cons |   13.35715   .1958899    68.19   0.000     12.97198    13.74233
---------------+--------------------------------------------------------------
       sigma_u |  .41265271
       sigma_e |  .81727076
           rho |  .20314896   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(4, 377) =     6.07                 Prob > F = 0.0001

.
```

Appendix 3

Random Effect Estimation Result for Named Country

```
. xtreg lnimportvolume duty lnprice lner ms lagmarketshare dump1 dump2 dump3 dutycrisis, re

Random-effects GLS regression                   Number of obs      =       391
Group variable: countries                       Number of groups   =         5

R-sq:  within  = 0.6840                         Obs per group: min =        61
       between = 0.9872                                        avg =      78.2
       overall = 0.7806                                        max =        87

                                                Wald chi2(9)       =   1355.45
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

lnimportvolume	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
duty	-.0228193	.003818	-5.98	0.000	-.0303024	-.0153361
lnprice	-1.668779	.2453009	-6.80	0.000	-2.14956	-1.187998
lner	-.0587848	.0147115	-4.00	0.000	-.0876188	-.0299508
ms	7.449762	.3879601	19.20	0.000	6.689374	8.21015
lagmarketshare	2.136098	.3777815	5.65	0.000	1.39566	2.876536
dump1	-.0249192	.1250306	-0.20	0.842	-.2699746	.2201362
dump2	-.1887697	.1835826	-1.03	0.304	-.548585	.1710456
dump3	-.2594354	.1691026	-1.53	0.125	-.5908703	.0719996
dutycrisis	-.7719361	.1222635	-6.31	0.000	-1.011568	-.5323042
_cons	12.84601	.1261208	101.85	0.000	12.59881	13.0932
sigma_u	0					
sigma_e	.81727076					
rho	0	(fraction of variance due to u_i)				

.

Appendix 4

OLS Estimation Result for Named Country

```
. xtreg lnimportvolume duty lnprice lner ms lagmarketshare dump1 dump2 dump3 dutycrisis

Random-effects GLS regression                   Number of obs      =       391
Group variable: countries                       Number of groups   =         5

R-sq:  within  = 0.6840                         Obs per group: min =        61
       between = 0.9872                                        avg =      78.2
       overall = 0.7806                                        max =        87

                                                Wald chi2(9)       =   1355.45
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

lnimportvolume	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
duty	-.0228193	.003818	-5.98	0.000	-.0303024	-.0153361
lnprice	-1.668779	.2453009	-6.80	0.000	-2.14956	-1.187998
lner	-.0587848	.0147115	-4.00	0.000	-.0876188	-.0299508
ms	7.449762	.3879601	19.20	0.000	6.689374	8.21015
lagmarketshare	2.136098	.3777815	5.65	0.000	1.39566	2.876536
dump1	-.0249192	.1250306	-0.20	0.842	-.2699746	.2201362
dump2	-.1887697	.1835826	-1.03	0.304	-.548585	.1710456
dump3	-.2594354	.1691026	-1.53	0.125	-.5908703	.0719996
dutycrisis	-.7719361	.1222635	-6.31	0.000	-1.011568	-.5323042
_cons	12.84601	.1261208	101.85	0.000	12.59881	13.0932
sigma_u	0					
sigma_e	.81727076					
rho	0	(fraction of variance due to u_i)				

Appendix 5

Fixed Effect Estimation for Non-Named Country

```
. xtreg lnimportvolume duty lnprice lner ms lagmarketshare dump1 dump2 dump3 dutycrisis

Random-effects GLS regression                   Number of obs      =       231
Group variable: countries                       Number of groups   =         7

R-sq:  within  = 0.6944                         Obs per group: min =        13
       between = 0.9138                                        avg =      33.0
       overall = 0.7353                                        max =        65

                                                Wald chi2(9)       =    613.98
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

lnimportvolume	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
duty	.1061493	.0475214	2.23	0.026	.0130091	.1992895
lnprice	-1.999777	.1326008	-15.08	0.000	-2.25967	-1.739884
lner	-.0489412	.053503	-0.91	0.360	-.1538051	.0559227
ms	10.1279	1.086621	9.32	0.000	7.998163	12.25764
lagmarketshare	-.9108954	1.225908	-0.74	0.457	-3.313631	1.49184
dump1	.3523133	.2902399	1.21	0.225	-.2165465	.9211731
dump2	.1580575	.495677	0.32	0.750	-.8134516	1.129567
dump3	-.1641259	.4574236	-0.36	0.720	-1.06066	.7324078
dutycrisis	-.3294375	.3173892	-1.04	0.299	-.9515089	.2926339
_cons	11.94283	.4478178	26.67	0.000	11.06512	12.82053
sigma_u	0					
sigma_e	1.2789295					
rho	0	(fraction of variance due to u_i)				

Appendix 6

Fixed Effect Estimation for Non-Named Country

```
. xtreg lnimportvolume duty lnprice lner ms lagmarketshare dump1 dump2 dump3 dutycrisis, fe

Fixed-effects (within) regression               Number of obs      =       231
Group variable: countries                       Number of groups   =         7

R-sq:  within  = 0.7010                         Obs per group: min =        13
       between = 0.3497                                        avg =      33.0
       overall = 0.4339                                        max =        65

                                                F(9,215)           =     56.00
corr(u_i, Xb)  = -0.7469                        Prob > F           =    0.0000
```

lnimportvolume	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
duty	.1497338	.0493015	3.04	0.003	.0525576	.24691
lnprice	-1.927899	.1313754	-14.67	0.000	-2.186847	-1.66895
lner	-1.326543	1.054929	-1.26	0.210	-3.40587	.752784
ms	10.57323	1.111472	9.51	0.000	8.382455	12.76401
lagmarketshare	-1.375221	1.2005	-1.15	0.253	-3.741477	.9910361
dump1	-.0095537	.2919878	-0.03	0.974	-.5850789	.5659716
dump2	-.5506627	.5037373	-1.09	0.276	-1.543559	.4422333
dump3	-.6324929	.4553464	-1.39	0.166	-1.530008	.2650217
dutycrisis	-.300303	.3140544	-0.96	0.340	-.9193227	.3187168
_cons	20.98334	7.261922	2.89	0.004	6.66966	35.29701
sigma_u	2.4974375					
sigma_e	1.2789295					
rho	.79224046	(fraction of variance due to u_i)				

F test that all u_i=0: F(6, 215) = 5.31 Prob > F = 0.0000

Appendix 7

Fixed Effect Estimation for Non-Named Country

```
. xtreg lnimportvolume duty lnprice lner ms lagmarketshare dump1 dump2 dump3 dutycrisis, re

Random-effects GLS regression                   Number of obs      =       231
Group variable: countries                       Number of groups   =         7

R-sq:  within  = 0.6944                         Obs per group: min =        13
       between = 0.9138                                        avg =      33.0
       overall = 0.7353                                        max =        65

                                                Wald chi2(9)       =    613.98
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

lnimportvolume	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
duty	.1061493	.0475214	2.23	0.026	.0130091	.1992895
lnprice	-1.999777	.1326008	-15.08	0.000	-2.25967	-1.739884
lner	-.0489412	.053503	-0.91	0.360	-.1538051	.0559227
ms	10.1279	1.086621	9.32	0.000	7.998163	12.25764
lagmarketshare	-.9108954	1.225908	-0.74	0.457	-3.313631	1.49184
dump1	.3523133	.2902399	1.21	0.225	-.2165465	.9211731
dump2	.1580575	.495677	0.32	0.750	-.8134516	1.129567
dump3	-.1641259	.4574236	-0.36	0.720	-1.06066	.7324078
dutycrisis	-.3294375	.3173892	-1.04	0.299	-.9515089	.2926339
_cons	11.94283	.4478178	26.67	0.000	11.06512	12.82053
sigma_u	0					
sigma_e	1.2789295					
rho	0	(fraction of variance due to u_i)				

```
.
```