Trade Remedy:

A Stumbling Block for ASEAN Economic Integration?

By

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THESIS

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List of Abbreviations

AD	Anti-Dumping
ADA	Anti-Dumping Agreement
AEC	ASEAN Economic Community
AFTA	ASEAN Free Trade Area
AMC	ASEAN Member Country
ANZCERTA	Australia-New Zealand Closer Economic Relations
APSC	ASEAN Political-Security Community
APTA	Asia Pacific Trade Agreement
ASCS	ASEAN Social-Cultural Community
ASEAN	Association of South East Asian Nation
ATIGA	ASEAN Trade in Goods
BIS	Bureau of Import Services
CEPT-AFTA	Common Effective Preferential Tariff for ASEAN Free Trade Agreement
ECSC	European Community of Steel and Coal
EU	European Union
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
HS	Harmonised System
IDN	Indonesia
KADI	*Komite Anti-Dumping Indonesia* (Indonesian Anti-Dumping Committee)
KPPI	*Komite Pengamanan Perdagangan Indonesia* (Indonesian Trade Safeguards Committee)
MFN	Most Favoured Nation

MIDA	Malaysian Investment Development Authority
MITI	Ministry of International Trade and Industry
MYS	Malaysia
NAFTA	North American Free Trade Area
PHL	Philippines
RTA	Regional Trading Agreements
SCM	Subsidy and Countervailing Measures
SIN	Singapore
SPARTECA	South Pacific Regional Trade and Economic Cooperation Agreement
TAO	Tariff Analysis Online
THA	Thailand
UNCTAD	United Nations Conference on Trade and Development
VNM	Viet Nam
WCO	World Customs Organisation
WDI	World Development Indicator
WITS	World Integrated Trade Solution
WTO	World Trade Organisation

Abstract

This thesis investigates ASEAN's use of trade remedy instruments and their impact on trade and liberalisation efforts.

With the growing number of trade remedy cases worldwide, ASEAN member countries are exposed as targets of anti-dumping (AD), subsidy and countervailing measures, and safeguards. They are also new users, primarily of Anti-dumping.

Focusing on AD, this thesis presents the landscape, implementation and application, and effects of trade remedy instruments in the South East Asian region. Under the ASEAN Trade in Goods Agreement (ATIGA), ASEAN members are permitted to use trade remedy instruments as stipulated in agreements of the World Trade Organization (WTO). Although the use of trade remedy instruments are sometimes seen as contrary to the WTO's most favoured nation (MFN) principle, their use is permitted in exceptional circumstances. How does the decision to make AD - a trade limiting policy – readily available for ASEAN members affect industries, trade flow and integration efforts with the establishment of ASEAN Economic Community in 2015 and goals of becoming a more integrated region?.

This thesis examines three main questions as an indication of trade liberalisation and integration efforts: (1) What motivates ASEAN member countries in initiating AD investigations? (2) How does AD affect trade? and (3) Does AD contribute to the reduction of tariffs?

This thesis utilises ASEAN trade remedy, imports and applied tariffs data from 1995 to 2012. To investigate the motivation behind the use of AD, this thesis uses binomial probability to look at whether AD use is triggered by strategic or economic

motives. An econometric model is applied to Indonesian import data to find evidence of the investigation, trade diversion and destruction effects on trade flows. The relationship between average applied MFN tariffs and the use of AD is estimated to identify its contribution to liberalisation.

The results reveal that, for ASEAN members, the use of AD is driven more by strategic motivations. In the case of Indonesia, AD use does halt the movement of import products when AD duty is imposed at least from the named countries in the case, but this effect is offset by the diversion of trade to non-named countries. The analysis of this thesis also found evidence of the AD's contribution to the reduction of average applied MFN tariffs, particularly so for the reduction of applied tariffs at the product level. Furthermore, for ASEAN, it was found that the contribution of the use of the AD instrument is more significant for countries with lower GDP per capita than for countries with higher GDP per capita.

Declaration

I, Aritta Gracia Lily Girsang, certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name in any university or other tertiary institution and, to the best of my knowledge and belief, contain no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission in my name for any other degree or diploma in any university of other tertiary institution without the prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint award of this degree.

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Aritta Gracia Lily Girsang

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Chapter 1 Introduction

The Association of Southeast Asian Nations (ASEAN) has made a decision to maintain the use of trade remedy instruments in the region under the ASEAN Trade in Goods Agreement (ATIGA) (ASEAN n.d.-a). Trade remedies are acceptable exceptions to the WTO's MFN principle and include anti-dumping, subsidies and countervailing measures, and safeguards. Previous research has shown that an entity with deeper economic integration tends to eliminate the use of trade remedy instruments among its member countries (see Rey 2012; Voon 2010) or, at the very least, limits or substitutes the instruments with other regulations, such as competition policy. Hoekman and Leidy (1993) argued that a regional integration agreement, where liberalisation is neither limited nor permitted to exempt specific sectors, would gain greater economic benefits. However, ASEAN (through ATIGA) decided to keep the instrument untouched, thus providing the option to halt trade should it be deemed necessary. The research here evaluates whether trade remedy instruments would help or hinder this goal of ASEAN economic integration.

1.1 Regional trading agreements and ASEAN

Examples of early regional cooperation, especially in economic activities, include the European Community of Steel and Coal (ECSC) (1951), Asia Pacific Trade Agreement (APTA) (1976) and South Pacific Regional Trade and Economic Cooperation Agreement (SPARTECA) (1981) (WTO n.d.-a). The use of regional economic groupings is driven by the effects of cooperation in economic and liberalisation activities for its members (Ewing-Chow & Hsien-Li 2013; Bhagwati

1992 in Hoekman, B & Leidy 1993). This belief is underscored by the growing number of regional trade agreements, especially within the last two decades. Recent World Trade Organisation (WTO n.d.-l) statistics show that there are currently 659 existing RTAs reporting to the WTO Secretariat, with 445 agreements in force.

The abundant number of trading agreements often produces overlapping rules and benefits, not only within regional trade settings, but also across the globe. Previous researchers have described this overlapping and interrelated web of agreements as a 'spaghetti bowl' (Bhagwati and Panagariya 1999 in Baier et al. 2008). The downside of overlapping trade agreements is the discriminatory reality in international trade activities (Austria 2012), so that some countries which are not members of certain bilateral and regional trading agreements are losing from the trade deals of others. Nevertheless, mindful of this situation, member countries within a region cannot simply opt out from taking part in the rapidly growing number of regional trading schemes.

ASEAN is a prominent actor in the formulation of regional trading arrangements in the South East Asian region, and also a leader in the region's path towards economic integration. Shimada (2010) reaffirms that ASEAN's dominance in Southeast Asia is unquestionable, and points out that ASEAN is the only organisation within the region that has managed to prevail through 50 years of organisational struggle and development. Indonesia, Malaysia, Thailand, the Philippines, and Singapore were the five founding fathers in the organisation's establishment (ASEAN n.d.-d), followed

by Brunei Darussalam, Cambodia, Lao PDR, Myanmar and Viet Nam. This cooperation was designed to promote regional peace and stability and to nurture economic, social and cultural cooperation (ASEAN n.d.-f). The ASEAN Concord of 1976 laid the foundation for what is believed to be the most successful organisation in the world (Hew 2007). Recent statistics reveal that ASEAN comprises a total population of around 628 million people with average GDP per capita of US$3,867 and a market that provides very low tariffs on its traded goods (ASEAN n.d.-f; Sen & Das 2007)

Previous research conducted on the process of its growth and development has underlined doubts and criticisms about ASEAN's political will, legality and weak institutional implementation, and consequently its ability to address the region's issues and challenges (Hew & Soesastro 2003; Pangestu, Soesastro & Ahmad 1992; Sen & Das 2007). However, the establishment of the ASEAN Free Trade Area (AFTA) in 1992 and its entry into force in 2003 reaffirmed ASEAN's reputation as a promising actor among regional trading arrangements. AFTA not only captured ASEAN's ability to move forward with its regional initiatives, but also served as an example of how powerful economic factors are driving the region towards greater integration in the future (Chandra, AC 2008; Plummer 2006a). Moreover, the much-needed legality of ASEAN's institutional framework and legal status was strongly validated through the enactment of the ASEAN charter in 2008 (ASEAN n.d.-e). Learning from AFTA, it has been said that economic motivation is the main driving force for ASEAN's economic integration (Ewing-Chow & Hsien-Li 2013; Green 2008; Pangestu, Soesastro & Ahmad 1992).

1.2 The ASEAN Economic Community and ATIGA

An important milestone was marked at ASEAN's informal meeting in Kuala Lumpur in 1997 (ASEAN n.d.-c). This informal meeting led to the launch of ASEAN Vision 2020, which is considered the most important breakthrough by far in ASEAN's history. ASEAN Vision 2020 laid out the foundation for a more integrated community in Southeast Asia called the ASEAN Community that conveys the goal of becoming a region capable of responding to external challenges, while creating a peaceful, stable and prosperous region. The ASEAN Community was initially supposed to be realised in 2020, but this deadline was brought forward to 2015 at the 12th ASEAN Summit in January 2007 (ASEAN n.d.-e). The aspiration of an ASEAN Community is envisaged through three important pillars; namely, ASEAN Political-Security Community (APSC), ASEAN Economic Community (AEC) and ASEAN Social-Cultural Community (ASCC).

More specifically, this thesis takes a closer look at the pillar comprising the AEC, as well as ATIGA and the trade remedy instrument. The AEC captures the region's objectives of becoming a single market entity, where movements of goods, services, capital, and labour is unrestricted (Hew 2007; Hew & Soesastro 2003; Lloyd 2005; Plummer 2006a). The ATIGA was agreed upon to provide a platform that envisages all things related to trade in goods under 'one single legal instrument' (Austria 2012, p.145). The agreement was signed in 2009, and its legality superseded all Common Effective Preferential Tariff for ASEAN Free Trade Agreement (CEPT-AFTA) agreements and protocols (ASEAN 2010).

ASEAN committed to gradually reducing a range of non-tariff barriers (see table 1A p.258 in Lloyd 2005). Trade remedy measures are generally regarded as barriers to trade and one of the derogations allowed to WTO's most favoured nation (MFN)[1] principle due to issues of economic nature (WTO n.d.-u) that affects the volume and patterns of international trade (UNCTAD 2012) and is an essential factor that helps the flow of trade in goods (Bagchi, Bhattacharyya & Narayanan 2014; Hartigan & Vandenbussche 2013; WTO n.d.-v).

Although some regional arrangements modify or even eliminate regulations relating to trade remedies (Voon 2010), ASEAN has left trade remedy instruments intact. Rey (2012) further confirms that, as a regional trading agreement, ASEAN does not alter or add any provisions to WTO trade remedy agreements. This exclusion of trade remedy measures from the non-tariff barrier list dates from the establishment of the AEC and was confirmed through the recent ATIGA agreement in Chapter 9, Article 86 (Safeguards) and Article 87 (Anti-Dumping and Countervailing Duties) (ASEAN n.d.-b). This apparent contradiction provides the basis for this thesis and its aim to make assessments about ASEAN's processes and major goal of achieving deeper economic integration.

[1] The MFN principle is regulated under the WTO's GATT, Article I, GATS Article II and TRIPS Article IV, which state that member countries should not discriminate between their trading partners (WTO n.d.-u).

1.3 Trade remedy instruments in ASEAN

Previous scholars (see Rey 2012; Teh, Prusa & Budetta 2007; Voon 2010; Yu 2013; Zheng 2013) have identified trade remedy instruments as consisting of anti-dumping (AD), subsidies and countervailing measures (SCM), and safeguard measures. Dumping occurs when imported goods cause injury in the domestic market, lowering prices below the normal value. Anti-dumping measures then include an imposition of duty when an investigation found proof of import products sold under the normal value. Subsidies and countervailing measures refer to government actions that offset actions by exporters that lower prices. The AD and subsidy and countervailing measures represent exceptions and actions that can be taken by WTO member countries in the case of prices which are regarded as 'unfair' within international trade. Meanwhile, safeguard instruments aim to respond to injury or threat of injury caused by an unpredicted increase in imports into a domestic market. Safeguard measures can be used when the underlying criteria for an economic emergency in a domestic industry are fulfilled (Van Den Bossche 2008; WTO n.d.-v). These instruments are made available to all WTO members under the guidance of the WTO agreements on anti-dumping (ADA), SCM and safeguards (WTO n.d.-k).

Based on WTO statistics (n.d.-f, n.d.-i, n.d.-m) on AD, SCM, and safeguard initiations, only six out of the ten ASEAN member countries (AMC) either use the instruments or are revealed as targeted markets for trade remedy investigations and measures. With regards to trade remedy investigations, any country can be a target of trade remedy investigations and measures; regardless of whether that country is an

active user of the instruments. Together, from 1995 to 2012, Indonesia, Thailand, Malaysia, Philippines, Singapore and Viet Nam were responsible for approximately 12%–15%[2] of the total trade remedy initiations worldwide. Trade remedy measures levied on these economies comprised approximately 18%[3] of the total trade remedy measures in 2012 (WTO n.d.-g, n.d.-j, n.d.-o). Both of these statistics show quite a significant role from just six countries in the Southeast Asian region. Although the numbers represent less than 20% of the world's total number of trade remedy initiations and measures, the fact that more than half of the AMC are active users suggests a potentially significant factor for intra-regional negotiations.

The examples of other regional trading agreements such as the European Union (EU), North American Free Trade Agreement (NAFTA), and Australia-New Zealand Closer Economic Relations (ANZCERTA) provide a spectrum of findings on how certain regional settings perceived the necessity to retain trade remedy instruments. Voon (2010) reveals how some regional arrangements opted to adopt WTO trade remedy rules 'as is' and how some add or modify specific regional trading regulations to the existing WTO trade remedy regulation. ASEAN's practices fall under the former 'as is' category, whereas those of EU, NAFTA and ANZCERTA fall in the latter (Voon 2010). Alteration of or addition to existing WTO trade remedy

[2] Calculations are made by author from WTO data.

[3] Calculations are made by author from WTO data.

rules and regulations is acceptable under the WTO regional integration exception (Van Den Bossche 2008). Furthermore, Lloyd (2005) reiterates that this condition is not uncommon; regional trading agreements are found with certain degree of harmonisation of rules and regulations around such exceptions for their member countries.

ASEAN takes a contradictory stand within a regional arrangement. On the one hand, its aim is to eliminate barriers to trade and to emerge as a solid community; yet, it retains trade remedy instruments that, when applied, can limit trade. This condition raises the question about the reasoning behind the decision to exclude trade remedy instruments from the regional integration agenda. Referring to the goal of becoming a single market entity, the imposition of trade remedy measures in the region is believed to create an situation that can actually halt the flow of imports, and even have an adverse impact on productive behaviour by domestic companies (Dios 2007; Findlay, Parsons & Plunkett 2007; Hoekman, B & Leidy 1993). Moreover, with AFTA providing relatively low or even non-existent barriers to trade (MacLaren 2007), ASEAN's decision to maintain trade remedy instruments might need to be revisited to avoid unnecessary barriers for proceeding with its goal of deeper economic integration. On the other hand, there are arguments for the retention of these instruments, which are reviewed in later sections. These include motives such as providing a mechanism to manage some of the risks associated with liberalisation.

This thesis investigates, therefore, the decision made by ASEAN to maintain the use of trade remedy instruments even while endeavouring to establish the AEC by 2015. This thesis identifies the six AMCs that are actively using trade remedy instruments and identifies situations and motivations relating to trade remedy instruments. Furthermore, this project attempts to quantify the value of the trade of industries involved in trade remedy investigations. Finally, the project examines the association of the use of these measures and reductions in tariffs. It also formulates recommendations as to whether or not the existing trade remedy instruments would pose a stumbling block for achieving AEC objectives.

Research on regional trading agreements and trade remedies has been done before (see Michalopoulus & Ng 2013; Rey 2012; Teh, Prusa & Budetta 2007; Voon 2010; Zheng 2013)**.** However, relatively limited research has attempted to quantify the impact of trade remedies within a particular regional trading agreement. This research will be valuable for the discourse of political economy, regionalism and trade remedy issues in ASEAN, which can then be extended to other regional settings.

1.4 Literature review

In order to explain the starting point of this thesis' discussion, this section reviews some of the existing literature that discusses the use and impact of trade remedy instruments as one of the trade policy instruments available in international trade. Particular attention is paid to analysis within regional settings.

1.4.1 Trade remedy adoption and utilisation

The perception of issues and problems in international trade lead to the demands for countries to implement temporary protection measures, which in turn contributes to the increasing utilisation of trade remedy instruments. Michalopoulos and Ng (2013) find that trade remedies are the most commonly used temporary protection instruments by both developing and developed countries. Van den Bossche (2008), Voon (2010) and Zheng (2013) explain that trade remedies as AD, subsidy and countervailing measures, and safeguard measures can be justified as economic exceptions under WTO rulings. Miranda, Torres and Ruiz (1998), Bown (2012a, 2012b, 2012c) and Teh, Prusa and Budetta (2007) document trade remedy usage meticulously. Furthermore, trade remedy cases mostly revolves around manufacturing products, targets developing countries and in some cases found as a trade liberalisation trade-off.

In evaluating the role of trade remedies, the literature provides different opinions. The road to integration and further trade liberalisation involves barrier elimination. Hence, trade remedies are an economic exception that creates an additional burden. The question is, when that burden is reasonable? Hartigan and Vandenbussche (2013) and Bagchi, Bhattacharyya and Narayanan (2014) present trade remedies as an acceptable exception to MFN tariff cuts. They refer to them as crucial for trade-in-goods activities, mainly due to the protection they provide against the adverse effects of competition. Furthermore, Hoekman and Kostecki (2001) and Zanardi (2006) describe AD, one of the trade remedy instruments, as an essential component that

lays concrete building blocks for trade liberalisation development. Zanardi (2006) elaborates that AD is important because of its ability to gather public support for not only regional, but also multilateral efforts to achieve further trade liberalisation activities, such as tariff concessions. Bagchi, Bhattacharyya & Narayanan (2014) particularly described AD as an instrument that can present a threat to the exporter thus forcing them to adjust their behaviour to align with AD regulations.

Contrasting views on the use of trade remedies in ASEAN have been put forward by Hoekman and Leidy (1993), Dios (2007), Findlay, Parsons and Plunkett (2007). These express the possibility of trade remedy to mitigate productive behaviour and at the same time become an advantage for industries. Hoekman and Leidy (1993) posit that the access to trade remedies enable companies and industries in importing countries to pick and choose instruments that can benefit or protect them.

Realising that there are disadvantageous effects of trade remedy, Voon (2010) and Koopman and Vogel (2008) find that in response to the adverse effect of trade remedy use, some regional trading agreements have decided to substitute other measures, such as competition law, or even eliminate the possibility of using trade remedies altogether.

Van den Bossche (2008) and Lloyd (2005) suggest that under WTO stipulations members are allowed to make alterations using trade remedies and that this practice

is often executed to achieve favourable results in regional settings. In the case of ASEAN, Rey (2012) reiterates ASEAN's decision to accept and adopt trade remedies as stipulated in the WTO agreement incorporated in the ATIGA. Moreover, Hew (2007) notes that, from observations over the years, ASEAN is an example of a successful regional institution. From AFTA to the AEC and ATIGA, ASEAN has indeed shown its willingness to pursue economic integration and work towards the benefits of trade as a regional entity. Thus, ASEAN's success and integration effort is said to be driven predominantly by economic factors (Chandra, AC 2008; Ewing-Chow & Hsien-Li 2013; Green 2008; Pangestu, Soesastro & Ahmad 1992; Plummer 2006b; Sen & Das 2007). These reports of ASEAN's successes and achievements, in the context of the application by its members of trade remedies, may indicate ASEAN versatility in strategically utilising those instruments.

With the literature indicating contrasting views on the use of trade remedy, this research aims to find empirical evidence on the effects of trade remedy use in ASEAN and investigate whether its use supports ASEAN economic integration efforts or not.

Prusa and Skeath (2002) provide a focal framework to investigate the motivation for the use of the AD instrument. The authors question the belief that the increase in AD use is mainly for the purpose of targeting 'unfair trade' import activities and investigate whether this is the only cause for increasing use of AD. Here, 'unfair trade' is defined as trade at prices which are reduced by dumping or by subsidies by

the exporter. In this situation, after examination, the use of AD measures and countervailing duties can be triggered.

Their model incorporates methodologies from Bagwell and Staiger (1990), Finger (1993) and Prusa (2001) that look at AD actions and the use of special protection instruments in different periods. Prusa and Skeath's (2002) model identifies two categories of motivation to use AD: strategic and economic. Strategic motivation refers to the role of retaliation-driven AD use in prompting an investigation. Economic motivation refers to the role of big import markets and big import surges in prompting an AD investigation. The economic motivation here is used to capture the effect of 'unfair trade' import activities. Prusa and Skeath (2002) use binomial probability to establish support for the motivation to file an AD investigation. In addition to the two motivations, Prusa and Skeath distinguish two categories of users of AD, traditional and new, the latter of whom are the source of increased AD usage. They look into motivation tendencies in the two categories of user and measure this motivation through short and long term memory parameter of time. The empirical results show that AD cases are driven predominantly by the strategic motivation, which negates the belief that AD is only triggered by 'unfair trade' activities.

1.4.2 The impact of using the trade remedies instrument

The growing use of trade remedies over the years, particularly the level of AD use, has prompted scholars to investigate the reasoning behind the utilisation of such instruments. As AD is the most used trade remedy instrument, findings on its use

dominate the existing literature. Two effects are of interest here: one is trade flow and the other is the progress of liberalisation.

Research conducted by Bown and Tovar (2011), Chandra and Long (2013) and Niels and ten Kate (2004, 2006) has highlighted the effects of using AD instruments on developing countries and new users of this instrument. Investigation, trade destruction and trade diversion effects are commonly observed when examining trade effects. Bown (2013), Krupp and Skeath (2002) and Prusa (2001) have found that even when duty is not imposed, AD initiation alone has impeded trade flows. Prusa's observation on the use of AD duties imposition causes "the value of imports to fall by 30-50 per cent" (p. 591, Prusa 2001) and the effect of this pressure import is seen on the first three years after AD was initiated. Focusing on products, Krupp and Skeath (2002) examine the effect of AD duty imposition on the quantity and value of upstream and downstream production. When AD duty is imposed, the authors (2002) find harassment effect (fall of dumped imports) and diversion effect (increase in non-dumping imports). In addition, Durling and Prusa (2006) utilise hot-rolled steel market to observe trade effects associated with AD investigations and duty imposition. These authors (Durling & Prusa 2006) also find strong evidence trade destruction when AD duty is imposed.

The use of AD as a 'safety valve' argument has been discussed by previous scholars. Ketterer (2015) investigates AD's role in this issue as an insurance that leads to more trade; and Niels and ten Kate (2006) suggest that AD's safety valve argument can be

identified in three ways: (i) as a government negotiation tool, (ii) as a response to the defects of international trade and (iii) as a justification for temporary protection. Furthermore, researchers have linked AD implementation to trade liberalisation efforts, identifying policy changes and tariff-level movement as contributing factors in economic integration.

By taking into account dissenting results of AD's contribution to trade liberalisation, the studies of Aggarwal (2004), Bown and Tovar (2011), Feinberg and Reynolds (2007), Miranda, Torres and Luis and (1998), Moore and Zanardi (2011) and Niels (2000) have found evidence of such correlation, especially for developing countries. Aggarwal observers macroeconomic factors influence AD instrument using panel data analysis from 99 countries (developed and developing countries). Aggarwal results highlight that increasing AD use among developing countries is due to the fact that they are the targets of AD instrument. Developing countries subsequently use AD to counter investigation directed at them which occurs as a result of greater trade liberalisation that eventually "reverse the trade gains that liberalisation may ensure to them" (p. 1054, Aggarwal 2004). Miranda, Torres and Luis's (1998) observation on AD use also reiterates how the gains from trade liberalisation diminishes with the increasing number of AD use. Bown and Tovar (2011) observed India's pre-reform import tariffs (1990s) and compared it to post-reform tariff (2000-2002) and arrive at the conclusion that lowered tariff, results of the liberalisation process in pre-reform era, have been put back on through the use of AD and safeguards in the post-reform era. Furthermore, Moore and Zanardi (2011) utilise probit framework to investigate developing countries' AD relationship with trade

liberalisation and conclude that their results enunciate the previous work of Bown and Tovar (2011) where lower tariffs leads to bigger chances of AD to be used. By focusing on developing countries, Feinberg and Reynolds (2007) observe reduction in tariff, based on Uruguay round tariff, on country using AD and test it on probit model. The authors (2007) conclude that for developing countries, AD investigation is seen to increase when tariffs are decreasing under multilateral agreement setting.

1.5 Outline

The previous empirical work and research mentioned above are used in this thesis as a starting point from which this thesis builds, extends and contributes to the discussion on the use of trade remedies in a regional setting and how the use of this trade policy instruments affects member countries in ASEAN.

In order to provide reliable argument in answering the research question, this thesis is structured in the following sequence.

Chapter 1 also reveals and describes the literature that highlights the use and effect of trade remedies (AD, subsidy and countervailing measures and safeguards) and their implementation. This chapter relies and builds on the work of Miranda, Torres and Ruiz (1998), Zanardi (2004), and The, Prusa and Budetta (2007) and Bown (2012a, 2012b, 2012c) in presenting the statistics of trade remedy usage.

The landscape of the trade remedy in the Southeast Asian region is elaborated in Chapter 2. This chapter describes the statistics on AMC trade remedy usage from 1995 to 2012. All trade remedy activities and the implementation of trade remedy law is recapitulated in this chapter. It is then revealed that in the period being observed, there are only four active AMCs that use trade remedy instruments; namely Indonesia, Malaysia, Thailand, and the Philippines. This number is smaller when linked to the statistics on trade remedy law implementation. This thesis finds that only four out of the 10 AMCs still have not implemented this remedy in their national law. Furthermore, the steel sector is also found to be the most affected when it comes to trade remedy investigations. Moreover, although AMCs have been engaged in all three types of trade remedy investigations, the four most active members have exercised only AD and safeguards, and no subsidy investigation was found between the years 1995 and 2012.

The definition and requirements of utilising AD, SCM and safeguards, and their elaboration, is compiled from WTO (n.d.-a, n.d.-f, n.d.-g, n.d.-i, n.d.-p, n.d.-q, n.d.-r, n.d.-s) reports, Laprevote and Kang (2011), and Steger (2010) and Lester (2011). The work of Liang (2005), Le and Tong (2009) and Plummer (2006a, 2006b), along with interviews[4] with Indonesian and Malaysian national authorities, is also incorporated

[4] Various source were consulted in this interview with permission to quote them on the condition of confidentiality. Therefore, sources will be identified with the letter I and order number of their interview, for example I1, I2, I3.

in individual AMC trade remedy statistics. The statistics from this compilation of ASEAN trade remedy data show that the level of AD usage of the four AMC (Indonesia, Thailand, Malaysia and Philippines) AD users is the highest in the Southeast Asia region. This situation is also highlighted by Aggarwal (2004) and Neufeld (2001), who posit that AD present a less discriminating policy when compared to safeguard measures.

Chapter 3 continues the discussion by providing a statistical analysis of the motivations that drive AMCs to conduct trade remedy investigations. As this thesis focuses specifically on AD, Prusa and Skeath's (2002) methodological model, which examines the motivation behind the application of AD in the particular case, is replicated this chapter. From the statistics provided in Chapter 2, this chapter focuses on finding the motivations behind the use of AD investigations, for this instrument is the most widely used of the three trade remedy instruments. Anti-dumping actions are tested under two different motivations: strategic and economic. Strategic motivation assumes that the reason for an AD investigation is retaliation and experience (the club effect), whereas where the motivation is economic, the investigation looks at the impact of fluctuating economic activities. This chapter looks into establishing empirical support to explain whether ASEAN AD case investigations are driven by strategic or economic motives. From Chapter 3 onwards, the focus is placed on AD as the major trade remedy instrument.

The effects of AD on Indonesia's import trade are presented in Chapter 4. As the most frequent user of trade remedies and AD in ASEAN, the Indonesian imports data set is used to illustrate the trade effects of AD implementation. Chapter 4 utilises two econometric models adapted from Niels and ten Kate (2006) to assess the existence

of an investigation effect, a trade destruction effect and a trade diversion effect. Indonesian goods imports are analysed by looking at products being investigated by the Indonesian authority within the timeframe of this thesis: 1995–2012. Moreover, this chapter also analyses the impact that AD has on specific countries being named in an AD investigation and their exports to the Indonesian market. The empirical calculation will reveal if Indonesian import trade is impeded by AD investigation and duty imposition.

As an extension of the AD effect found in the previous chapters, Chapter 5 measures empirically whether AD investigations contribute to trade liberalisation, incorporating the work of Moore and Zanardi (2009). In order to answer whether AD helps or hinders trade liberalisation, this chapter looks at ASEAN-applied tariffs and calculates statistically if there is proof of tariff reductions as a result of AD implementation. The positive contribution, if found to exist, would further support an argument that AD or trade remedy exists as a safety valve for trade liberalisation, especially in the Southeast Asian region.

Herewith, this thesis contributes to the nascent discussion by extending the body of knowledge on regional trading agreements and trade remedies, particularly in the Southeast Asian region.

Chapter 2 Trade Remedies in ASEAN

Trade remedies are AD, SCM, and safeguards (Zheng 2013) that follow the provisions of the agreements under the General Agreement on Tariffs and Trade (GATT) (WTO n.d.-t). These instruments are acceptable exceptions to the WTO MFN treatment principle and are key to securing dynamics of trade in goods (Bagchi, Bhattacharyya & Narayanan 2014; Hartigan & Vandenbussche 2013; WTO n.d.-v).

The three instruments allow exceptions to levy duty on imported products in addition to the existing MFN tariffs when such practices are found to be consistent with GATT requirements. While AD and SCM directly mitigate unfair trade, the safeguards instrument is invoked in the absence of unfair trade, for the sake of the domestic industry. In short, all three trade remedy instruments will place pressure on imported products by levying additional duty and/or quotas.

This chapter describes the use of trade remedies (AD, SCM and safeguards) in ASEAN. It focuses on economies actively using the instruments within the region, and finds an increasing level of trade remedy instrument activity in ASEAN in the period 1995–2012. The period of the data studied is determined by the years of the WTO's existence, since, in the long run, members are obliged to report trade remedy activities to the WTO. Previous scholars (see Bown 2012a, 2012b, 2012c; Miranda, Torres & Ruiz 1998; Teh, Prusa & Budetta 2007; Zanardi 2004) have provided comprehensive compilations of the use of trade remedy instruments worldwide. In an

effort to update knowledge and enrich research on trade remedies, this research specifically updates and elaborates on ASEAN's statistics on the use of trade remedy instruments in relation to the rest of the world.

Calculations of the extent of trade remedies investigations in this research will be derived from AMC-initiated trade remedy instruments. Here, the count is based on original investigations, omitting any kind of review initiations (e.g. mid-term review, sunset review and new exporter review). The calculations are also based on product initiations as opposed to the number of countries within a product investigation. This method of calculation is different to the calculations done by the WTO or those in the World Bank database, where each affected exporting country is treated as a separate case. Where the harmonised system (HS) code of the product under investigation is not available, the sector of the affected product under investigation is decided based on the name of the product and past records of such product investigations. Determining the HS code is important for sectoral classification of products in the research.

This chapter provides the landscape of trade remedy for the ASEAN region. Section 2.1 includes an overview of AD, SCM and safeguards. Section 2.2 deals with the topics of legal implementation, sectoral overview, and duration of the use of trade remedy instruments. Section 2.3 focuses on what is happening in each AMC – including users and non-users of trade remedy instruments. Section 2.4 provides preliminary observations on the use of AD and safeguard instruments in particular.

2.1 Overview of trade remedies

2.1.1 Anti-dumping

Anti-dumping is the most-used trade remedy instrument out of the three instruments made available to all WTO members. Guidelines for the AD instrument, which are considered the main cause of growth in trade remedies use and non-tariff barriers (Zheng 2013), can be traced back to Article VI of GATT (WTO n.d.-t) and the Anti-Dumping Agreement (ADA) (WTO n.d.-b).

Dumping is a condition where a product – or a like product[5] – is sold abroad at prices lower than its normal value[6], thus the AD instrument is used when dumping activities are found to be used excessively and are causing injury to the domestic industry (Bown 2008; Kazeki 2010; Sykes 1996; Van Den Bossche 2008). Anti-dumping measures can be imposed after an investigation and determination is completed by a national authority according to the WTO's ADA.

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[5] Article 2.6 of the ADA stipulates, "Like product as a product which is identical, i.e. alike in all respects to the product under consideration or, in the absence of such a product, another product which, although not alike in all respects, has characteristics closely resembling those of the product under consideration" (WTO n.d.-s).

[6] Normal value refers to the price of product in the domestic market of the exporting country (WTO n.d.-k).

An AD investigation targets a particular company within a country that imports product to its domestic market. In determining the final decision of an investigation, a national authority will need to take into account the following elements (WTO n.d.-s):

> (1) consideration of volume effects of dumped imports; (2) consideration of price effects of dumped imports; (3) evaluation of volume and price effects of dumped imports; (4) examination of impact of dumped imports on the domestic industry; and (5) demonstration of causal link.

Anti-dumping duties can be imposed once an investigation has been finalised, with evidence of the following situations: (1) a product is being dumped into a domestic market; (2) injury[7] is experienced by a domestic industry that produces a like product; and (2) a causal link is found between the dumped product and material injury. A causal link is essential in determining whether or not AD duty imposition can be implemented. An AD investigation usually establishes whether an imported product's "normal value" is lower than its export price.

[7] The WTO defines "Injury" (WTO n.d.-s) as "(i) material injury to a domestic industry, (ii) threat of material injury to a domestic industry, or (iii) material retardation of the establishment of a domestic industry".

The AD agreement has been revised through several rounds of negotiations, and was concluded at the end of the Tokyo Round (WTO n.d.-k). To date the AD agreement sets out the conduct, requirements and steps for initiating and imposing AD investigations and measures. The agreement explains in detail the methods to determine whether a product is dumped, criteria to determine whether dumped imports cause injury to the domestic market, and the implementation and duration of AD duties. Members of the WTO are obliged to report every six months the WTO's AD committee on all activities related to case initiation, investigation and measures imposed (WTO n.d.-v).

In addition to the final AD duty imposition, provisional duty can be imposed and price undertakings can be implemented during an AD investigation prior to a final decision on an AD determination. Articles 7 and 8 of the ADA govern the conduct for these actions. Once decided by a national authority, AD duty can be implemented for up to five years, with the possibility of review and extension. The ADA also stipulates that an AD investigation can be terminated when a *de minimis*[8] margin of dumping and negligible[9] level of imports are found (WTO n.d.-k).

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[8] The *de minimis* rule refers to the condition where a margin of dumping established by an AD authority is found to be less than two per cent of the product's export price.

[9] The negligible rule refers to when the volume of dumped imports is less than 3 per cent of the product being investigated.

2.1.2 Subsidies and countervailing measures

The Agreement on SCMs (the SCM Agreement) governs the application of subsidies and countervailing investigations. Subsidies relate more to how governments prioritise and intervene in international trade (Laprevote & Kang 2011; Sykes 1996).

Subsidy investigations target a particular government and/or government agency in a country. Subsidies investigations aim to counter the effects of such actions by other countries, when proven in the investigation, by imposing a countervailing duty. A national authority is responsible for conducting the countervailing investigation and granting subsidies. Although government-provided subsidies for the purpose of achieving certain goals are considered common, the subsidies being discussed under the WTO are restricted to those where the application of the subsidy distorts trade (Steger 2010). The SCM agreement emphasises that the detrimental effects for any domestic industries of another signatory should not prevail. Where the use of subsidies comes under question, then the subsidising government under investigation needs to prove that no serious prejudice exists with the application of the subsidy (WTO n.d.-k).

The existence of a subsidy is established when a financial contribution is specifically given by a government or government agency towards a specific enterprise, industry and territory, resulting in a benefit (Lester 2011; Steger 2010; WTO n.d.-p). Moreover, the element of ‘specificity’ needs to be established before the provisions on actionable subsidies can be implemented. The SCM Agreement explains four

types of specificity in Article 2, which would be subjected to the agreement. They are: (a) enterprise specificity, (b) industry specificity, (c) regional specificity, and (d) prohibited subsidies. These types of specificity outline the specific government subsidisation that may be given to target particular companies, specific sectors and producers in certain areas or territory for the export of goods or the use of domestic inputs (Steger 2010; WTO n.d.-k, n.d.-p).

There are three categories of subsidies based on the SCM Agreement: (1) prohibited, (2) actionable and (3) non-actionable. Prohibited subsidies consist of export subsidies and local content subsidies. They are prohibited simply because of their ability to disrupt trade and create unfairness in international trade. The second category, actionable subsidies are subsidies that are allowed in the SCM agreement but are eligible to be challenged through multilateral platform mechanisms or through countervailing action. Non-actionable subsidies are specific or non-specific subsidies that are believed to have detrimental effects on a domestic industry, by providing support for research and development efforts, and offering support for environmental standards set by the law and/or regulations.

In addition, Article 5 of the SCM Agreement (WTO n.d.-d) explains about special rules for subsidies on agricultural products. This indicates that as long as the export subsidy conforms fully with the SCM Agreement, it remains viable but can still be challenged with countervailing duties.

The SCM Agreement (WTO n.d.-d) also specifies that countervailing measures can be used in cases where adverse effects and injuries exist as a result of government subsidies. Part V of the Agreement elaborates on the initiation of investigations, the conduct of national authorities, the calculation of subsidies, and procedural requirements for imposing measures and investigations. Similar to AD, countervailing measures should satisfy and prove the existence of subsidised imports, injured domestic industry due to subsidised import, and a causal link between the subsidy and the injury (WTO n.d.-p). Moreover, Part V of the SCM agreement aims to ensure that the conduct of countervailing investigations is done transparently by providing all parties with equal chances to protect their interest.

Similar to the imposition of AD duty, countervailing measures are put in place for a maximum of five years, with the possibility of a continuation after a thorough investigation demonstrates that subsidised imports persist. *De minimis* rules also apply in a countervailing investigation when subsidy is calculated as less than one per cent volume of subsidised imports, or when injury is found to be negligible.

2.1.3 Safeguards

Safeguards focus on import surges in the domestic industry's market that can cause serious it injury or threat of serious injury (WTO n.d.-q). The Agreement Safeguards stems from Article XIX of GATT 1994 (WTO n.d.-n). Similar to AD and SCM, a national authority is responsible for the conduct of a safeguards investigation, while a Committee of Safeguards exists to review actions, implementation and compliance

with the Safeguards Agreement. A country applying and performing a safeguards investigation is obliged to report to the Committee on any regulation or procedure for safeguard activities in that country.

Contrary to other trade remedy instruments, the safeguards investigation process and final determination of measures applies to all import suppliers of the product under investigation. Safeguards investigation and measures do not require ‘unfair’ conditions as grounds for an investigation and imposition of measures.

A safeguards investigation is triggered by sudden upward movement of certain imported products imported into the domestic market. To launch a safeguards investigation, the national authority will need to (1) show unforeseen increase in imports that poses as (2) serious injury or threat of a serious injury to the domestic market, and (3) prove causal link between the former and the latter in the domestic market.

As stated in the Safeguards Agreement (WTO n.d.-n), the factors that need to be taken into account when determining serious injury or threat of serious injury are: (1) Rate and amount of imports increase, (2) market share, (3) sales, (4) production, (5) productivity, (6) employment, (7) capacity utilisation and (8) profit and losses. Furthermore, a structural adjustment plan must be elaborated by a national authority to help industries affected by increased imports.

Safeguard measures can be imposed for up to four years with a possible extension of eight years. A provisional safeguards measure can also be put in place as long as it is implemented within 200 days. Any measure, imposition or extension should be applied after the initiating country provides ample opportunity for consultation. To offer a remedy to the injured domestic market or industry, safeguard measures can be implemented in the form of tariffs or quotas.

Developing country members of WTO receive special and differential treatment with respect to safeguards. Developing countries can be excluded from safeguards measures with the existence of *de minimis* import exemption (WTO n.d.-n). This exemption refers to situations in which imports from a developing country member do not exceed three per cent of the total import of products being investigated, or when the collective amount of all developing country imports does not exceed nine per cent of the products being investigated. Additionally, a developing country can extend the imposition of a safeguards measure for up to two-years, making it possible for it to impose the measure for a total period of up to ten years instead of the usual eight.

2.2 ASEAN trade remedy statistics

Among the 10 AMCs, only six countries have ever used trade remedy instruments: Indonesia, Malaysia, the Philippines, Thailand, Viet Nam and Singapore. To date, there have been no records of trade remedy instruments usage for the remaining AMCs, namely, Brunei Darussalam, Cambodia, Laos and Myanmar.

In general, among the users of trade remedy instruments in ASEAN, Indonesia is the country with the most initiations and measures for AD and safeguards, and Viet Nam the country with the least. The statistics show a diverse trend between AD and safeguards instruments (see Tables 2.1 & 2.2).

The first half of the observation period (1995–2003) displayed high AD usage by all AMC users. The second half (2004–2012), with the exception of Thailand, showed a slightly reduced number of initiations. Nevertheless, the safeguards instrument consistently showed an increasing number of initiations throughout the period of the investigations of this thesis, with most safeguards initiations being launched from the beginning of the second half of the investigation period.

Table 2.1 ASEAN AD statistics (1995–2012)

Year	Indonesia*		Malaysia		Philippines		Thailand		Viet Nam	
	INIT	MEA	INIT	MEA	INIT	MEA	INIT	MEA	INIT	MEA
1995	.	.	1	.	1	.	.	.	.	.
1996	4	.	1	1	2	2	1	.	.	.
1997	2	1	1	1	1	.	3	1	.	.
1998	4	1	1	1	1	3	.	2	.	.
1999	3	4	2	1	5	1	.	.	.	.
2000	1	.	.	1	2	3	.	.	.	.
2001	2	1	1	.	.	1	2	.	.	.
2002	2	.	2	1	.	.	3	1	.	.
2003	5	.	2	2	1	.	2	3	.	.
TOT	23	7	11	8	13	10	11	7	0	0
2004	3	3	1	.	.	.	3	1	.	.
2005	.	2	1	2	.	.	.	2	.	.
2006	1	2	1	.	.	.	3	.	.	.
2007	1	.	.	.	.	.	2	1	.	.
2008	3	1	.	.	.	.	1	.	.	.
2009	4	1	.	.	1	.	1	3	.	.
2010	1	3	.	.	.	.	1	.	.	.
2011	2	1	.	.	.	.	5	2	.	.
2012	2	2	3	.	.	.	3	2	.	.
TOT	17	15	6	2	1	0	19	11	0	0
Grand total	40	22	17	10	14	10	30	18	0	0
% of conversion rate	55%		59%		71%		60%		0%	

*Data compiled from KADI (I4, pers.comm. 26 May, 2014) and Bown (2012a).

Due to the limited AD measures imposed by Singapore, data for Singapore are not presented in Table 2.1, as only two measures were imposed during 1995–2012, both in 1995.

Overall, within the 18-year period, the AMCs initiated 101 AD investigations and imposed AD duty in 62 cases (see Figure 2.1). Indonesia led in AD usage, with a total of 40 initiations and 22 measures, followed by Thailand with 30 initiations and 18 measures, then Malaysia with 17 initiations and 10 measures, and finally the Philippines, with 14 initiations and 10 measures.

Indonesia ranked second in the world for safeguard initiations (see Table 2.2 and Figure 2.2), (I5, I6 and I12, pers. comm. 26 May and 5 June, 2014) and also led the region in the numbers of safeguard initiations and measures imposed, with 20 initiations and 11 measures throughout 1995–2012. The rest of the rankings are slightly different from those for the AD instrument. The Philippines launched 9 initiations and imposed 7 measures, Thailand launched 3 cases and imposed one measure, and Viet Nam initiated 2 cases and Malaysia initiated 1 case, but neither of the latter two members imposed any measures until 2012.

In Table 2.1, Viet Nam's total number of cases is zero because there has not been any initiation launched within the period of study of this thesis (1995 – 2012). Viet Nam started implementing AD laws in 1997, 10 years before becoming the 150th member of the WTO in 2007. Even though Viet Nam then implemented trade remedy laws in 2004, according to recent WTO (WTO n.d.-e) world AD initiation statistics, Viet Nam only started initiating AD case investigations in 2013. Lack of

capacity and capability might have been a contributing factor to the delay in AD case investigations by Viet Nam.

Of the available trade remedy instruments (AD, SCM and safeguards), the six ASEAN users have only ever used AD and safeguards. Despite the fact that several AMCs[10] have been the target of countervailing measures since 1995 (Steger 2010; WTO n.d.-g), subsidy and countervailing duty investigations have never been initiated by any of the ASEAN users of trade remedies. Soesatro and Basri (2005) suggested that subsidy measures have not been applied due to fiscal constraints. In addition, industries and/or companies among the ASEAN trade remedy users have not submitted any petition for a subsidy and countervailing investigation. Also, the quantity of resources and information required to prepare a subsidy and countervailing investigation is seen as massive. Finally, the lack of personnel and knowledge resources also add to the burden of launching a subsidy and countervailing investigation (I2 – I10 and I14 – I17, pers. comm. 26 May, 28 May, 9 June and 12 June, 2014).

[10] ASEAN member countries recorded to have been imposed with countervailing measures are Indonesia (8 measures), Malaysia (3 measures), Philippines (2 measures), Thailand (3 measures) and Viet Nam (2 measures).

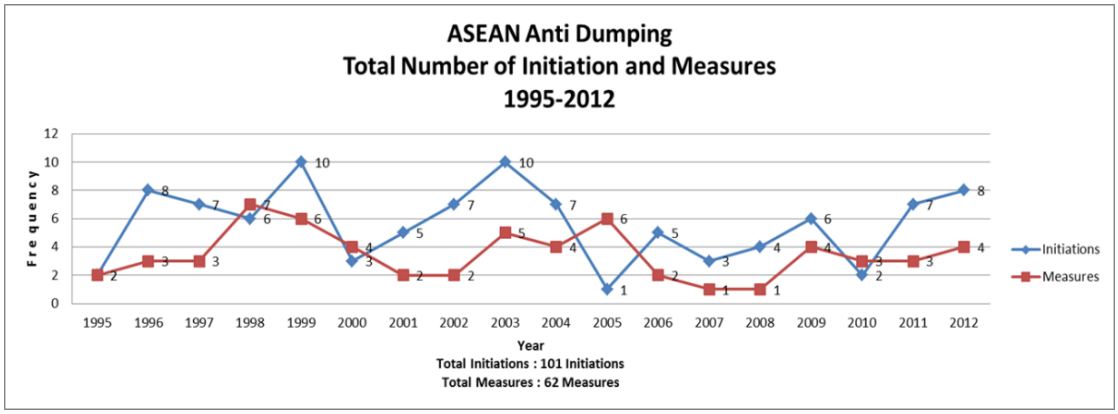
Detailed information on the number of initiations and measures formally launched by AMCs is provided in Tables 2.1 and 2.2. The term “conversion rate” used in this research is similar to the “success rate” as defined by Zanardi (2004) or “success ratio” as defined by Neufeld (2001), where the number represents the configuration by percentage of how many of the total investigations ended with measures being imposed by national authority.

Table 2.2 ASEAN safeguard statistics (1995–2012)

Year	Indonesia*		Malaysia		Philippines		Thailand		Viet Nam	
	INIT	MEA	INIT	MEA	INIT	MEA	INIT	MEA	INIT	MEA
1995	.	.	.	.	.	.	.	.	.	.
1996	.	.	.	.	.	.	.	.	.	.
1997	.	.	.	.	.	.	.	.	.	.
1998	.	.	.	.	.	.	.	.	.	.
1999	.	.	.	.	.	.	.	.	.	.
2000	.	.	.	.	.	.	.	.	.	.
2001	.	.	.	.	3	1	.	.	.	.
2002	.	.	.	.	.	1	.	.	.	.
2003	.	.	.	.	3	3	.	.	.	.
TOT	0	0	0	0	6	5	0	0	0	0
2004	1	.	.	.	.	.	.	.	.	.
2005	1	.	.	.	.	.	.	.	.	.
2006	1	1	.	.	1	.	.	.	.	.
2007	.	.	.	.	.	.	.	.	.	.
2008	2	.	.	.	1	.	.	.	.	.
2009	.	2	.	.	1	1	.	.	1	.
2010	7	.	.	.	.	.	1	.	.	.
2011	4	7	1	.	.	1	.	1	.	.
2012	7	1	.	.	.	.	2	.	1	.
TOT	23	11	1	0	3	2	3	1	2	0
Grand total	23	11	1	0	9	7	3	1	2	0
% of conversion rate	48%		0%		78%		33%		0%	

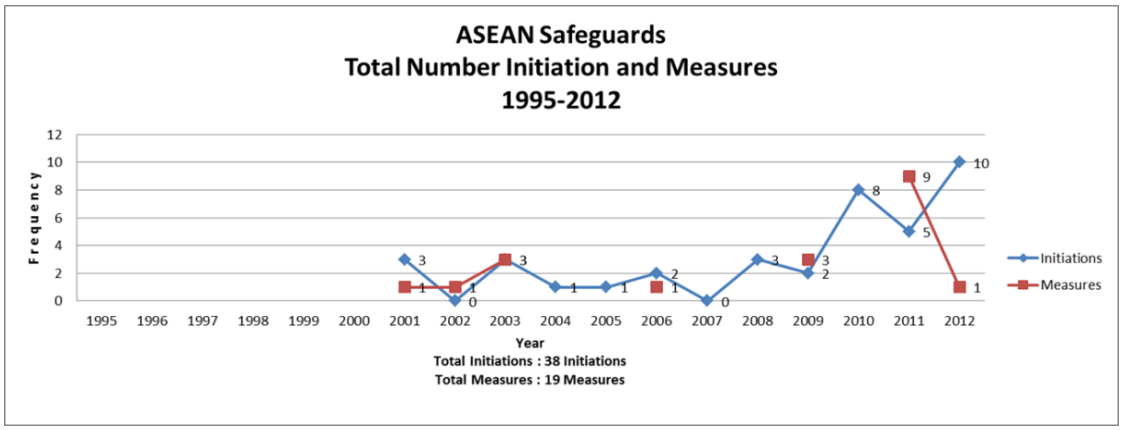
Source: Compiled from the Indonesia Safeguards Committee (I6, pers. comm. 26 May and 5 June, 2014) and Bown (2012c).

Figure 2.1 Total number of ASEAN AD initiations and measures



Source: KADI (I4, pers.comm. 26 May, 2014) and Bown 2012a

Figure 2.2 Total number of ASEAN safeguards initiations and measures



Source: KPPI (I6, pers.comm. 26 May, 2014) and Bown 2012c

ASEAN's overall conversion rate on AD investigations is 61%, compared to the overall ASEAN safeguards rate of 50%.[11] The percentages displayed in Tables 2.1 and 2.2 indicate that more than half of the initiated trade remedy investigations are likely to result in an imposition of AD or safeguards duty. In addition, Table 2.9 describes the lag between initiations and the adoption of measures which ranges from 5 months to 67 months. There is a possibility for the conversion rates to improve over time, however, the conversion rates provided in this thesis are calculated over the whole period of investigation instead of annually.

The Philippines possesses the highest conversion rate (71% for AD and 78% for safeguards) among all AMC users in the region. Indonesia had a conversion rate of 55% for AD investigations and 48% for safeguards, while Thailand's conversion rate was 38% for safeguards investigations. The conversion rates for AD investigations for Malaysia and Thailand were at 59% and 60% respectively. Although the average rate in ASEAN overall safeguards conversion rate is slightly lower, the conversion rate of the two most active AMC members remains between 48% and 78% over the whole observed period. The data also show a low 33% conversion rate for the Philippines and 0% conversion rate for investigations launched by Malaysia and Viet

[11] Due to the small number of investigations, Singapore's data has been excluded from both tables (Table 2.1 and 2.2), although its imposition of AD measures in 1995 are accounted for in calculating the ASEAN conversion rate.

Nam. Overall the percentages show at least a 50%–60%[12], chance that any investigations launched by a national authority will lead to the imposition of measures.

Moreover, without undermining the investigation process and efforts made by concerned parties in an investigation, the differences in conversion rate among AMCs can be seen as an early indication of the likelihood of measures being imposed by each national authority. It is important to notice that, for ASEAN, a high number of investigations does not necessarily translate to high percentage of conversion rate, from the statistics in Tables 2.1 and 2.2, especially when contrasting Indonesia and the Philippines.

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[12] There is a possibility for the conversion rates to improve over time, however, the conversion rates provided in this thesis are calculated over the whole period of investigations instead of annually. As an additional consideration, also calculated were the conversion rates of AMC in Table 2.1 and 2.2 in two periods (1995 to 2003 and 2004 to 2012) to see if there were changes in the conversion rates between these periods. The results show that AD conversion rates increased only Indonesia from 30% to 55%; while Malaysia, Philippines and Thailand's conversion rates decreased from 72% to 58%, 76% to 71% and 63% to 60% respectively. In Safeguards investigations, Indonesia's conversion rates increased from 0% to 47%, Philippines decreased from 83% to 77% and Malaysia and Thailand's conversion rates remained at 0%.

2.2.1 Implementation of trade remedy law

Discussion of trade remedy law implementation is of great importance for this research, since the existence of the law alone, without any measures imposed, can influence the behaviour of parties involved (Blonigen & Prusa 2003). As for the implementation of trade remedies (see Table 2.3), AD law is the first of the three trade remedy regulations to be implemented in most AMCs.

Besides Singapore and Malaysia, the implementation of trade remedy regulation for ASEAN's first member countries – Indonesia, Philippines and Thailand – was a result of ratifying the WTO agreement that obligates members to pursue the implementation of Article VI of GATT, the Subsidies and Countervailing Measures Agreement of Article XVI of GATT, and the Safeguards Agreement. For Viet Nam, the pathway to implementing AD laws started 10 years before it officially became the 150th member of the WTO in 2007 (Le & Tong 2009). Referring to WTO reports of the Committee on AD, Subsidies and Countervailing Duties and Safeguards,

Cambodia[13] (WTO 2010) and Laos[14] (WTO 2013b) are still in the process of finalising their trade remedy laws; whereas no implementation of trade remedy law is enforced in Myanmar[15] (WTO 2002).

[13] WTO report of the Committee on Anti-Dumping Practices G/ADP/N/1/KHM/1, Committee on Subsidies and Countervailing Measures G/SCM/N/1/KHM/1 and Committee on Safeguards G/SG/N/1/KHM/1, 10 March 2010.

[14] WTO report of the Committee on Anti-Dumping Practices G/ADP/N/193/LA0 4 July 2013 Committee on Subsidies and Countervailing Measures G/SCM/N/202/LAO 4 July 2013 and Committee on Safeguards G/SG/N/1/LAO/1, 1 July 2013.

[15] WTO report of the Committee on Anti-Dumping Practices G/ADP/N/1/MYN/1 and Committee on Subsidies and Countervailing Measures G/SCM/N/1/MYN/1, 8 January 2002.

Table 2.3 Year of implementation of trade remedy law in ASEAN[16]

Country	AD	SCM Duties	Safeguards	National Authority
Indonesia	1995*	1995	2003	KADI, KPPI under the Ministry of Trade of the Republic of Indonesia
Malaysia	1959*	1994	2007	Trade Practices Section under Ministry of International Trade and Industry
Philippines	1994*	1999	2000	Bureau of Import Services & Tariff Commission Department of Trade and Industry
Thailand	1994*	1991	1999	Bureau of Trade Interest and Remedies Department of Foreign Trade under the Ministry of Commerce
Singapore	1985*	1985	Does not maintain safeguard measures	Ministry of Trade and Industry Singapore
Viet Nam	2004	2002	2002	Viet Nam Competition Authority under the Ministry of Industry and Trade
Brunei Darussalam	N/A	N/A	N/A	N/A
Cambodia	In progress	In progress	In progress	N/A
Laos	In progress	In progress	N/A	N/A
Myanmar	N/A	N/A	N/A	N/A

Source: *Compiled from Zanardi (2004) and compilation of WTO (WTO 2002, 2010, 2013b) records and national publications.

[16] The use of trade remedies relies of the rule of Law. As a WTO member, all trade remedy agreements are agreed upon and enter into force in national law which contains specific and technical code of conduct on how national ministries and/or committees exercise trade remedy investigations.

Malaysia and Singapore were the two first users to implement AD, in 1959 and 1985 respectively. The Philippines and Thailand followed in 1994, Indonesia in 1995 and the latest AD implementation was by Viet Nam in 2004.

Moreover, Thailand implemented a subsidies and countervailing duties law in 1991. Both Singapore and Indonesia enacted their subsidies and countervailing regulation at the same time as their AD law, in 1985 and 1995 respectively. Malaysia, Philippines and Viet Nam enacted their subsidy and countervailing law in 1994, 1999 and 2002 respectively.

Among the three trade remedy instruments, safeguards regulations were implemented at later dates in the region. Most safeguards laws entered into force in the early 2000s, with the exception of Thailand's implementation in 1999. Although Viet Nam can be considered slow-moving in the implementation of AD and subsidies and countervailing duties regulation, it managed to implement a safeguards law at the same time as its subsidies and countervailing duties law in 2002, preceding Indonesia in 2003 and Malaysia in 2007. The Philippines enacted their safeguards law in 2000, one year after their subsidies and countervailing duties law.

2.2.2 Sectors affected by trade remedy instruments

The observation of this research supports previous findings on sectors dominating AD (Miranda, Torres & Ruiz 1998; Neufeld 2001) and safeguards investigations. Sector XV (Steel) is found to be the most engaged sectors for AD investigations in

ASEAN, with 40% initiations on steel products. Similarly, sector XV also dominated safeguards investigation with 32% of investigation involving steel products. Additionally, sector VI and XII is also recorded as the second and third highest sector involved in AD investigations while sector XII ranked second and sector XI ranked third most engaged sector in safeguards investigations.

Industry knowledge and awareness towards use of trade remedy instruments, particularly for Indonesia and Malaysia, can be observed from each authority's eagerness to conduct outreach and socialisation programs within their respective country, and how many times the particular industries have been involved in trade remedy investigations – both as applicant and targeted industries. The sectors and industries involved in trade remedy cases are usually those that possess great importance for the domestic market and are highly engaged in world markets, as well as industries that were targets of previous trade remedy investigations, such as steel and chemical products (I2 - I10, I12 and I14-I17, pers. comm., 26 May, 28 May, 5 June, 9 June and 12 June, 2014; Miranda, Torres & Ruiz 1998).

Indeed, big industry[17] is often found to be users and targets of trade remedy instruments, as the launching of a trade remedy investigation requires an immense

[17] Big industry referred to here is usually an industry that is a big import supplier and usually heavily involved in international trade.

amount of resources and data/information to be made available in order to provide prima facie evidence. Additionally, for AD instruments, there is a major proportion requirement in the WTO's ADA (Article 5.4) (50% of the total production for a standing petitioner) for an investigation to be launched. This creates a condition that evidently limits the capability of small and medium industries to play a bigger role in utilising trade remedy instruments (I14, pers. comm., 9 June, 2014).

Statistics[18] reveal that a total of nine sectors are affected by AD investigations in ASEAN. Those affected sectors affected are, from the largest to smallest:

1. Sector XV – Base metals and articles of base metal (40 initiations; 23 measures imposed)
2. Sector VI – Products of the chemical or allied industries (19 initiations: 9 measures imposed)
3. Sector XIII – Articles of stone, plaster, cement, asbestos, mica or similar materials; ceramic products; glass and glassware (11 initiations; 9 measures imposed)
4. Sector X – Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard; paper and paperboard and articles thereof (11 initiations; 7 measures imposed)
5. Sector VII – Plastics and articles thereof; rubber and articles thereof (8 initiations; 6 measures imposed)

[18] *Data compiled from KADI (I4, pers.comm. 26 May, 2014) and Bown (2012a).

6. Sector II – Vegetable products (5 initiations; 3 measures imposed)
7. Sector XI – Textiles and textile articles (5 initiations; 3 measures imposed)
8. Sector V – Mineral products (1 initiation; 1 measure imposed)
9. Sector XVII – Vehicles, aircraft, vessels and associated transport equipment (1 initiation; 1 measure imposed)

From the records above, we can see similar patterns between initiations and measures. Generally, the more initiations launched, the greater numbers of measures imposed, except in Sector VI, where the conversion rate is less than 50%.

The statistics[19] for the sectors affected by safeguards display a slightly different condition. Investigations were initiated in a total of 12 sectors, but measures have been imposed in only six sectors. Those data are, from the largest to smallest:

1. Sector XV – Base metals and articles of base metal (12 initiations; 7 measures imposed)
2. Sector XIII – Articles of stone, plaster, cement, asbestos, mica or similar materials; ceramic products; glass and glassware (8 initiations; 6 measures imposed)
3. Sector XI – Textiles and textile articles (4 initiations; 3 measures imposed)

[19] Source: Compiled from the Indonesia Safeguards Committee (I6, pers. comm. 26 May and 5 June, 2014) and Bown (2012c).

4. Sector X – Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard; paper and paperboard and articles thereof (1 initiation; 1 measure imposed)
5. Sector V – Mineral products (1 initiation; 1 measure imposed)
6. Sector IV – Prepared foodstuffs; beverages, spirits and vinegar; tobacco and manufactured tobacco substitutes (1 initiation; 1 measure imposed)
7. Sector I – Live animals; animal products (1 initiation)
8. Sector II – Vegetable products (1 initiation)
9. Sector III – Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes (1 initiation)
10. Sector VI – Products of the chemical or allied industries (1 initiation)
11. Sector VII – Plastics and articles thereof; rubber and articles thereof (1 initiation)
12. Sector XVIII – Instruments, clocks, recorders and reproducers (1 initiation)

Although safeguards investigations are found in more sectors than AD investigations, several sectors (e.g. XV and XIII) and others (e.g. VI, X and XI) still dominate as the top industries highly engaged in the use of both trade remedy instruments. The greatest number of initiations were recorded in 2012, with a total of ten initiations among users of the safeguards instrument.

Full details of the respective products involved in AD and safeguards investigations are provided in Table 2.4. Indonesia, Philippines and Thailand initiated most

investigations in Sector XV (see Tables 2.5 and 2.6). Sector XV dominates 40% of the total sectoral percentage of AD initiations and 37% of total sectoral percentage of imposed measures overall in ASEAN. Although Malaysia's data showed most initiations in Sector X, Sector XV still ranks equal to 3rd for the country's AD initiations.

The next four most-initiated AD sectors among the four active members (Indonesia, Malaysia, the Philippines and Thailand) are found in Sectors VI, X and XIII, and VII. Similar results emerged for AD-imposed measures. Sector XV still ranks first in measures imposition for Indonesia, the Philippines and Thailand, as does Sector X for Malaysia; followed with variations of ranking placement by Sectors VI, XIII and VII. Interestingly, with Sector XV ranked in the middle of Malaysia's initiation pool, no measures were ever imposed.

Table 2.4 Products under investigation in sectoral AD and safeguards investigations (ASEAN 1995–2012)

Sector	AD	Safeguards
I	-	Mackerel
II	Cavendish bananas, wheat flour	Wheat flour
III	-	Vegetable oils
IV	-	Dextrose monohydrate, tomato paste
V	Plaster/gypsum board	Grey Portland cement
VI	Ampicillin and amoxycillin trihydrate (antibiotics), calcium carbide, carbon black, citric acid, paracetamol, phthalic anhydride, nitric acid, maleic anhydride, sodium tripolyphosphate (STTP), sorbitol, sulphuric acid technical grade, zinc oxide	D-glusitol (sorbitol), lighters, sodium tripolyphosphates
VII	Bi-axially oriented polypropylene film (BOPP), inner tubes of rubber for motorcycles, polyethylene terepthalate	Conveyor belts, polypropylene in granule form, sheath contraceptive

Sector	AD	Safeguards
	(PET), polypropylene resins, PVC floor covering	
X	Coated paper and paperboard, coated writing and printing paper, corrugating medium paper, newsprint and newsprint white, self-copy paper in rolls and sheets, uncoated woodfree paper, uncoated writing and printing paper	Testliner board
XI	Polyester staple fiber, woven fabrics of cotton and polyester	Cotton yarn, tarpaulin/awnings and sunblinds of synthetic fibres, woven fabrics
XIII	Cathode ray tubes, ceramic tableware, clear figured glass, tinted and clear float glass, glass block, gypsum board, magnesite-based refractory bricks, unglazed/glazed ceramic flags and paving	Cast and rolled glass, ceramic tableware, ceramic tiles, figure glass, float glass, glass block and glass mirrors
XV	Aluminium meal dish, hot dip plate or coated aluminium zinc alloys of cold-rolled steel, hot and cold-rolled coil/sheets/plate, submerge arc welded longitudinally pipe, flat cold and hot-rolled stainless steel, steel wire rod, tin pipe, H & I beam, H & I section	Aluminium foil food container and tray and plain lid, articles of finished casing and tubing, articles of iron and steel wire, flat rolled product of iron or non-alloy steel, steel angel bars, hot-rolled coils and bars, stranded wire/ropes and cables, wire nail/wire of iron/non-alloy steel
XVII	Bicycles	-
XVIII	-	Kilowatt hour metres including relevant parts and accessories

Source: Compiled from KADI (I4, pers. comm. 26 May, 2014) KPPI (I6, pers. comm. 26 May, 2014) Bown (2012a, 2012c), semi-annual reports of the WTO Committee on Anti-Dumping Practices and Committee on Safeguards.

Table 2.5 Sectoral AD initiations (ASEAN 1995–2012)

Sector	IDN	%	MYS	%	PHL	%	THA	%	Grand total	%
II	5	13%	0	0%	0	0%	0	0%	5	5%
V	0	0%	1	6%	0	0%	0	0%	1	1%
VI	9	23%	2	12%	3	21%	5	17%	19	19%
VII	2	5%	3	18%	2	14%	1	3%	8	8%
X	3	8%	7	41%	0	0%	1	3%	11	11%
XI	4	10%	0	0%	0	0%	1	3%	5	5%
XIII	1	3%	1	6%	3	21%	6	20%	11	11%
XV	16	40%	2	12%	6	43%	16	53%	40	40%
XVII	0	0%	1	6%	0	0%	0	0%	1	1%
Grand total	40	100%	17	100%	14	100%	30	100%	101	100%

Source: Compiled and calculated from KADI (I4, pers. comm. 26 May, 2014) Bown (2012a).

Table 2.6 Sectoral AD measures (ASEAN 1995–2012)

Sector	IDN	%	MYS	%	PHL	%	SIN	%	THA	%	Grand Total	%
II	3	14%	0	0%	0	0%	0	0%	0	0%	3	5%
V	0	0%	1	10%	0	0%	0	0%	0	0%	1	2%
VI	5	23%	1	10%	1	10%	0	0%	2	11%	9	15%
VII	1	5%	2	20%	2	20%	0	0%	1	6%	6	10%
X	1	5%	5	50%	1	10%	0	0%	0	0%	7	11%
XI	1	5%	0	0%	1	10%	0	0%	1	6%	3	5%
XIII	1	5%	0	0%	2	20%	0	0%	6	33%	9	15%
XV	10	45%	0	0%	3	30%	2	100%	8	44%	23	37%
XVII	0	0%	1	10%	0	0%	0	0%	0	0%	1	2%
Grand total	22	100%	10	100%	10	100%	2	100%	18	100%	62	100%

Source: Compiled and calculated from KADI (I4, pers. comm. 26 May, 2014), Bown (2012a).

As displayed in Tables 2.7 and 2.8, Sector XV also dominates safeguards initiations (32%) and measures imposed (37%). Indonesia, the Philippines, Malaysia and Thailand have all initiated investigations in Sector XV. Unlike its AD initiations, Malaysia's only safeguards initiation lies in Sector XV. Indonesia still ranks first in Sector XV, and the Philippines ranks first in Sector XIII.

Even with a lower total number of initiations and measures, the use of safeguards instruments appears in more sectors (Sector I, III and IV are added to the list), and with Viet Nam's involvement, the number of users of safeguards increases. Nevertheless, only three countries were recorded as having imposed safeguard measures – Indonesia, Philippines and Thailand – with the dominating sectors divided between Sector XV (for Indonesia) and Sector XIII (for the Philippines and Thailand).

It has been found that a particular product might utilise both AD and safeguard instruments. There are instances where both instruments have been used for a particular product in ASEAN; however, this event appears to happen naturally (based on AD and safeguard regulations) and not deliberately or repetitively. In the case of Indonesia, in 2010 the steel industry used both measures; injury was evident even after the imposition of AD duties, which led to the initiation of a safeguards investigation (I2-I4, pers. comm., 26 May 2014). Malaysian industry is observed to lean towards relying on one trade remedy instrument at a time rather than making use of two at the same time (I15-I17, pers. comm., 12 June 2014).

In Indonesia, industries are provided with a consultation opportunity, since both authorities are led by a single chairperson. This opportunity enabled industries to get an insight into which instrument would be more fitting to their condition (I1, pers. comm., 26 May 2014). This does not mean that the decision on which instrument to use is made by the authority, but simply exemplifies that this consultation assistance is available for industries and is regarded as a very beneficial practice, especially for industries newly engaged in trade remedy issues. This particular consultation and assistance can also be found in Malaysia, where the trade remedy issue is a fairly new issue for industries (I15-I17, pers. comm., 12 June 2014). Both Indonesian and Malaysian authorities are committed to providing outreach programs or trade remedy socialisation workshops for their industries.

These outreach programs and socialisation workshops provided by the authorities might serve as an indication that industries are still in need of guidance on trade remedy issues, and might also indicate a growing need for trade remedy instruments. Thus, looking at the practices and situations on the ground, it can be presumed that the use of trade remedy instruments, particularly for Indonesia and Malaysia, may not have reached the level where they are fully utilised for strategic purposes[20] as described in the extant literature (Prusa & Skeath 2002). Moreover, the process of

[20] Strategic purposes referred to by Prusa and Skeath (2002) indicate that trade remedies are used as retaliatory action and among countries/markets that are familiar with and have used these instruments often.

determining which instrument to use is still based on matching the industry's condition with the instrument that can best provide a remedy for that particular condition.

Table 2.7 Sectoral safeguard initiations (ASEAN 1995–2012)

Sector	IDN	%	MYS	%	PHL	%	THA	%	VNM	%	Grand total	%
I	1	4%	0	0%	0	0%	0	0.0%	0	0%	1	3%
II	1	4%	0	0%	0	0%	0	0.0%	0	0%	1	3%
III	0	0%	0	0%	0	0%	0	0.0%	1	50%	1	3%
IV	1	4%	0	0%	1	11%	0	0.0%	0	0%	2	5%
V	0	0%	0	0%	1	11%	0	0.0%	0	0%	1	3%
VI	2	9%	0	0%	1	11%	0	0.0%	0	0%	3	8%
VII	3	13%	0	0%	0	0%	0	0.0%	0	0%	3	8%
X	0	0%	0	0%	1	11%	0	0.0%	0	0%	1	3%
XI	3	13%	0	0%	0	0%	1	33.3%	0	0%	4	11%
XIII	2	9%	0	0%	4	44%	1	33.3%	1	50%	8	21%
XV	9	39%	1	100%	1	11%	1	33.3%	0	0%	12	32%
XVIII	1	4%	0	0%	0	0%	0	0.0%	0	0%	1	3%
Grand Total	23	100%	1	100%	9	100%	3	100.0%	2	100%	38	100%

Source: Compiled and calculated from KPPI (I6, pers. comm. 26 May, 2014), Bown (2012c).

Table 2.8 Sectoral safeguards measures (ASEAN 1995–2012)

Sector	Indonesia	%	Philippines	%	Thailand	%	Grand total	%
IV	1	9%	0	0%	0	0%	1	5%
V	0	0%	1	14%	0	0%	1	5%
X	0	0%	1	14%	0	0%	1	5%
XI	3	27%	0	0%	0	0%	3	16%
XIII	1	9%	4	57%	1	100%	6	32%
XV	6	55%	1	14%	0	0%	7	37%
Grand Total	11	100%	7	100%	1	100%	19	100%

Source: Compiled and calculated from KPPI (I6, pers. comm. 26 May, 2014), Bown (2012c).

2.2.3 Duration of investigations and measures

Data on the duration of investigations and length of measures imposed serve as another essential factor in this research. Previous research has suggested that, even without the imposition of measures, investigation initiations would have already created pressure and restraints on imports and trade flow (Prusa 2001 in Aggarwal 2004; Prusa 1999 and Messerlin 1988 in Neufeld 2001; Prusa 2001). The length of investigation and measures imposed (see Tables 2.9A and 2.9B) sets the timeline for calculating the impact of trade remedy usage on trade flows.

Table 2.9 Duration of (A) AD investigation and imposition of measures, and (B) safeguard investigation and imposition of measures

Country	A. Duration of AD investigation and measures			
	Investigation		Imposition of measures	
	Min	Max	Min	Max
Indonesia	6 months	25 months (2 years and 1 month)	3 years	5 years
Malaysia	7 months	9 months	5 years	5 years
Philippines	14 months (1 year and 2 months)	67 months (5 years and 7 months)	1 year	5 years
Thailand	10 months	20 months (1 year and 8 months)	2 years	6 years
Singapore	7 months	12 months (1 year)	3 years	5 years

Country	B. Duration of safeguard investigation and measures			
	Investigation		Imposition of measures	
	Min	Max	Min	Max
Indonesia	6 months	25 months (2 years and 1 month)	3 years	4 years
Philippines	7 months	23 months (1 year and 11 months)	3 years	
Thailand	5 months		3 years	

Source: Compiled from KADI (I4, pers. comm. 26 May, 2014) and Bown (2012a).

The investigation period of the six AD users ranges between 6 months and 67 months (5 years and 7 months). A maximum 18-month investigation period is stipulated in Article 5.10 of the ADA (WTO n.d.-r); therefore, it might be considered that some users deviated from this regulation; however, it should be noted that these violations only happened at the early stages of the observed period. The ADA allows AD measures to be imposed for a maximum of 5 years, with possible extension only when it is proven that injury still exist after the imposition of measures (WTO n.d.-r).

Safeguard measures can be imposed for a maximum of four years (WTO n.d.-q). Most AMCs imposed a 3-year safeguard measure scheme and Indonesia only began imposing the maximum period in 2012.

On average, AD and safeguard investigations will last approximately 6.5 years and 5 years, respectively. Nevertheless, this number should be considered a minimum length of time where trade is affected, as records suggest that an extension of measures[21] is likely.

[21] The calculation in the observed period does not take into account the review investigations and extension of measures. However, the information on the length of extended measures is available and the maximum length of measures imposed can reach 10 years (KADI (I4, pers. comm. 26 May, 2014); Bown (2012a) and KPPI (I6, pers. comm. 26 May, 2014) and Bown (2012c)).

The duration information elaborated in Table 2.9 serves as crucial baseline information, since the determination of the effect of trade remedy usage on ASEAN's regional trade will also be based on import and trade flow statistics of the AMCs during investigations. This particular condition will be looked at in a more detailed manner later in the chapter 4 in discussion of the effects of trade remedy activities in relation to economic integration in the region.

2.3 Trade remedy settings and statistics for individual ASEAN member countries

2.3.1 Indonesia

In Indonesia, trade remedies–related issues are handled by two authorities under the jurisdiction of the Ministry of Trade of the Republic of Indonesia. The Indonesian Anti-Dumping Committee, Komite Anti-Dumping Indonesia (KADI), is responsible for handling issues related to dumped and subsidised imports (KADI 2012). Therefore, any AD and subsidy and countervailing investigations will be conducted by KADI, while the Indonesia Trade Safeguard Committee, Komite Pengamanan Perdagangan Indonesia (KPPI), handles issues related to increased imports.

Both of these committees are led by the same chairperson. However, the two authorities launch investigations separately according to their respective mandates (I1, pers. comm. 26 May 2014). Whereas KADI and KPPI initiate only investigations against imports (offensive), investigations targeting Indonesian products (defensive)

are handled by the Trade Defence Unit under the Directorate General of Foreign Trade, Ministry of Trade of the Republic of Indonesia. The two committees, KADI and KPPI, conduct investigations from the initiation process through to the final determination process. The results of their investigations (final recommendations) are forwarded to the Minister of Trade for approval. The decision to approve the recommendations then takes into account Indonesia's national interest. If and when an imposition of measures is approved, it is then followed up by the Ministry of Finance, which publishes a customs-related ministerial decree.

2.3.1.1 Anti-dumping

Indonesia first initiated AD investigations in 1996, one year after KADI was founded and the AD and subsidy regulation entered into force (KADI 2002). From this point on, Indonesia's statistics reveal a consistent trend of initiating investigations almost every year. The years 1995 and 2005 are exceptions. KADI imposed Indonesia's first AD measures in 1997.

The trend of imposition of measures shows broad but not total consistency with case initiations, with some exceptions found in the years 2000, 2002, 2003 and 2007, in which no imposition of measures was recorded. On average, Indonesia initiates two case investigations a year and at least one levy of measures, which brings Indonesia's individual conversion rate to 55%. Indonesia's AD investigations and measures were recorded in seven sectors (XV, VI, II, XI, X, VII and XIII). Similar to ASEAN's overall data, Sector XV has the highest involvement; followed by sectors VI and II.

Intra-ASEAN statistics (see Table 2.10) show that Indonesia targeted Thailand, Singapore, Malaysia and the Philippines in AD investigations through 9 product investigations within 5 sectoral classifications. In total, from 1995–2012 Indonesia launched 27 product investigations and targeted 20 countries (4 AMC and 16 non-ASEAN). France and Canada were the only two countries investigated by Indonesia without any record of measures imposed.

Table 2.10 Indonesia AD measure imposition (1995–2012)

Investigating Country	Targeted ASEAN Countries	Products under investigation	Sector	Targeted Countries (Non-ASEAN)	Product under investigation	Sector
					Hot-rolled coil	
					Wire rod	
				Australia	Ampicillin and amoxycillin trihydrate (antibiotics)	
				China	Tin Plate	
				European Union	H beam and I beam	
		Carbon black		Finland	Ferro manganese and silicon manganese	
	Thailand	Calcium carbide	VI	India	Sorbitol	XV
Indonesia	Singapore	Uncoated writing & printing paper	X	Japan	Carbon black	VI
	Malaysia	Cavendish bananas	II	Poland	Calcium carbide	X
	Philippines	Hot-rolled coil	XV	Russia	Uncoated writing & printing paper	II
		Bi-axially oriented polypropylene film	VII	South Korea	Paracetamol	XI
		HOT #		Taiwan	Wheat flour	XIII
		Aluminium meal dish		Turkey	Hot rolled coil	
		Hot-rolled plate		Ukraine	Polyester staple fiber	
				United Arab Emirate	H & I section	
				United States	Hot-rolled plate	
					Ceramic tableware	
Total countries with measures imposed: 18 (4 ASEAN, 14 non-ASEAN). Total countries investigated: 20						

Source: Compiled from KADI (I4, pers. comm. 26 May, 2014) and Bown, (2012a)

2.3.1.2 Safeguards

In 2003, almost 10 years after KADI was founded, the Indonesian Ministry of Trade and Industry considered KPPI an essential factor in maintaining jobs and protecting domestic industry from import surges ('Asosiasi Diminta Ajukan "Safeguard"' 2003; *Komite "Safeguards" Perdagangan Beroperasi* 2003). In 2004, one year after KPPI's establishment, Indonesian launched its first safeguard investigation. Similar to its AD investigations, Indonesia shows a consistent frequency of safeguard initiations, with only 2007 and 2009 without any records of initiations.

In the period of this study, Indonesia imposed safeguards measures only in 2006, 2009, 2011 and 2012. This raises their conversion rate to 48%, with the highest number safeguards (seven) imposed in 2011. Indonesia's safeguard investigations were spread between nine sectors (XV, VII, XI, VI, XIII, I, II, IV, XVIII); however, measures were only imposed in four sectors (XV, XI, IV and XIII), with Sector XV the most engaged sector.

Although Indonesia leads the AMCs in the number of AD and safeguards initiations and measures imposed in ASEAN, its conversion rate is considered low, especially when compared with other AMCs. This would suggest that high usage of trade remedy instruments may not necessarily lead to a high conversion rate. Throughout the period 1995–2012, Indonesia initiated 40 AD investigations and imposed 22 AD measures, and initiated 23 safeguard investigations and imposed 11 measures.

2.3.2 Malaysia

Trade remedy–related issues in Malaysia are handled by the Trade Practices Section under the jurisdiction of the Ministry of International Trade and Industry (MITI). All three trade remedy instruments fall within the mandate of the Trade Practices Section. Unlike Indonesia, the Trade Practices Section in Malaysia handles all investigation initiations (offensive) as well as all allegations directed to Malaysian products (defensive) (I15-I17, pers. comm., 12 June 2014). In Malaysia, the determination of investigation initiations and imposition of measures is decided by a permanent task force on trade remedies (I15-I17, pers. comm., 12 June 2014). The task force members are from five Malaysian government units: the Trade Practices Section, Malaysian Investment Development Authority, the industrial sectoral division of MITI, the Ministry of Finance, and Customs.

2.3.2.1 Anti-dumping

In 1995, Malaysia was one of the first AMCs to initiate AD investigations and the first ASEAN country to implement an AD law (see Table 1, Zanardi 2004). The MITI consistently launched one investigation a year, on average, from 1995 to 2006, except in 2000.

The data show a void from 2007–2011, when no investigations were recorded, but in 2012 Malaysia initiated three AD cases at once, the highest number of cases it initiated in a single year during the period of this study (see Table 2.1).

From 1996 to 2000, Malaysia showed consistent imposition of measures, with a conversion rate of 59%. With the exception of 2001 and 2004, during the first half of the research period, Malaysia could be counted as a very active user of the AD instrument. However, that was not the case from 2005 until the end of the research period in 2012.

Similar to Indonesia, Malaysia's AD investigations were also found across seven sectors (X, VII, VI, XV, V, XIII, and XVII), with Sector X recorded as the most-initiated sector and the sector with the highest number of AD measures imposed. Malaysia imposed measures on a total of five sectors (X, VII, V, VI and XVII) during the period 1995–2012. Throughout the period, there were 17 AD initiations and 10 measures imposed.

Malaysia is recorded to have targeted 4 AMCs (Thailand, Indonesia, Philippines and Viet Nam) and is the only ASEAN member to launch an AD investigation against Viet Nam (see Table 2.11). Malaysia's intra-ASEAN AD investigations were focused on 10 product investigations through 5 sectoral classifications. Overall, it investigated a total of 14 products and 15 countries. India, Poland and Turkey are the three countries noted to escape imposition of any dumping measure by Malaysia.

Table 2.11 Malaysia AD measure imposition (1995–2012)

Investigating country	Targeted ASEAN countries	Products under investigation	Sector	Targeted countries (Non-ASEAN)	Product under investigation	Sector
Malaysia	Thailand Indonesia Philippines Viet Nam	PVC floor covering in rolls Self-copy paper Corrugating medium paper Plaster/gypsum board Self-copy paper in rolls and sheets Newsprint Maleic anhydride Polyethylene terephthalate Steel wire rod Biaxially oriented polypropylene films	VII V X VI XV	Australia Canada China European Union Hong Kong Japan South Korea Taiwan USA	PVC floor covering in rolls Self-copy paper Corrugating medium paper bicycles Newsprint Maleic anhydride Polyethylene terephthalate Steel wire rod Biaxially oriented polypropylene films	X XVII VI VII XV VII
Total countries with measures imposed: 12 (4 ASEAN, 8 non-ASEAN) Total countries investigated: 15						

Source: Compiled from Bown (2012a)

2.3.2.2 Safeguards

Within the safeguards instrument, Malaysia was recorded to have launched only one case investigation, in 2011, without imposing any measures. This brought a conversion rate of 0%. During this research investigation, Sector XV is the only sector where Malaysia has ever initiated a safeguards investigation.

2.3.3 The Philippines

The Bureau of Import Service (BIS) and the Tariff Commission are the two national authorities responsible for handling trade remedy–related issues in the Philippines. The BIS, under the jurisdiction of the Department of Trade and Industry Philippines, is responsible for conducting preliminary investigations for all three trade remedy instruments (Bureau 2008). It is then the Tariff Commission's role is to conduct further investigations and produce findings and a decision on whether a definitive duty should be imposed (Tariff Tariff Commission 2007).

2.3.3.1 Anti-dumping

The Philippines was the only AMC besides Malaysia that initiated AD investigations in 1995. Investigations have targeted Malaysia, Indonesia and Thailand in their intra-ASEAN trade remedy activities (see Table 2.12). The statistics show that the Philippines are quite consistent in initiating investigations during the first half of the research period (1995–2003), with the exceptions of 2001 and 2002, when no cases were initiated.

However, in the second half of the research period the Philippines launched only one initiation (in 2009), leaving the total number of initiations at 14. Similar conditions are found in imposing AD measures. All ten measures imposed by the Philippines were during the period 1996–2001, and there were no other measures imposed up to and including 2012.

With this data, the Philippines is noted as the second lowest AMC user of trade remedy instruments. However, their low number comes with a rather high 71% conversion rate. This left the Philippines as the country with highest frequency of imposition of an AD measure in the region, once an investigation has been initiated.

Table 2.12 Philippines AD measure imposition (1995–2012)

Investigating country	Targeted ASEAN countries	Products under investigation	Sector	Targeted countries (Non-ASEAN)	Product under investigation	Sector
Philippines	Thailand	PVC floor covering	VII	China	Newsprint (off grade)	
	Indonesia	Tinted and clear float glass	XIII	Finland	Galvanized malleable coated fittings and zinc coated fittings	X
	Malaysia			Germany	Terry towelling products (face/hand)	XV
				Hong Kong	Sodium tripolyphosphates	XI
				Russia	Magnesite-based refractory bricks	VI
				South Korea	Cold-rolled coils and sheets	XIII
					Steel billets	XV
					Polypropylene resins	VII
Total countries with measures imposed: 9 (3 ASEAN, 6 non-ASEAN). Total countries investigated: 12						

Source: Compiled from Bown, (2012a)

Investigations in the Philippines still show emphasis on Sector XV, followed by activities in sectors VI, XIII, VI, X and XI. Anti-dumping measures within ASEAN were imposed in sectors VII and XIII, with only two products investigated.

The remaining 14 products (of the 16 products investigated) targeted a total of six non-AMCs (see Table 2.12). Excluding investigations of Japan, Taiwan and Ukraine, during the observed period the Philippines imposed measures on nine countries, including three AMCs.

2.3.3.2 Safeguards

Similar to its AD situation, the Philippines was the earliest initiator of safeguard investigations within ASEAN. A total of nine initiations were launched by the Philippines during 2001–2009. Seven of the nine investigations led to safeguard measures being imposed, resulting in the Philippines having a high 78% percent conversion rate.

Contrary to the Philippines' AD statistics, its safeguard calculations are the second highest among the five AMC users of trade remedy instruments. Investigations launched by the Philippines will end with an imposition of measures more often than in any other country in the region.

The focus of the Philippine' safeguard investigations is found in Sector XIII, followed by five other sectors (IV, V, VI, X and XV). Sector XIII ranked first of four sectors for imposition of safeguard measures (the others being sectors V, X, XV).

2.3.4 Thailand

2.3.4.1 Anti-dumping

Thailand is the second highest consistent user of AD among the AMCs, following Indonesia. Thailand's total number of initiations and imposed measures are slightly lower than those for Indonesia.

Table 2.13 Thailand AD measure imposition (1995–2012)

Investigating country	Targeted ASEAN countries	Products under investigation	Sector	Targeted countries (Non-ASEAN)	Product under investigation	Sector
Thailand	Indonesia	Clear float glass	XIII	Algeria		
	Malaysia	Hot-rolled flat steel products	XV	Argentina		
		Cathode ray tubes		China		
		Glass block		Czech Republic	Iron or non-alloy steel: H section	
		Flat hot-rolled in coils and not in coils		European Union	Cold-rolled carbon steel sheet and strip in coils	
				India	Cold-rolled stainless steel flat products	
				Japan	Hot-rolled flat steel products	
				Kazakhstan	Citric acid	XV
				Poland	Glass block	VI
				Romania	Woven fabrics of cotton and polyester	XIII
				Russia	Glass block	VII
				Slovakia	Sodium tripolyphosphate	
				South Africa	Flat hot-rolled in coils and not in coils	
				South Korea	Inner tubes of rubber for motorcycles	
				Taiwan	Flat hot-rolled steel added boron in coils and not in coils	
				Ukraine	Unglazed/glazed ceramic flags and paving (hearth or wall tiles) and unglazed/glazed ceramic mosaic cubes and the like (whether or not on the backing)	
				Venezuela		
Total Countries with measures imposed: 19 (2 ASEAN, 17 Non-ASEAN). Total countries Investigated: 20.						

Source: Compiled from Bown (2012a)

Having first initiated investigation in 1996, Thailand launched a total of 30 investigations, with an average of two initiations a year, with some exceptions in the years 1995, 1998–2000, and 2005. As many as 18 measures were imposed during the research period, which makes Thailand's conversion rate 60%. This conversion rate ranks Thailand second in the region. Most of Thailand's AD initiations and imposition of measures can be found in Sector XV. Initiations were also noted in five other sectors (Sectors XIII, VI, VII, X and XI). However, Thailand imposed measures in five sectors, with no imposition found in Sector X.

Unlike the other users, Thailand targeted only two countries within ASEAN: Indonesia and Malaysia. Of a total of 25 product investigations, one-fifth of the investigations were directed to only Indonesia and Malaysia within Sectors XIII and XV. Thailand has investigated 20 countries in total, omitting impositions only on Bulgaria.

2.3.4.2 Safeguards

Contrary to Thailand's vibrant AD usage, its safeguard usage showed very little activity. Thailand initiated safeguards investigations only in 2010 and 2012. Of the three safeguard investigations launched, Thailand imposed only one measure, in 2011. Producing a conversion rate of 33%.

The three safeguards investigations were initiated in sectors XI, XIII and XV, with measures imposed only in Sector XIII.

2.3.5 Viet Nam

During period investigated in this study, records show that Viet Nam has not launched any AD investigations, even though Viet Nam‘s AD law entered into force in 2004. This is why analysis on strategic motives (introduced by Prusa & Skeath 2002) of Viet Nam’s AD investigation could not be done. However, Viet Nam has been a target of AD investigations where it has been named in 48 investigations globally from 1998–2012 (Trade Remedies Council 2013).

Viet Nam started to launch safeguard investigations in 2009, which puts them as the third country out of the five AMCs recorded to have ever initiated a safeguard investigation. With two initiations formally launched during the period of this research, Viet Nam had yet to impose any safeguard measures[22] (WTO 2013a). This brought Viet Nam’s conversion rate for AD and safeguards imposition was 0%. Viet Nam’s safeguards initiations were in Sectors III and XIII.

2.3.6 Singapore

As stated earlier, Singapore’s statistics are extremely low. Throughout the research period it imposed only two AD measures, both in 1995. Both imposed measures lie

[22] Safeguards investigation on Vegetable oils initiated in December 2012 were still in progress at the end of 2012. Thus, on 7 September 2013, Viet Nam imposed its first safeguard duty. WTO document no. G/SG/N/8/VNM/2 dated 12 September 2013.

within Sector XV. Singapore's AD measures were imposed on Malaysia and Turkey. Singapore was the second country in ASEAN to have implemented an AD law (see Table 1, Zanardi 2004). Although those numbers have been left out of Table 2.1 in this section, Singapore's calculations were still taken into account to calculate ASEAN's conversion rate in Figure 2.1. Furthermore, the data also show that Singapore has never initiated any safeguards investigations nor imposed any safeguards measures.

Singapore's low usage of trade remedy instruments can be explained through the number of trade agreements it has made. Previous research (Lloyd 2005; Rey 2012; Teh, Prusa & Budetta 2007) posits that through several trade agreements, Singapore has either increased the threshold for an investigation, lessened the duration of measures imposition, or banned investigations altogether.[23] Plummer (2006a, 2006b) describes Singapore as a free trade economy (as it has essentially no tariffs) and a longstanding supporter of strong AD and safeguards.

[23] With the EFTA (*European Free Trade Association)*–Singapore agreement, both parties (Article 16, paragraphs 1 and 2) declare that they will not apply anti-dumping measures and will resort to competition rules to prevent anti-dumping occurring. In the Singapore–New Zealand agreement (Article 9) and Singapore–Jordan agreement (Article 2.8), both parties agreed to increase the *de minimis* margin from 2% to 5% and the maximum volume of negligible dumped imports from 3% to 5%; ensure the duration for determining the volume of dumped imports is at least 12 months; and reduce the duration for review or termination of AD duty from 5 years to 3 years.

Singapore's enthusiasm in guarding against abuses in AD usage and excessively protectionist policies has led it to engage in agreements that provide it with less opportunity to launch a trade remedy investigation against its trading partners (Liang 2005; Lloyd 2005). Furthermore, in relation to AD investigations, Singapore will not be able to fulfil the major proportion requirement as set out in Article 5.4 of the ADA (I12, pers. comm., 5 June 2014). It appears that Singapore takes on the role of a trading hub compared to a production hub in the region (I11 and I14, pers. comm., 2 June and 9 June 2014).

2.3.7 Brunei Darussalam, Cambodia, Laos and Myanmar

During the period of this research, the four remaining AMCs (Brunei Darussalam, Cambodia, Laos and Myanmar) provided no records of using any AD or safeguard instruments. They can be categorised as non-users of trade remedy instruments in the region. In the same period, Laos[24] and Brunei Darussalam[25] stated that they had not yet established a competent authority capable of conducting trade remedy investigations.

[24] WTO reports of the Committee on Anti-Dumping Practices G/ADP/N/193/LAO and Committee on Subsidies and Countervailing Measures, G/SCM/N/202/LAO, both dated 4 July 2013.

[25] WTO reports of the Committee on Anti-Dumping Practices, G/ADP/N/193/BRN, dated 20 July 2010.

An explanation for the above condition can be seen through the amount of total trade for the four countries. When compared with the rest of the AMCs, these four countries' statistics displayed low level of engagement with international trade (see ASEAN n.d.-f, n.d.-g)[26]. It has been argued previously that AD applications are rarely found in countries with small domestic markets and small economies. Thus, the industries commonly found in AD investigations, such as steel, chemicals, plastics and pulp and paper, are usually big industries in larger economies (Miranda, Torres & Ruiz 1998). The combination of inexistent trade remedy laws, competent authorities and rather low engagement with international markets, hinders Brunei, Cambodia and Laos and Myanmar in utilising any trade remedy instruments.

2.4 Conclusions

The overview of ASEAN sectoral statistics provided the research with the involvement of similar top-ranked industries in both AD and safeguard investigations. The steel sector ranks as the sector most likely to be involved in both

[26] Both in export and imports, the four countries are the lowest among ASEAN members. In the 2012 report of Selected basic ASEAN indicators, the total international merchandise trade is recorded at US$18,663.7 million for Cambodia, US$16,856.3 million for Brunei Darussalam, US$14,660.4 million for Myanmar and US$5,026.6 million for Laos. Those numbers display a huge gap, as the total trade for the other six AMCs was recorded to be around US$110,000 million – US$780,000 million (ASEAN n.d.-f).

AD and safeguards. The chemicals and glass products sectors are also in the top three most engaged sectors.

Previous research (Aggarwal 2004; Neufeld 2001) indicated that AD is more favoured by countries because it provides a specific target for the imposition of measures. Safeguards, on the other hand, operate from a non-discrimination policy that entails greater risk and more stringent prerequisites for measures imposition.

In ASEAN, AD and safeguard instruments are widely used only in Indonesia, Malaysia, Philippines, Thailand, and Viet Nam. The remaining four AMCs (Brunei Darussalam, Cambodia, Laos and Myanmar) are either still in the process of establishing a competent authority and implementing the necessary regulations, or in the case of Singapore, have committed to trade agreements that immensely reduce the likelihood on using trade remedy instruments. Anti-dumping and safeguards investigations are concentrated mostly in Sectors XV, XIII and XI.

Indonesia is the biggest user of the two instruments, with the highest numbers of initiations and measures imposed for both instruments. However, the high level of usage does not translate directly into a high conversion rate; that is, the likelihood of investigations does not translate into measures imposed. Conversely, the Philippines has a low number of investigations both in AD and safeguards, but the highest conversion rate.

Of the industries involved on both AD and safeguards investigations, the steel sector ranks first. The chemicals and glass products sectors are also in the top three most engaged sectors. As for targeted countries, most of the users of trade remedies in the region have levied measures on other AMCs in the region; the proportion of imposed measures reaches at least one-third of the total countries. Moreover, several countries – China, South Korea and European Union – are found to be targets[27] of measures imposed by the four (Indonesia, Malaysia, Thailand and Philippines) users of AD measures.

Consequently, the information provided in this chapter elaborates on the landscape and detailed information for the overall scope of trade remedy usage in the ASEAN region. Several questions and observations can be raised after observing ASEAN's data:

1. What are the motivations behind the use of a trade remedy instrument?
2. What are the impacts and trade effects of trade remedy investigations in trade flows within the region?
3. Do these conditions have any effect on the goal of regional economic integration?

These questions motivate and are addressed in the discussion of the following chapters of this research.

[27] See Tables 10 – 14.

Chapter 3 Anti-dumping motivation

3.1 Introduction

In the landscape of trade remedy users in ASEAN, as demonstrated in the previous chapter, only two of the three trade remedy instruments (AD, subsidy and safeguards) have been utilised during the period 1995–2012. Only four out of the ten AMCs are recorded users of trade remedies. The AD instrument is the most actively used in the region, and is used by Indonesia, Malaysia, Thailand and the Philippines. Safeguards were the second most used instrument, although no subsidy investigations had been initiated by AMCs. In this chapter, we focus on what motivates AMCs to file an AD investigation. The result is then incorporated in analysis of how the use of such instruments contributes to the effort of further economic integration and liberalisation.

In investigating AMCs' motivations in using AD instruments, this chapter will first apply the methods used by Prusa and Skeath (2002) in configuring motives for AD filings. In order to provide a thorough understanding of their method, the South African AD investigation example was reproduced using recent South African data. By replicating the South African example, it was revealed that certain amendments, additions and revisions have occurred in the *Global antidumping database* (Bown 2012) and WTO reporting system over time. Therefore, it was necessary to adapt and adjust the Prusa and Skeath method in order to extract results from the ASEAN data compiled from the WTO system.

Second, ASEAN's raw AD data is tested against a number of hypotheses offered by Prusa and Skeath (2002). Then, the raw data are calculated to show preliminary results on the percentage of cases consistent with Prusa and Skeath's hypotheses. Consequently, the data are then computed using a binomial probability test to look for significant statistical support of the four hypotheses. ASEAN's AD investigations provided this chapter with 576 statistical testings. The results of the preliminary raw data percentage and the binomial probability are then compared to conclude which motivation drives AD investigation in ASEAN.

3.2 Strategic and economic motives in anti-dumping

Prusa and Skeath (2002) highlighted the increased use of AD instruments and took into account the rise of "new users" of AD instruments in addition to the existing "traditional users"[28] – Australia, European Union, New Zealand and United States. Furthermore, new users and traditional users were used as categories in calculating their observations. Prusa and Skeath constructed an empirical method that tries to find the reasons behind the rise of new users of AD actions. They also contested the notion that "AD actions are intended for use only against importers suspected of unfair trade practices" (p. 390, Prusa & Skeath 2002); thus, they asked whether

[28] Traditional users are the countries that used AD instruments the most during the 1980s and 1990s: Australia, the European Union, New Zealand and the United States (Bown 2008; Miranda, Torres & Ruiz 1998; Prusa 2001; Teh, Prusa & Budetta 2007; Zanardi 2004).

unfair trade practices can truly be understood as the cause of increasing use of the AD method.

Prusa and Skeath (2002) reported AD filing trends data[29] based on GATT/WTO reports within the period 1980–1998, in which the data originated from members' notifications to the institution as required under Article IV of GATT 1994 (WTO n.d.-b). Their approach combined methodologies from the work of Bagwell and Staiger (1990), which uses a game-theory model to observe how special protection acts as a substitute for cooperative behaviour in trade, along with Finger's (1993) observation that AD investigations are targeting other AD users, and Prusa's (2001) argument that there are retaliatory tendencies, as AD investigations usually target countries that have initiated AD actions against them in the past.

Prusa and Skeath (2002) identified two motives, economic and strategic, among AD users. Each motive refers to two specific hypotheses. *Big supplier* and *import surge* hypotheses are used to test for economic motives, whereas *club* and *retaliation* hypotheses are used to capture the strategic motives.

The *big supplier hypothesis* refers to evidence found when AD investigations are filed against a country's largest supplier. The *import surge hypothesis* refers to

[29] Data are collected from country-level WTO AD records.

evidence of AD filings directed against countries with the largest percentage change in imports.

In strategic motives, the *club hypothesis* categorised countries based on their records of using AD instrument, so AD actions are more likely to be taken against countries that have previously used AD instrument. The *retaliation hypothesis* gathers evidence of countries using AD instruments towards suppliers that have previously targeted or mentioned them in AD investigations. A detailed description of the null and alternative hypotheses is given in Table 3.1. By looking at the requirements to initiate AD investigations, action is more likely to be taken when an import surge exist in a country that has been involved in AD investigations.

In analysing the data, Prusa and Skeath (2002) made a number of decisions. First, they omitted entries for non-market economies[30] because of the differences in calculation of dumping determinations for those economies (Boltuck and Litan 1991 in Prusa & Skeath 2002). Second, countries listed were divided into "traditional" or "new" user category based on their recorded activities in filing AD actions. Third, in order to measure the importance of recent or past AD filing actions towards club and/or retaliation motives, a "long" and "limited" memory parameter was added. The long memory takes into consideration both club and retaliation incentives throughout

[30] A non-market economy is a situation where the government exercises full control of trade and market prices (WTO n.d.-r).

the period of research, whereas the limited memory takes into account strategic motives only if the action occurs within three years of an AD initiation.

The hypothesis testing began by identifying AD initiations, which then produced listings of AD initiations by user categories – traditional and new users of AD. In addition, import percentage was used to determine evidence of economic motives.

Table 3.1 Strategic and economic motive hypotheses

Hypotheses		Notes
Strategic motives		
Club	Null hypothesis: AD actions consistent with club effect is *not* present	Look for evidence of countries that have used AD instrument
	Alternative hypothesis: AD action consistent with club effect is present	
Retaliation	Null hypothesis: AD actions consistent with retaliation effect is *not* present	Look for evidence of countries that use AD instrument against those countries that have targeted or mentioned them in a previous AD investigation
	Alternative hypothesis: AD action consistent with retaliation effect is present	
Economic motives		
Big supplier 50th, 75th and 90th percentile	Null hypothesis: AD actions consistent with club effect is *not* present	Look for evidence of suppliers with large import surge, that have been mentioned in an AD investigation
	Alternative hypothesis: AD action consistent with club effect is present	
Import surge 50th, 75th and 90th percentile	Null hypothesis: AD actions consistent with club effect is *not* present	Look for evidence of suppliers with large import surge that have been mentioned in an AD investigation
	Alternative hypothesis: AD action consistent with club effect is present	

Source: Prusa and Skeath (2002)

Import data are commonly used when analysing AD because AD focuses on import products that have a detrimental impact on a country's domestic market. This is particularly the case for products that are sold below their normal value[31] – or 'dumped'. Where dumping[32] is suspected and an AD investigation is triggered, it can be assumed that AD is being used as an instrument to tackle unfair trade activities (selling below normal value).

The import percentage used here is derived from ranking the import supplier of ASEAN member countries in a particular year, based on their import ratio. The import suppliers are then ranked from the largest to the smallest import ratio in that year.

In the big supplier hypothesis, import ratios are ranked from the largest to the smallest to show which suppliers can be considered big according to certain percentage cut-offs and markets. Additionally, in the import surge hypothesis, surges in import ratios are again ranked from the largest to the smallest.

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[31] Normal value in AD refers to the price of a product in a country's domestic market (WTO n.d.-r). An AD investigation would need to prove if a product's normal value is out of the "ordinary course of trade" (WTO n.d.-r) before determining if dumping exists.

[32] WTO (WTO n.d.-r) defines dumping as "a situation of international price discrimination"; thus dumping can be understood as an example of unfair trade activity.

In both hypotheses, three cut-off percentiles (50^{th}, 75^{th} and 90^{th}) are used to indicate how many import suppliers are involved in AD investigations, based on their yearly cut-off rankings. The cut-off serves as a parameter for calculating the number of AD initiations that fall on or below the cut-off percentile value in that year. For example, the 90^{th} percentile rank would calculate all import suppliers that are mentioned in an AD investigation that fall within the 90^{th} percentile rank in a particular year.

Where China, Japan and Malaysia are ranked as the top three import suppliers and are engaged in an AD investigation (based on the 90^{th} percentile), AD initiations involving these three countries are calculated.

The application of the Prusa and Skeath (2002) method is now illustrated with reference to 1994 data for South Africa. To begin with, the South African raw data are calculated to produce a percentage on AD actions data that is consistent with all four hypotheses. This was done to illustrate what results can be expected from the raw data. This process established the percentage of South African suppliers and those that have previously targeted South Africa in an AD investigation.

Consequently, the South African data are utilised and computed using a binomial probability test. The data are calculated using the following combination:

[Total AD actions in year *t*, AD actions consistent with hypothesis in year *t*, percentage in year *t*]

For the club and retaliation hypotheses, the percentage is derived from calculating the percentage number of suppliers that had previously used AD and which had previously named that country in a particular year. For the big supplier and import surge hypotheses, the percentage used is derived from the percentile cut-off (50th, 75th and 90th). Finally, for the binomial probability test[33], a significance level of 5% is used to decide whether the statistics are significant and the null hypothesis can be rejected.

The binomial test results for South African AD filings are presented in Table 3.2. The results suggest that statistical support was found for the retaliation, club and big supplier hypotheses, but not for the import surge hypothesis, for which the significance level was higher than 0.05.

[33] Binomial probability test (STATA n.d.) is used to estimate the hypothesis' probability of success or failure.

Table 3.2 South African anti-dumping filings in 1994

	Number	Percent
Total AD actions	15	
AD actions consistent with retaliation	11	73.33
AD actions consistent with club effect	13	86.67
AD actions against big suppliers (50th %ile)	14	93.33
AD actions against big %Δ imports (50th %ile)	1	6.67
Suppliers who had previously used AD		10.14
Suppliers who had previously named S. Africa		4.73
Binomial probability		
Retaliation (15, 11, 4.73%)	0.00000 **(i)**	
Club (15, 13, 10.14%)	0.00000 **(ii)**	
Big supplier (15, 14, 50%)	0.00049 **(iii)**	
Big %Δ imports (15, 1, 50%)	0.99960 **(iv)**	

Source: Prusa & Skeath (2002)

The overall summary of the binomial test for all 212 country–year pairs is shown in Tables 3.3 and 3.4. In the economic motives category, the big supplier hypothesis received more support than the import surge hypothesis. For traditional users, strong support was found for the big supplier hypothesis and less support for the import surge hypothesis. For new users, on the other hand, little support was found for big supplier hypothesis and no support was found for the import surge hypothesis.

Table 3.3 Binomial test for economic incentives for using AD law

		Big supplier: imports					
		>50th %ile		>75th %ile		>90th %ile	
Type of AD user	Total obs.	Significant at 5%		Significant at 5%		Significant at 5%	
		No.	%	No.	%	No.	%
New	135	34	25.19	30	22.22	22	16.3
Traditional	77	70	90.91	70	90.91	52	67.53
Total	212	104	49.06	100	47.17	74	34.91
		Import surge: %Δ imports					
		>50th %ile		>75th %ile		>90th %ile	
Type of AD user	Total obs.	Significant at 5%		Significant at 5%		Significant at 5%	
		No.	%	No.	%	No.	%
New	135	6	4.44	0	0	0	0
Traditional	77	23	29.87	1	1.3	0	0
Total	212	29	13.68	1	0.47	0	0

Source: Prusa & Skeath (2002)

In the category for strategic motives, strong support was found for both club and retaliation hypotheses, particularly for traditional users. New users received less support than traditional users for both hypotheses. Therefore, the result of this non-parametric test further confirms that an increase in unfair trade practices alone is not sufficient to explain the growth of AD activities.

Table 3.4 Binomial test for strategic motives

		Club effect hypothesis			
		Long memory		Limited memory	
Type of AD user	Total obs.	Significant at 5%		Significant at 5%	
		No.	%	No.	%
New user	135	51	37.78	51	37.78
Traditional user	77	67	87.01	67	87.01
Total	212	118	55.06	118	55.66
		Retaliation hypothesis			
		Long memory		Limited memory	
Type of AD user	Total obs.	Significant at 5%		Significant at 5%	
		No.	%	No.	%
New user	135	43	31.85	37	27.41
Traditional user	77	59	76.62	54	70.13
Total	212	102	48.11	91	42.92

Source: Prusa & Skeath (2002)

3.2.1 Implementing Prusa and Skeath's methodology

Before applying the above-mentioned methods, the South African example was reproduced to fully comprehend the methods constructed by Prusa and Skeath (2002), using current reports on the 1994 South African data. In calculating South African AD initiations in 1994, several sources were consolidated and a few discrepancies were found (see Table 3.5). Although South African bilateral import data for 1994 is available, the difference in the total number of AD initiations in 1994 differs depending on the source referred to. Therefore, it was not possible to reproduce the same results published by Prusa and Skeath (2002).

However, the process of reproducing the South African example provided this research with insights into how the WTO AD system works and how to properly use the data at hand. Firstly, the semi-annual report from the WTO summarises information of an AD initiation using the following classification:

1. Original investigations and review/other subsequent proceedings:
    a. Country or customs territory
    b. Product
    c. Date of initiation
    d. Provisional measures (date)
    e. Final measures: Definitive duty or undertaking (date)
    f. No final measures: No dumping, No injury, Case withdrawn, Other (date)
    g. Trade volume (unit)
    h. Dumped imports as % of domestic consumption
    i. % of trade volume investigated (of the exporting country)
    j. Basis for determination
2. Annexes:
    a. Definitive AD measures in force
    b. Termination of measures
    c. Refund request

Table 3.5 South African AD initiations, 1994

Source	Year of publication	Reporting Period	No. AD initiations		Total AD Initiations, 1994
			Other countries	China (non-market economy)	
G/ADP/N/2/ZAF	1995	1 July – 31 December 1994	12	3	15
G/ADP/N/9/ZAF	1996	1 July – 31 December 1995	12	1	13
G/ADP/N/16/ZAF	1996	1 January – 30 June 1996	3	1	4
G/ADP/N/22/ZAF/Rev.1	1997	1 July – 31 December 1996	2	0	2
Zanardi	2004	1981–2001			17
Edwards	2011	1992–2009			9
Bown	2012	1993–2013	16	1	17

Source: Compiled from WTO semi-annual anti-dumping reports (WTO n.d.-h), Zanardi (2004), Edwards (2011), Bown (2012)

Secondly, according to the ADA, WTO members are obliged to report a list of AD-related activities – initiations, AD measures in force, and revisions and/or supplements (WTO n.d.-b). Through this report, member countries can notify, correct, revise and/or supplement information about AD activities in their country. This report is published twice a year through the semi-annual reports. This reporting scheme came into effect with the establishment of the WTO in 1995. In relation to the South African data, the WTO system makes it possible for researchers to gain access to variations in the total number of AD initiations a year, depending on when the data is extracted. In the semi-annual reports, as the investigations progress towards termination and/or application of definitive measures, the investigation record is often removed from the original/review investigations section to the annex section. The total number of South African AD initiations (see Table 3.5) ranges from two to 17, depending on which WTO semi-annual report or journal article or AD database is being referred to.

As a result, the calculation of a country's total number of AD initiations must take into account multiple reports and often important annex information that is not listed in the original/review section of the report (see Table 3.5, South African AD Initiations in 1994). Table 3.6 describes all South African AD initiations by product in 1994, detailing how information about a product's initiation can be found immediately, over a period of time, or presented with a different date of initiation.

The example of the South African initiation against France on 'Circuit breakers' in 1994 can immediately be found through WTO's semi-annual report G/ADP/N/2/ZAF

in 1995 and G/ADP/N/9/ZAF in 1996; however, the 'PVC film and sheet' AD investigation in 1994 was first published only through G/ADP/N/9/ZAF in 1996 – which was two years later – and continued to be listed in two other WTO semi-annual reports, G/ADP/N/16/ZAF and G/ADP/N/22/ZAF/Rev.1 (WTO n.d.-h). This means that, should a researcher take into account only the first WTO semi-annual report publication, then the AD initiation against France on "PVC film and sheet" product would not be recorded.

Similarly, the AD initiation against the Republic of Korea on "PVC film and sheet" in 1994 would also not be recorded, since the report of the investigation was published only in 1997 in WTO semi-annual report G/ADP/N/22/ZAF/Rev.1 (WTO n.d.-h). Consequently, in order to meticulously report how many AD investigations were initiated by South Africa in 1994, several reports and databases would have to be investigated.

Thirdly, in order to effectively gather WTO information for AD research, it is imperative to always refer to the most updated and actual listings of a country's AD initiations produced by the member country's competent AD authority, since the WTO system relies solely on the reports submitted to the AD committee twice a year. This is why it is essential, where possible, to establish contact with and acquire the list from ASEAN member country's competent authority in order to obtain accurate data. Fourthly, the semi-annual report calculates the original investigation initiations and review investigations initiations as separate initiations, whereas the

research here focuses on original investigations and does not take into account periodic and sunset/final review investigations[34].

In addition to recognising the WTO AD reporting system, it was necessary to make four modifications to Prusa and Skeath's (2002) method in order to measure AD activity within the ASEAN framework. Firstly, the urgency in distinguishing between "traditional" and "new" users as the main feature in revealing the rise of AD investigations in the 1990s (Prusa & Skeath 2002; WTO n.d.-b) is not present in this study.

Only four ASEAN member countries are users of the AD instrument and all of them, in the international arena, belong to the new users category, thus differentiation does not apply here. Secondly, the long and limited memory scenario is also excluded in assessing ASEAN's data, since the scenario produces similar end results to the assessment, as shown above. Thirdly, initiations directed at non-market economies are not excluded from the ASEAN data, since the number of ASEAN initiations directed at non-market economies does not reach a significant percentage and is recorded to be less than 20% of the total initiation number.

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[34] Periodic and sunset/final review investigation is allowed under Article 11 of the AD Agreement. Periodic or "mid-term" review allows countries to raise concerns about an AD duty imposition or price undertakings, whereas "sunset" review is made available for countries to review the need to continue imposition of duty after the five-year term (WTO n.d.-c).

Table 3.6 South African AD initiations in 1994 by product

Country or customs territory	Product	Date of initiation	Source of reports					Comments
			G/ADP/N/2/ZAF	G/ADP/N/9/ZAF	G/ADP/N/16/ZAF	G/ADP/N/22/ZAF/Rev.1	Global AD Database	
Belgium	Titanium dioxide pigment	13 May 1994	x	x			x	
China	Footwear	09 Dec 1994	x	x	x		x	
	Mechanical lifts	12 Dec 1994	x					
	Sutures	15 Dec 1994	x					
Finland	Super calendar paper	22 July 1994	x				x	
France	Circuit breakers	07 Jan 1994	x	x			x	
	PVC film and sheet	09 Sept 1994		x	x	x	x	
Germany	Super tension cable	31 March 1994	x	x			x	
	Trichloroethylene	07 Oct 1994	x	x			x	
	Mechanical lifts	15 Dec 1994		x			x	
	Surgical sutures	16 Dec 1994		x			x	
Hong Kong	Footwear	09 Dec 1994	x	x	x		x	
	Mechanical lifts	12 Dec 1994	x					
	Sutures	15 Dec 1994	x					
Saudi Arabia	Titanium dioxide pigment	13 May 1994	x	x			x	
Republic of Korea	PVC film and sheet	09 Sept 1994				x	x	
Taiwan	PVC film and sheet	09 Sept 1994	x	x	x		x	
United Kingdom	Titanium dioxide pigment	13 May 1994	x	x			x	
	Surgical sutures	15 Dec 1994					x	Dated 1995 in G/ADP/N/9/ZAF
USA	Titanium dioxide pigment	13 May 1994	x				x	Dated 1995 in G/ADP/N/9/ZAF
	Surgical sutures	15 Dec 1994		x			x	
Total number of AD Initiations in 1994			15	13	4	2	17	

Source: Compiled from WTO semi-annual AD reports (WTO n.d.-h), Bown (2012)

Fourthly, this research focuses on calculating original AD investigations, which omits any periodic and sunset review investigations. Furthermore, contrary to the methods used in the previous chapter, in this section, ASEAN AD initiations are calculated based on the number of countries mentioned in an initiation, instead of product initiations. The adjustment in AD investigation calculation method is imperative, since in utilising Prusa and Skeath's (2002) method, each application to a particular import source country is considered a separate instance. As a result, the total number of initiations in this section will be considerably higher than the previous calculation, as an AD product initiation can target multiple countries at once.

Finally, this research focuses on the period after the WTO was established (1995–2012). This was done to ensure that the source of data used in this research is linked to a governing institution that provides readily available access to the data. Furthermore, in relation to the formation of the European Union, the bilateral import data used here is adjusted based on the stages of European Integration. In any case, there will only be one European Union calculation which is a calculation of all of the European Union members in any given year.

3.3 Strategic and economic motives in ASEAN

As has been presented earlier in this chapter, Indonesia, Malaysia, Thailand and the Philippines are the only ASEAN member countries that have used AD instruments within the research period (1995–2012). Therefore, this section will focus on these four member countries. Additionally, the total number of AD initiations here differs,

since the focus of the calculation relies on the number of countries named/targeted in an initiation instead of the number of product initiations. In total, based on the number of countries named/targeted in an AD initiation, ASEAN users initiated 226 investigations during 1995–2012. The details are shown in Table 3.7 below. All of the bilateral import data used here are derived from the UN Comtrade database, based on US$ value. Calculations are performed on all the existing annual data.

Table 3.7 ASEAN AD initiations by number of countries named/targeted (1995–2012)

Year	IDN	THA	MYS	PHL
1995	0	0	3	1
1996	8	1	2	2
1997	5	3	8	1
1998	8	0	1	3
1999	8	0	2	6
2000	3	0	0	2
2001	4	3	1	0
2002	5	21	5	0
2003	12	3	6	1
2004	5	3	3	0
2005	0	0	4	0
2006	5	3	8	0
2007	1	2	0	0
2008	7	1	0	0
2009	7	1	0	1
2010	3	2	0	0
2011	6	13	0	0
2012	7	5	11	0
TOTAL	94	61	54	17

Source: Compiled from Bown (2012), KADI (I4, pers.comm. 26 May, 2014), KPPI (I6, pers.comm. 26 May, 2014) and MITI remedies (I15-I17, pers. comm., 12 June 2014).

Following the methodology explained previously, the raw data obtained from UN Comtrade will be processed to provide a preview of what results can be expected by calculating the percentage of cases consistent with all four hypotheses. For the big supplier hypothesis, the import suppliers are ranked based on their import ratio in year *t*. The countries are then ranked from the largest to the smallest ratio, thus creating a list of all import suppliers on all available years observed.

An extra step needs to be performed to calculate the import surge hypothesis. After configuring the import percentages[35] of import suppliers in all available years, the difference in import percentage with the import percentage in the following year needs to be calculated to determine whether it has increased or decreased. Therefore, every single import supplier percentage fluctuation[36] is calculated for all years of the research period 1995–2012. By calculating the differences in annual import percentages of an import supplier, another ranking is derived – an annual ranking of

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[35] The import percentage is calculated as follows:

$$\frac{M_{A,\ldots,Z,t}}{\sum M_{IDN}} \times 100 = \%M_{A,\ldots Z,t}$$

[36] The import supplier percentage fluctuation is calculated as follows:

$\%M_{A,\ldots Z,1995} - \%M_{A,\ldots,Z,1996} = \pm \%M_{A,\ldots,Z,1996}$

$\%M_{A,\ldots,Z,1996} - \%M_{A,\ldots,Z,1997} = \pm \%M_{A,\ldots,Z,1997}$

$\%M_{A,\ldots,Z,1997} - \%M_{A,\ldots,Z,1998} = \pm \%M_{A,\ldots,Z,1998}$

differences[37] in import percentage for all import suppliers, ranked from the largest to smallest. This ranking is then used to ascertain whether or not the big import surge hypothesis is supported.

Table 3.8 reports the raw data calculation for all four countries (Indonesia –IDN, Thailand – THA, Malaysia – MYS and the Philippines – PHL). From the overall raw data testing, support for all four hypotheses was evident. The strongest support was found for big supplier hypothesis, followed by club and retaliation hypothesis, and there was also considerable support for the import surge hypothesis (see Table 3.8).

From the results in Table 3.8, strategic motivation is found to receive considerably strong support. The club hypothesis ranges from 70% - 92% showing a high

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[37] Annual ranking based on import percentage fluctuation is ranked based on largest to smallest percentage difference, for example:

Year 1996
1. $\%M_{A,1996}$
2. $\%M_{B,1996}$
3. $\%M_{C,1996}$

Year 1997
1. $\%M_{C,1997}$
2. $\%M_{A,1997}$
3. $\%M_{B,1997}$

Year 1998
1. $\%M_{B,1998}$
2. $\%M_{C,1998}$
3. $\%M_{A,1998}$

indication that AD actions are initiated by countries towards other countries that have been exposed to AD instruments. The retaliation hypothesis is also seen to receive strong support although the percentage is slightly lower compared to the club hypothesis, with the exception of Philippines low 17% percentage. Among the four countries, Indonesia's percentage ranks highest for strategic motivations, Thailand and Malaysia ranks in the middle while Philippines percentage is found to be the lowest.

Table 3.8 ASEAN anti-dumping actions consistent with alternative hypothesis (%), 1995–2012

Hypothesis	IDN	THA	MYS	PHL
Strategic incentives				
Club effect	92.55	80.33	92.59	70.59
Retaliation effect	70.21	72.13	66.67	17.65
Economic incentives				
Big supplier				
Imports › 50th percentile	98.94	100	100	94.12
Imports › 75h percentile	97.87	88.52	100	88.24
Imports › 90th percentile	87.23	77.05	94.44	70.59
Import surge				
% Δ imports › 50th percentile	45.74	63.93	50.00	64.71
% Δ imports › 75th percentile	45.74	62.30	50.00	64.71
% Δ imports › 90th percentile	37.23	57.38	42.59	64.71

Source: Compiled from Bown (2012), KADI (I4, pers.comm. 26 May, 2014), KPPI (I6, pers.comm. 26 May, 2014) and MITI remedies (I15-I17, pers. comm., 12 June 2014).

The big supplier hypothesis from the economic motives category shows the strongest support of all the four hypotheses. A 100% value can be seen in the raw data for

Thailand and Malaysia, showing that almost, if not all of their AD initiations, target the biggest supplier of imported products to their countries. The Philippines' percentages for these hypotheses are still found to be the lowest among the four AMCs, although the percentage ranges are considerably high, between 70% and 94%.

In contrast to the other hypotheses, the results for the Philippines show stronger support for the import surge hypothesis, with 64% for each of the 50^{th}, 75^{th} and 90^{th} percentiles. Indonesia presents the lowest percentage for the import surge hypothesis on all cut-off percentiles, meaning that in the raw data, AD actions in the Philippines are more motivated by economic motives than AD actions in Indonesia.

The calculation from the raw data suggests that, in general, support can be found for all four hypotheses, with the strongest support found for the club and big supplier hypotheses.

Next, the AD initiation numbers compiled in Table 3.8 will be used as one of the components to calculate whether the conclusions presented by the raw data are statistically significant.

The binomial probability test is used to test the data on every available year on all four ASEAN member countries. The following components are needed to run the binomial probability test annually:

- Total number of initiations

- Number of cases consistent with the club effect
- Number of cases consistent with the retaliation effect
- Number of cases consistent with big supplier hypothesis at the 50th, 75th and 90th percentile
- Number of cases consistent with big import surge hypothesis at the 50th, 75th and 95th percentile
- Percentage of supplier who has used AD previously
- Percentage of supplier who has been named by Country X[38] previously

Subsequently, all components gathered were computed through the STATA binomial probability test software, with a 5% significance level. A total of 576 statistical tests were conducted on the four hypotheses. ASEAN's overall results are summarised in Table 3.9. The results for Indonesia found evidence for the club and retaliation hypotheses. However, the null hypotheses for the big supplier and import surge explanations are not rejected. Besides Indonesia, Thailand is the only member country where evidence is found to support the club and retaliation hypotheses. Support for economic motives through the big supplier hypothesis can be found only in the data for Indonesia at the 50th percentile cut-off. Additionally, support was not found for the economic motives, through either the big supplier or import surge hypotheses, in the data for Thailand, Malaysian and Philippines.

[38] X represents each country observed in the testing. In this case the countries are Indonesia, Malaysia, Thailand and Philippines.

Table 3.9 Summary of binomial probability test of anti-dumping motivation in ASEAN

Country	Hypothesis							
	Strategic		Economic					
	Club	Retaliation	Big supplier			Big import surge		
			50th %ile	75th %ile	90th %ile	50th %ile	75th %ile	90th %ile
Indonesia								
Thailand								
Malaysia								
Philippines								

Source: Author's calculations.

Notes:

Do not reject

Reject

%ile: percentile

The result of the binomial probability at a 5% significance level determined whether a hypothesis is to be rejected or whether the test result does not provide statistical support for the hypothesis. Based on the results, conditions where the test results do not reject the hypothesis are highlighted 'Red' and the rejected hypothesis is highlighted 'Green'.

Overall, the result of ASEAN's raw data and binomial probability testing resonates with the results presented by Prusa and Skeath (2002), thus confirming the notion that unfair trade practice is not solely responsible for motivating and increasing the use of AD instruments. For Indonesia and Thailand, AD initiation is found to be motivated more by strategic motives – both the club and retaliation effects – than by economic motives.

This conclusion also strengthens the view of Prusa and Skeath (2002), which indicated the existence of a retaliatory pattern among AD users. Prusa and Skeath's

results suggested that strategic motivations (the club and retaliation hypotheses) have more bearing than economic motivations in explaining what drives countries to initiate AD investigation. Furthermore, their results acknowledge how AD investigations are not only triggered by economic activities per se; "political pressure, national security interest and historical economic relationships" (Prusa & Skeath 2002, p.410) also play an important role. Detailed binomial probability results for individual countries are provided in Tables 3.10–3.13.

Table 3.10 Indonesia (1995–2012): binomial probability results

Hypothesis	Do not reject	Reject	Insufficient observation
Club	2	14	2
Retaliation	4	12	2
Big supplier			
50th percentile	4	12	2
75th percentile	15	1	2
90th percentile	16	0	2
Big import surge			
50th percentile	16	0	2
75th percentile	16	0	2
90th percentile	16	0	2

Source: Author's calculations

Table 3.11 Thailand (1995–2012): binomial probability results

Hypothesis	Do not reject	Reject	Insufficient observations
Club	6	7	5
Retaliation	5	8	5
Big supplier			
50th percentile	10	3	5
75th percentile	12	1	5
Big import surge			
50th percentile	11	2	5
75th percentile	13	0	5
90th percentile	13	0	5

Source: Author's calculations

Table 3.12 Malaysia (1995–2012): binomial probability results

Hypothesis	Do not reject	Reject	Insufficient observations
Club	10	2	6
Retaliation	8	4	6
Big supplier			
50th percentile	7	5	6
75th percentile	11	1	6
90th percentile	12	0	6
Big import surge			
50th percentile	12	0	6
75th percentile	12	0	6
90th percentile	12	0	6

Source: Author's calculations

Table 3.13 Philippines (1995–2012): binomial probability results

Hypothesis	Do not reject	Reject	Insufficient observations
Club	5	2	11
Retaliation	5	2	11
Big Supplier			
50th percentile	7	1	10
75th percentile	8	0	10
90th percentile	8	0	10
Big Import Surge			
50th percentile	9	1	10
75th percentile	8	0	10
90th percentile	8	0	10

Source: Author's calculations.

3.4 Conclusion

Following Prusa and Skeath (2002), a statistical method was applied to test hypotheses about the motivation for the application of AD in 576 cases involving four ASEAN users. Support for strategic motives – both the club and retaliation hypotheses – was found only in the data for Indonesia and Thailand. With the exception of Indonesia's big supplier hypothesis at the 50th percentile cut-off, statistical support was not found for economic motives, for both big supplier and import surge hypotheses, from the other three AMCs. It can be concluded that, for the ASEAN region, AD actions are more likely to be directed towards other traditional users of AD, and to those that have previously targeted ASEAN countries.

The results reflect that, for the users of AD within the ASEAN region, strategic motives receive more support from the analysis than economic motives. This can be interpreted as indicating that most AD actions initiated within ASEAN are triggered because they have been targeted with dumping allegations in the past. Nevertheless, contrary to the raw data, less support was revealed for the economic motives in the statistical test.

Taking into account that strategic motives seem to be a dominant motivation for users in the ASEAN region – and also AD users around the world – it is possible that as AD filing numbers continue to grow, more cases involving intra-ASEAN and even regular users of AD will continue to unfold. Other ASEAN member countries that have only been targets of AD actions, such as Viet Nam, might be motivated to begin utilising AD in the near future. Thus, this motive can lead to an increase in AD activity by ASEAN member countries, and may also intensify the number of AD actions among ASEAN member countries.

In the case where evidence of the strategic motives is found to grow alongside AD activities, Prusa and Skeath's (2002) method is faced with challenges in explaining specific aspects that might be regarded as a strategic action. The steps of quantifying which aspects are to be considered as strategic actions would require a meticulous effort that is difficult and most likely lies beyond the methods offered by Prusa and Skeath (2002). Thus, this can be taken as a possible direction for future research.

The utilisation of AD actions and the significant support for the club and retaliation hypotheses, in particular as described here, depict a situation where trade is conducted through the use of restrictions and penalties, often referred to as non-cooperative strategy (Drysdale 1988, 1994). Indeed, when talking about collective action, cooperative behaviour is one of the main necessities to achieve collective effort that leads to the pursuit of a desirable policy. However, it is also common that in relation to trade, some nations resort to non-cooperative strategies when the gains from doing so outweigh the cooperative effort (Drysdale 1988). With fewer than half of its member countries actively using the AD instrument, an opportunity is presented for ASEAN as a regional institution to lessen, and even minimise, the effect of strategic motivation in the future – especially when the number of ASEAN users grows. ASEAN will be able to use this opportunity to further promote, set standards and eventually nurture cooperative behaviour between its members.

It may be thought that the strategic motivation – club and retaliation – that exists in ASEAN cooperation inhibits the road to integration. However, interestingly, since the main motivation to use AD is strategic, it also means that this motivation is still amenable to economy-level negotiation. Where the motivation to use the AD instrument focused more on economic factors, the motivation would be tied more to domestic politics, and there would be greater difficulty arriving at cooperative solutions at a regional level. Thus, before deciding to initiate an AD investigation, a country would first have to resolve domestic policy constraints, which would be

time-consuming, more difficult and depending on circumstances, subject to recurrence.

In order to help drive cooperative behaviour, it would be useful to establish the trade effects of AD actions. The next chapter conducts an industry-level trade remedy analysis that describes the trade effects of trade remedy usage and implementation.

Chapter 4 The trade effects of anti-dumping investigations in Indonesia

4.1 Introduction

Anti-dumping (AD) is the most actively used trade remedy instrument in the world. Scholars have calculated the effects of AD actions for traditional users[39] of AD, such as Australia, European Union, New Zealand and United States. There is also more research on the effects of AD instruments in India, China, and Mexico, as examples of developing countries, and on other new AD users (Bown & Tovar 2011; Chandra, P & Long 2013; Niels & ten Kate 2006). In summary, it has been found that when AD is involved, imports are affected. The effects are commonly observed in countries targeted with AD investigation and countries that are not targeted in AD investigation through the reduction or increase in movement of imports. Observation of the impact of using AD is important to measure consequences and effectiveness of trade instrument implementation on domestic industry and import markets.

Yet, to date, very little research is available on the impact of AD in the South East Asian region. Given the interest in building the AEC, research on the challenges that might hinder further economic integration is warranted. This chapter makes a contribution in that respect. Its focus is on actions on Indonesian usage of AD

[39] Traditional users are countries that used AD instruments the most during the 1980–1990s: Australia, the EU, New Zealand and US (Bown 2008; Miranda, Torres & Ruiz 1998; Prusa 2001; Teh, Prusa & Budetta 2007; Zanardi 2004).

instruments and the impact of using such measures on trade. Indonesia is a suitable sample to represent ASEAN, since it is the biggest AD user in the region and it is also among the top five markets to be targeted for AD investigations (Van Den Bossche 2008).

This chapter will report empirical work on the trade effects of AD actions, including both the investigation and the imposition of duties. The rest of the discussion is organised as follows: Section 2 describes AD investigations in Indonesia, followed by an explanation of preliminary indications of AD trade effects on Indonesian industry. Section 3 discusses the Indonesian data set and explains two empirical models used in this chapter to determine the trade effects of AD investigations. The empirical results from both models are presented in Section 4. Finally, the conclusion and additional remarks appear in Section 5.

4.2 Anti-dumping instrument in Indonesia

Indonesia first initiated AD investigations in 1996, one year after KADI was founded and the regulation on AD and subsidies entered in force (KADI 2002). The Indonesian Anti-Dumping Committee sits under the jurisdiction of the Ministry of Trade of the Republic of Indonesia.

From this point on, Indonesia's statistics show a trend of initiating investigations almost every year. On average, Indonesia initiates two case investigations a year and

at least one has led to the imposition of a levy, which brings Indonesia's individual conversion rate[40] to 55%. Indonesia has recorded AD investigations and the imposition of measures in seven sectors (XV, VI, II, XI, X, VII and XIII). Table 4.1 summarises the 40 investigations undertaken between 1995 and 2012. A detailed list of Indonesia's AD investigations and results is provided in Appendix Table A4.7.

According to some Indonesian industry perspectives, the option to use trade remedies is imperative and necessary (I18 – I25, pers. comm. 15–29 Feb2016). The introduction of trade remedies, particularly AD, varies between industries, companies and associations. For Indonesia, the introduction to trade remedy instruments came about through the process of being targeted for dumping actions, or from early recognition of the existence of trade remedy availability under GATT. Furthermore, in applying for an AD investigation, some industries prefer to combine their effort through industry associations, while other industries, due to the sensitivity and requirements for detailed company data, choose to rely on their own individual strength. KADI's role in facilitating and socialising the AD instrument is seen as

[40] The term "conversion rate" used in this research is similar to "success rate" as defined by Zanardi (2004) or "success ratio" as defined by Neufeld (2001), where the number represents the configuration by percentage of how many of the total investigations ended with measures being imposed by a national authority.

pivotal for domestic industries, especially during the early period of applying for an AD investigation.

Table 4.1 Indonesia sectoral AD initiation and duty imposition (1995–2012)

Sector		Initiation	Duty Imposed
No	Description		
II	Vegetable products	5	3
V	Mineral products	0	0
VI	Products of the chemical or allied industries	9	5
VII	Plastics and articles thereof; rubber and articles thereof	2	1
X	Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard; paper and paperboard and articles thereof	3	1
XI	Textiles and textile articles	4	1
XIII	Articles of Stone, plaster, cement, asbestos, mica or similar materials; ceramic products; glass and glassware	1	1
XV	Base metals and articles of base metal	16	10
XVII	Vehicles, aircraft, vessels and associated transport equipment	0	0
	Grand total	40	22

Source: Compiled from KADI (I4, pers. comm. 26 May, 2014), Bown 2012.

Indonesian industry has argued that, in addition to mitigating the damage of overflowing imports in the domestic market, trade remedy utilisation leads to the growth of investment (Blonigen & Prusa 2003), especially foreign investment from countries that are at the receiving end of this instrument (I24, pers. comm. 23 Feb

2016). So far, AD instruments have been regarded as an effective tool to deter imports, protect domestic industry and trigger investment. An examination on the investment effect of AD investigation will not be included in this thesis. However, an empirical study on the trade effects of AD instruments is required to support and confirm the real consequences of using trade remedy instruments, especially AD.

4.2.1 Indonesian overall imports

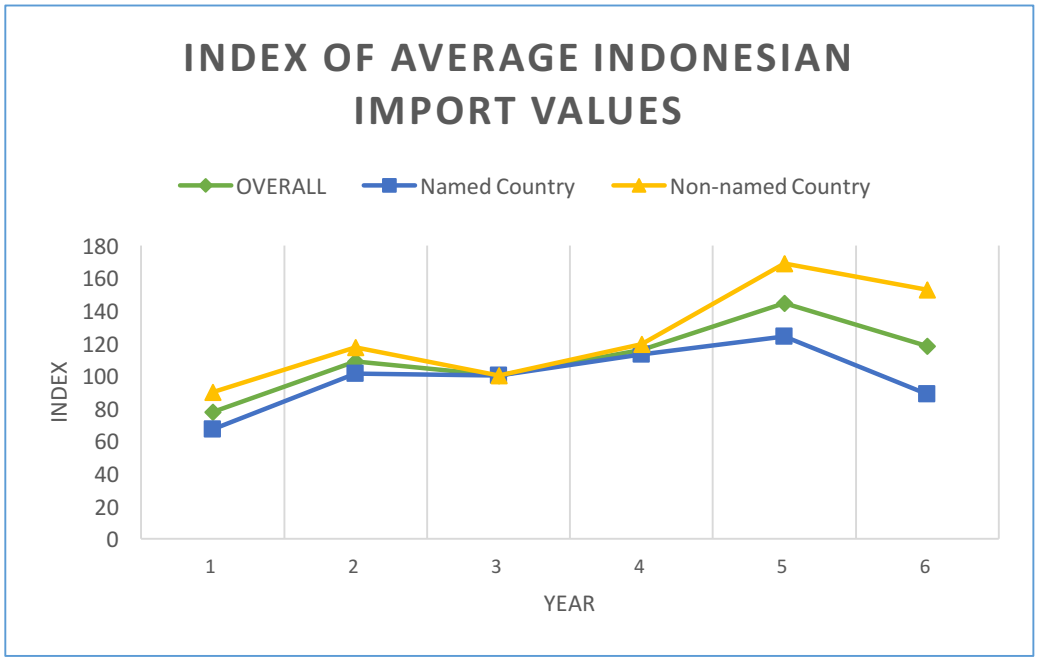
Preliminary indications of the trade effects of AD investigations are made available through graphic analysis of the Indonesian data from year 1 to year 6. The period of investigation looks at years 1–2 as the years prior to an AD investigation, year 3 as the year of AD initiation (base year), and years 4–6 as the years following AD investigation.

Figure 4.1 displays the index[41] of the average overall Indonesian import value of AD investigations observed, based on named and non-named country categories. It describes that, prior to year 3 (year of initiation), Indonesian imports increase and a

[41] The index is constructed using AD initiation year (year t3) as the base year (t3 = 100) of average Indonesian import values. In order to show comparisons over time, the index looks at average import values two years prior to AD initiation year (year t1 and t2) and two years after AD initiation (year t4 and t5). An increase in the average index number is indicated above 100 and a decrease in the average index number is indicated below 100. The average index is calculated for overall import values, named country import values and non-named country import values.

surge in imports is seen from the named country. Import growth continues to increase from year 3 up to year 5 after the AD initiation, and in this period a greater surge of imports is seen from non-named countries compared to imports from named countries. Imports in both categories then decline in year 6.

Figure 4.1 Index of average Indonesian import values (overall)



Source: Compiled from data from the Indonesian Ministry of Trade and Central Bureau of Statistics (2014).

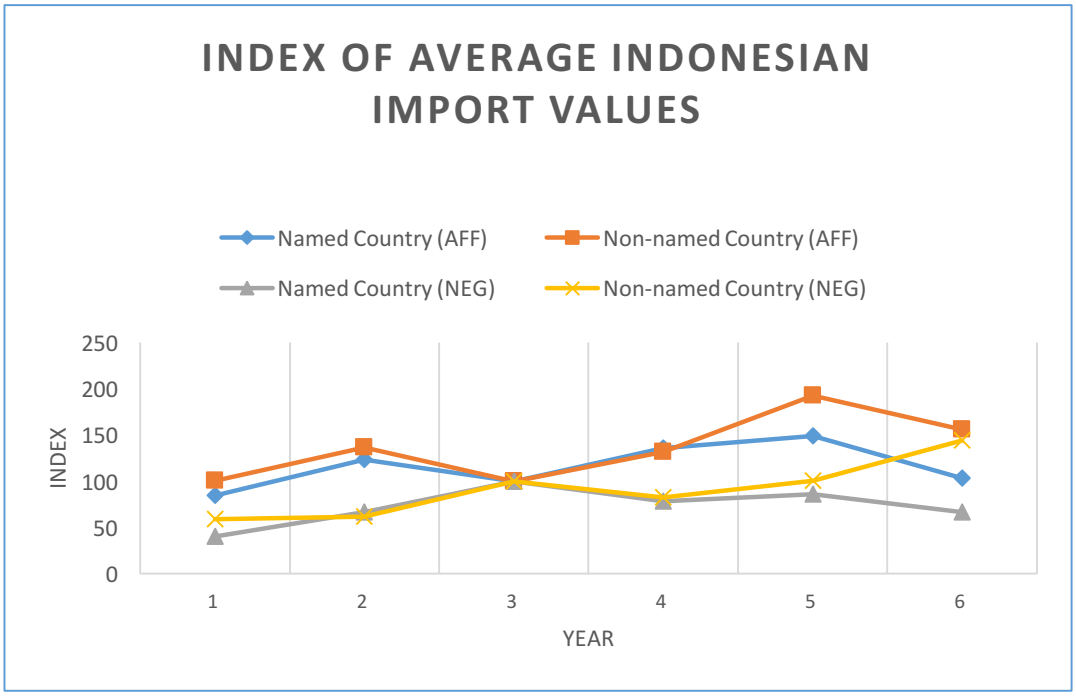
Further indications of AD investigation trade effects are given in Figure 4.2, with emphasis on whether investigations have a final affirmative or negative outcome (i.e. with or without the imposition of duty). For AD investigations with a negative final outcome, year 1 to year 3 trends depict that both named and non-named country imports rose quite significantly. Afterwards, both categories show a declining trend in year 3 to year 4, with a slight increase in imports from year 4 to year 5. Imports from named countries continue to decline in year 5 to year 6, however, there is a high surge in imports from non-named countries in the same period.

Anti-dumping investigations with affirmative final outcomes show a different picture. Although an upward trend is also seen from year 1 to year 2, a decline in imports can be seen starting from the year 2 to year 3 period for both named and non-named countries. This situation is consistent with the view that even the rumour of an AD initiation has an effect on imports (see Aggarwal 2004; Prusa 2001). After the year of initiation (year 3), both categories display an upward trend all the way through to year 5, with a notably high surge of imports from the non-named country category. This condition suggests the existence of a trade diversion effect from named country to non-named country imports. The last period of observation (year 5 to year 6) illustrates a decline in imports from both named and non-named country categories.

There are some interesting results in Figures 4.1 and 4.2, including:

- the continued growth of imports after the investigation, from both named and non-named countries, with an affirmative decision
- the decline in imports from both named and non-named countries, even with a negative decision
- the pattern that is closer to expectations of trade diversion for the non-named countries when there is an affirmative decision, but even then, imports from the named country continue to grow between the investigation and the decision.

Figure 4.2 Index of average Indonesian import values (Final AD determination)



Source: Compiled from data from the Indonesian Ministry of Trade and Central Bureau of Statistics (2014).

Additional preliminary indications and sectoral focus on the impact of AD investigations are provided to further highlight how AD instruments and duty imposition have different effects on different sectors. The two most affected sectors in Indonesian AD investigations are sectors XV (steel) and VI (chemicals). Table A4.1 and A4.2 in the Appendix provide detailed index reflected in Figure 4.1 and 4.2 respectively.

4.2.2 Indonesian steel and chemical (sectoral) imports

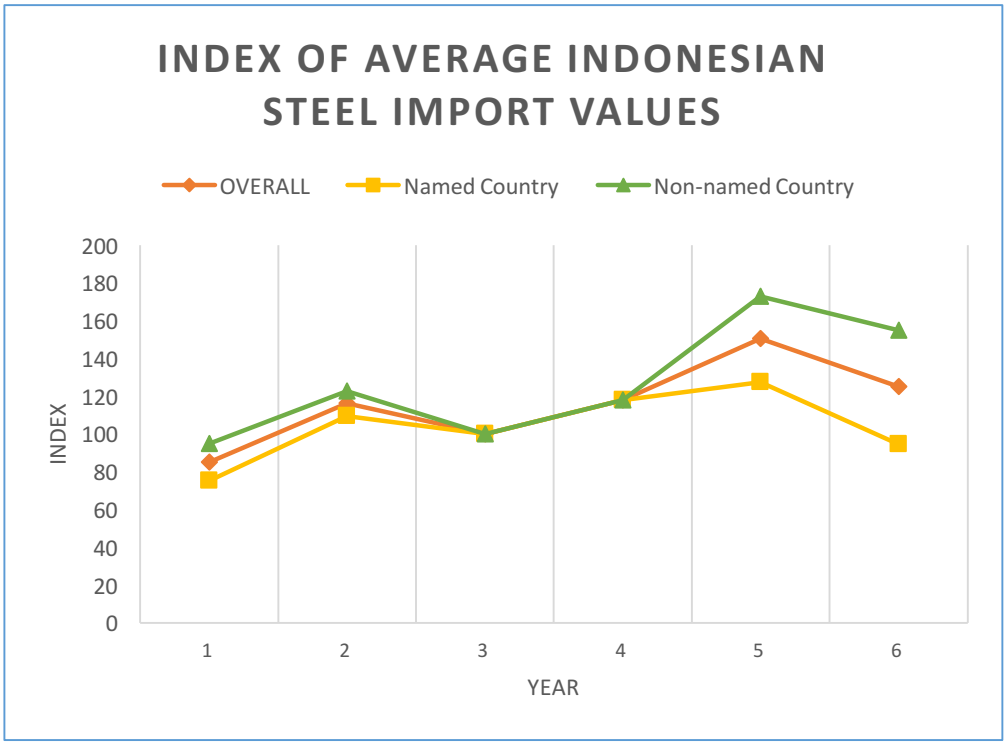
In the case of steel in Figure 4.3, the average import index shows upward trends from year 1 to year 2, followed by a slight downward trend in year 3. The overall steel

average import index rose again from year 3 to year 5, before showing a declining trend in year six.

Growth in imports is also observed from year 1 to year 3 within AD investigations with a negative final outcome, whereas for AD investigations with an affirmative outcome, imports drop from year 2 to year 3. Subsequently, steel sector import patterns in years 3–6 mimic those in the overall import index, where AD investigation with an affirmative final outcome shows increased imports for both named and non-named countries from year 3 to 5, eventually declining from year 5 to year 6.

Fig. 4.4 depicts an even more significant drop in imports from the named country from year 3 to year 4 and an upward trend of imports from non-named countries where there is a negative AD investigation outcome, especially from year 5 to year 6. Table A4.3 and A4.4 in the Appendix provide detailed index reflected in Figure 4.3 and 4.4 respectively.

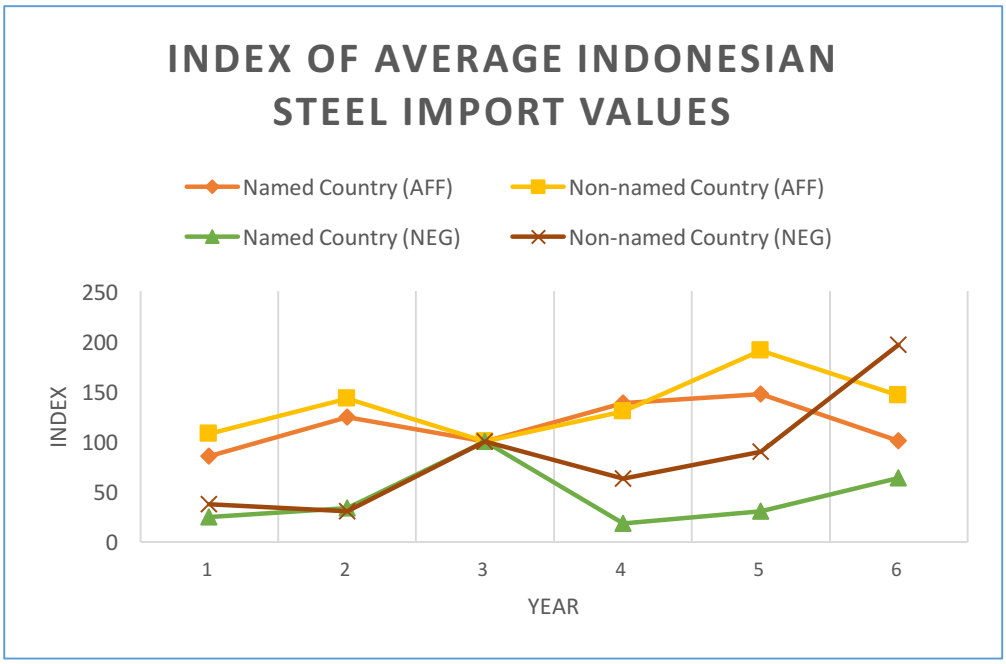
Figure 4.3 Index of average Indonesian steel import values (Overall)



Source: Compiled from data from Indonesian Ministry of Trade and Central Bureau of Statistics (2014).

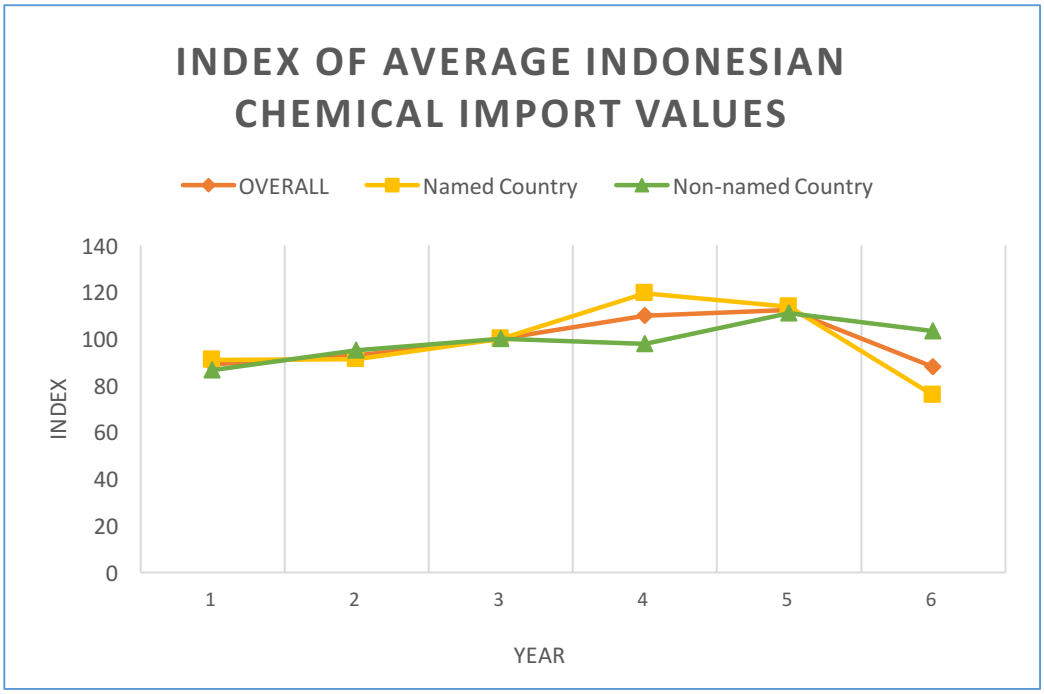
Figures 4.5 and 4.6 illustrate the average index of Indonesian chemical import values. When compared to the steel sector, the chemical sector value index shows less variation. The average overall chemical imports index shows an upward trend from year 1 to year 3. The named country import index continues to rise in year 4 before beginning a downward trend from year 4 to year 6. The non-named country import index experiences minor decline from year 3 to year 4 and then shows an upward trend in year 5, before starting to decline again towards year 6.

Figure 4.4 Index of average Indonesian steel import values (Final AD determination)



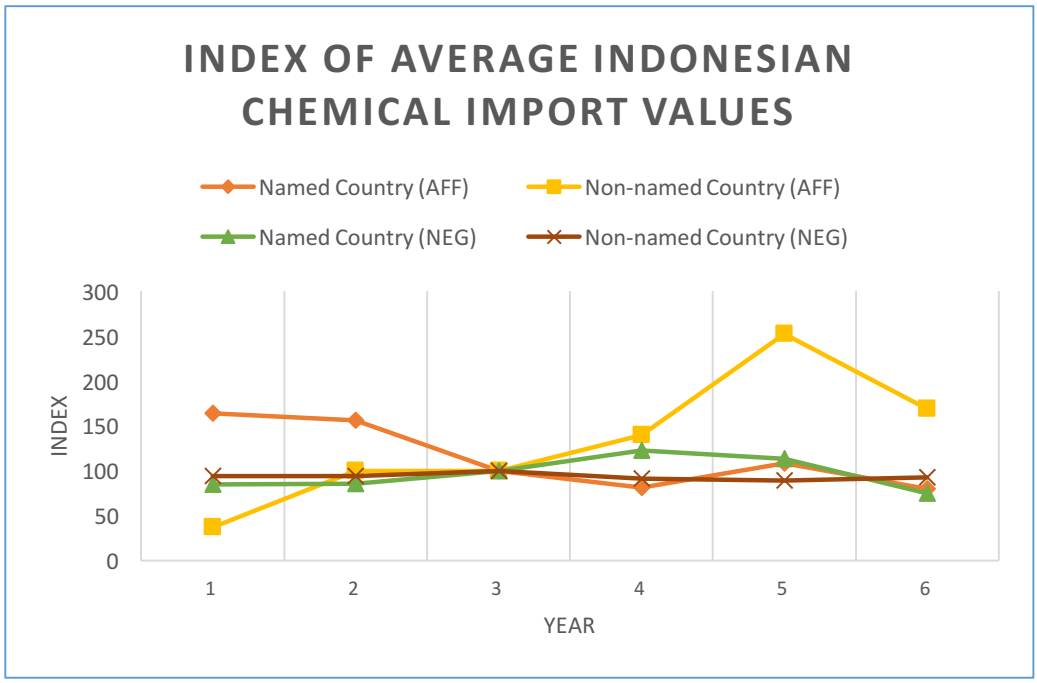
Source: Compiled from data from the Indonesian Ministry of Trade and Central Bureau of Statistics (2014).

Figure 4.5 Index of average Indonesian chemical import values (Overall)



Source: Compiled from data from the Indonesian Ministry of Trade and Central Bureau of Statistics (2014).

Figure 4.6 Index of average Indonesian chemical import values (Final AD determination)



Source: Compiled from data from the Indonesian Ministry of Trade and Central Bureau of Statistics (2014).

For AD investigations with a negative final outcome, the import index rose only slightly for both named and non-named countries from year 1 to year 3. The named country index rose from year 3 to 4 and then continued to decline from year 4 to year 6. The non-named country index fluctuates only slightly, showing a small overall drop from year 3 to year 6.

A noticeable import trend is found within AD investigations with an affirmative final outcome. For named countries, imports start high and then drop significantly from year 1 all the way through to year 4, unlike in steel and overall imports, where the downward trend dampens in year 3. The named country imports in the chemical

sector increase in year 4 to year 5, but fall in year 6. For non-named countries, imports start low in year 1 and continue to increase tremendously through to year 5, with the highest surge from year 4 to year 5, before eventually dropping in year 6. Table A4.5 and A4.6 in the Appendix provide detailed index reflected in Figure 4.5 and 4.6 respectively.

It can be seen that within the affirmative AD final outcome, named and non-named country imports are showing exactly opposite trends, that is, a continuous fall for named country and continuous growth for non-named country. This particular situation is not depicted in the overall Indonesian imports (see Figure 4.5), suggesting that AD investigations and their outcomes are specific across different sectors (Chandra, P & Long 2013). Thus, the trade effect of AD investigations might not be obvious in the overall trade flow, yet it can be patently evident for sectoral products.

4.3 Empirical model

There are several prominent trade effect indicators of the impact of trade in relation to AD investigations; these are the investigation effect, the trade destruction effect

and the trade diversion effect[42]. The investigation effect refers to the impact of an AD initiation on imports, where it is often understood as negative investigation effect or harassment effect (Niels and ten Kate, 2006) since it anticipates the future fall or decrease of imports (Staiger & Wolak 1994). Trade destruction and trade diversion effects focus on the effects of AD investigations on imports from countries subject to investigation and those not involved in AD investigation, respectively (Durling & Prusa 2006; Niels & ten Kate 2006; Prusa 1997). Also in this section, the analysis of the effects refers to named and non-named countries. 'Named country' refers to the country specifically announced in an AD investigation, whereas 'non-named country' refers to other countries that are exporting the products being investigated in an AD investigation but which are not specifically targeted in the investigation.

Researchers find that the initiation of an AD investigation by the United States without any imposition of AD duty can cause impediments to trade (Bown 2013; Krupp & Skeath 2002; Prusa 2001; Staiger & Wolak 1994). Fig. 4.7 indicates where

[42] Trade deflection and depression effects are also among the most common effects observed in trade remedies studies. However, these effects are not investigated in this thesis, since it observes similar reactions in the trade diversion and trade investigation effects. Trade deflection focuses on the indirect impact of AD use on other markets (Durling & Prusa 2006) and the depression effect mimics investigation effects that refers to reduction in export activity (Bown & Crowley 2007).

trade effects (investigation and trade destruction/diversion effect) can be observed throughout the AD investigation process.

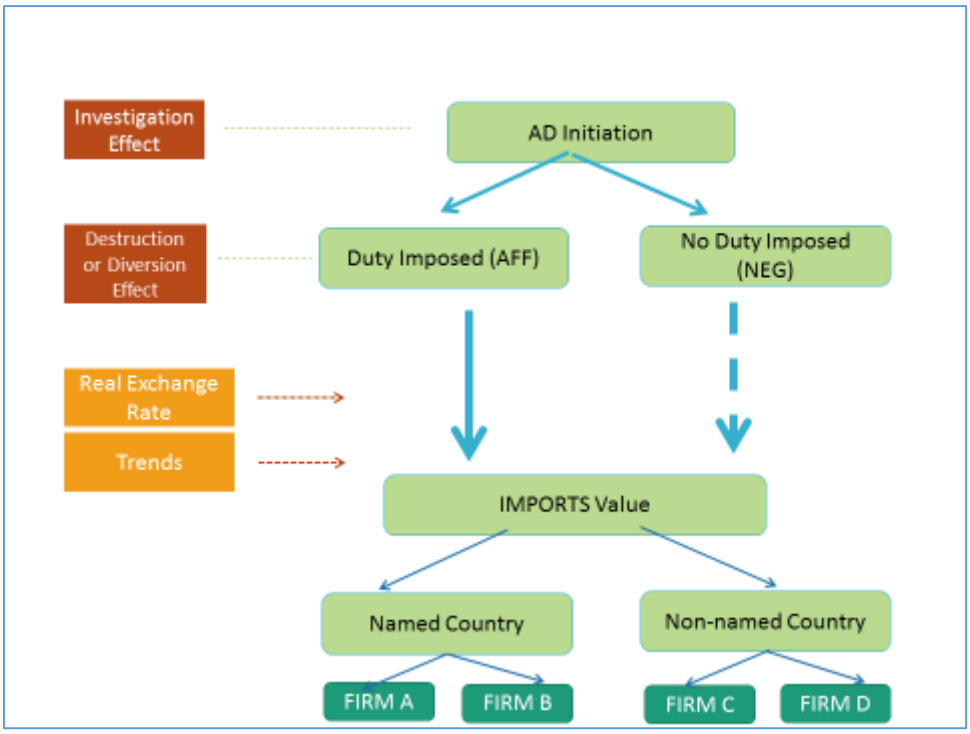
With the purpose of analysing the investigation, trade destruction and trade diversion effects of AD in Indonesia, this section adapted both Niels and ten Kate's (2006) economic models to establish the effects of AD instruments (both investigations and the application of duties) on Indonesian import values.

The Indonesian data set consists of original AD investigations over the period 1995–2012. The data include Indonesian import values (in US$) from all importing countries of the products under investigation for a period of 6 years (year 1 – year 6). The Indonesian AD investigation has at least one HS[43] code and may include several HS codes. In this case, the HS code digit of the product being investigated varies from the HS-6 to HS-10 digit level of aggregation according to the scope of the AD investigation. All importing countries are included in the data set, creating a unique

[43] Harmonised system is an international produce code and coding system used as basic customs tariff and guide for international trade statistics (WCO n.d.). The HS code ranges from the 2-digit to 10-digit level.

country case[44] *i* that is specific to each importing country, and the HS code[45] mentioned in an investigation, along with the year of observation (year 1 to year 6). The final sample size is 2,488 country cases.

Figure 4.7 Observed trade effects of AD investigation process



Source: Author's diagram

Figure 4.7 indicates where the trade effects are being observed in an AD investigation. It also shows that the duty imposition decision (affirmative/duty

[44] A unique country case *i* is created, indicating that there will only be 1 case for the same country in the same year of the observed AD investigation.

[45] The HS code used here is a specific HS code that is listed in an AD investigation that varies from 6-digit to 10-digit HS code.

imposed or negative/no duty imposed) is derived from imports value, macroeconomic trends and the real exchange rate of named and non-named countries.

Data on the final AD duty imposition (surcharge duty) is recorded based on percentage. The final AD duty is indicated with minimum and maximum percentage or just one final duty percentage. It can vary between firms in named countries in each AD investigation. For example, country A can receive an AD duty imposition between 5% and 30% while country B receives a 15% AD duty imposition. Where more than one firm is named in an AD investigation (country A), a minimum–maximum band of AD duties can be imposed on the country, in contrast to an investigation that names only one firm in country B.

Niels and ten Kate (NTK) (2006) observed 70 Mexican AD investigations and used pooled OLS estimations where "the data of different individuals are pooled together and estimated using least squares" (p. 541, Hill, Griffiths & Lim 2011). As indicated in Fig. 4.7, effects are estimated for named and non-named country. NTK's model follows the form as follows:

$$\ln M_{i,t} = C_i + \alpha_1 \ln M_{i,t-1} + \alpha_2 \text{INITIATE}_{i,t} + \alpha_3 \text{DUTY}_{i,t} + \alpha_4 \ln RER_{i,t} + e_{i,t} \; (i = 1, \dots, 70; t = 1, \dots, 6) \quad (4.1)$$

where:

$M_{i,t}$ = import variable with alternate specifications in value, volume and unit value for case *i* in time *t*.

$M_{i,t-1}$ = lagged variable for imports interest with alternate specifications in value, volume and unit value for case *i* in time *t*.

$INITIATE_{i,t}$ = dummy variable that tests for harassment effect (initiation effect) for case *i* in time *t*.

$DUTY_{i,t}$ = dummy variable that tests for trade diversion and trade destruction for case *i* in time *t*. A positive coefficient indicates trade diversion effects and a negative coefficient indicates trade destruction effects.

$RER_{i,t}$ = trade-weighted real exchange rate variable that controls for macroeconomic conditions for case *i* in time *t*.

For the Indonesian data set, two separate models are used, for named and non-named country categories. The named country model is computed and takes the following form:

$$\ln M_{i,j,t} = \alpha_0 + \alpha_1 \ln M_{i,j,t-1} + \alpha_2 \mathrm{INITIATE}_{i,t} + \alpha_3 DUTY + \alpha_4 \ln RER_{i,t} + e_{i,j,t} \quad (i = 1, \dots, 102; j = 304;\ t = 1, \dots, 6) \qquad (4.2)$$

Where:

$M_{i,j,t}$ = import value in US$ from the named country *j* in case *i* in time *t*

$M_{i,j,t-1}$ = lagged import value in US$ for the named country *j* in case *i* in time *t-1*

$INITIATE_{i,t}$ = dummy variable that tests for a harassment effect (investigation effect) for case *i* in time *t*. The dummy takes the value of 1 in *t*=3 and 0 in *t*=1,2,4,5,6. This variable observes the effects of AD an investigation when it is initiated, in year t=3.

DUTY = variable that tests for AD duty effects in the form of trade destruction. A negative coefficient indicates a negative effect on imports and is considered as trade destruction effects.

Four alternative specifications are used to test for the AD duty effects:

$DUMMY_{i,t}$ = dummy variable that takes the value of 1 whenever there is an AD duty (surcharge duty) imposed in case *i* in *t* = 4,5,6, zero otherwise, since no AD duty is levied in *t* = 1,2,3

$DUTYMIN_{i,j,t}$ = actual minimum AD duty (surcharge duty) for named country *j* in case *i* time *t* = 4,5,6

$DUTYMAX_{i,j,t}$ = actual maximum AD duty (surcharge duty) for named country *j* in case *i* in time *t* = 4,5,6

$DUTYAVG_{i,j,t}$ = actual average AD duty (surcharge duty) for named country *j* in case *i* in time *t* = 4,5,6

$RER_{i,t}$ = trade-weighted real exchange rate that controls for macroeconomic conditions for case *i* in time *t*

Consequently, the non-named country model is computed and takes the following form:

$$\ln M_{i,k,t} = \alpha_0 + \alpha_1 \ln M_{i,k,t-1} + \alpha_2 \text{INITIATE}_{i,t} + \alpha_3 DUTY + \alpha_4 \ln RER_{i,t} + e_{i,k,t} \quad (i = 1, \dots, 102; k = 1, \dots, 2183; t = 1, \dots, 6) \tag{4.3}$$

Where:

$M_{i,k,t}$ = import value in US$ from the non-named country *k* in case *i* in time *t*

$M_{i,k,t-1}$ = lagged import value in US$ for the non-named country *k* in case *i* in time *t-1*

$\text{INITIATE}_{i,t}$ = dummy variable that tests for a harassment effect (investigation effect) for case *i* in time *t*. The dummy takes the value of 1 in *t* = 3 and 0 in *t* = 1,2,4,5,6. This variable observes the effects of AD investigation when it is initiated, in year t = 3.

DUTY = variable that tests for AD duty effects in the form of trade diversion. A positive coefficient indicates a positive effect on imports and is considered as trade diversion effects.

Four alternative specifications are used to test for the AD duty effects:

$\text{DUMMY}_{i,t}$ = dummy variable that takes the value of 1 whenever there is an AD duty (surcharge duty) imposed in case *i* in *t* =

4,5,6, zero otherwise, since no AD duty is levied in t = 1,2,3

$DUTYMIN_{i,t}$ = actual minimum AD duty (surcharge duty) for case i in time t = 4,5,6

$DUTYMAX_{i,t}$ = actual maximum AD duty (surcharge duty) for case i in time t = 4,5,6

$DUTYAVG_{i,t}$ = actual average AD duty (surcharge duty) for case i in time t = 4,5,6

$RER_{i,t}$ = trade-weighted real exchange rate that controls for macroeconomic conditions for case i in time t

The dependent variable in the NTK model of Eq. (4.1) is $M_{i,t}$, an import variable that uses alternative specifications of value, unit value and volume in index form. However here in Eq. (4.2) and Eq. (4.3), the dependent variable $M_{i,t}$ is the Indonesian import value variable of the product under investigation by importing countries. Estimations for named and non-named countries are also done separately.

A positive value sign for the coefficients in the lagged variable ln $M_{i,t-1}$ is expected.

Dummy variable INITIATE $_{i,t}$ takes the value of 1 in $t = 3$ and 0 in $t = 1,2,4,5$. This dummy variable is expected to provide support for the harassment effect[46] (referred to as 'investigation effect'). A negative coefficient sign for the coefficients in INITIATE$_{i,t}$ indicates that an AD initiation does have an investigation effect on import values. Previous research has stated that the initiation or rumour of an AD initiation puts pressure on imports (see Aggarwal 2004; Prusa 2001).

The constant term is represented with variable α_0 and error term is represented with variable $e_{i,t}$. Three dummy variables are used to test for harassment, trade diversion and trade destruction effects of AD investigations in Eq. (4.2) and (4.3).

Trade diversion and trade destruction are observed through dummy variable DUTY that takes the value of 1 in $t = 4,\ldots,6$ in those cases i where the AD final outcome is affirmative. The trade destruction effect is observed in the named country results and a negative coefficient on the DUTY variable indicates the trade destruction effect. The trade diversion effect is observed in the non-named country results by a positive coefficient on the DUTY variable.

[46] 'Investigation effect' refers to the impact of an AD initiation on imports where it is often understood as a negative investigation effect or 'harassment" effect (Niels and ten Kate, 2006), since it anticipates future fall or decrease of imports (Staiger & Wolak, 1994).

Every case *i* has named countries *j* and non-named countries *k* as import suppliers of the product being investigated. The min–max band of actual DUTY levels is derived from AD duties levied on named countries *j*. Each named country *j* has different AD duties levied (which are based on firms within each country), which leaves us with a min–max band for each case *i*.

A trade-weighted real effective exchange rate variable is included in the data to control for macroeconomic conditions annually.

With the intention of controlling macroeconomic conditions, NTK uses the $RER_{i,t}$ variable. This variable uses the value of 100 for $t = 1$ in cases $i = 1,\ldots,17$ (i.e. year 1 for the 17 investigations initiated in 1992). In the Indonesian data set, $RER_{i,t}$ is a trade-weighted average of the real effective exchange rate. The $RER_{i,t}$ has the value of 100 for $t = 1$ in cases $i = 1,\ldots,2488$ (i.e. year 1 for the 40 investigations initiated in 1994). A positive sign for the coefficients in ln $RER_{i,t}$ indicates that import value increases when the exchange rate appreciates. In the effort to control for macroeconomic conditions annually, the real effective exchange rate variable is included.

In the work reported in this chapter, 36 out of the 40 AD case initiations are included in the Indonesian data set. This data set takes into account only the original

investigation, thus excluding mid-term review, sunset review and new-exporter review investigations.

Indonesia import value data is derived from Indonesia's Ministry of Trade and Central Bureau of Statistics database. This data set also observes the impact of AD investigations of named countries and non-named countries. The named country category includes countries that are specifically mentioned in an AD investigation initiation, whereas the non-named country category includes countries that are not specifically mentioned in an AD investigation initiation, bit which are importers of the product under investigation to Indonesia (Niels & ten Kate 2006; Prusa 1997).

Variables used in both models are described in Table 4.2.

Table 4.2 Variables used in Equations (4.2) and (4.3)

Variables		Descriptions	Expected Sign
Dependent variables			
$M_{i,j,t}$		Import value in US$ from the named country *j* in case *i* in time *t*	
$M_{i,k,t}$		Import value in US$ from the non-named country *k* in case *i* in time *t*	
Independent variables			
$M_{i,j,t-1}$		Lagged import value in US$ for the named country *j* in case *i* in time *t-1*	(+)
$M_{i,k,t-1}$		Lagged import value in US$ for the non-named country *k* in case *i* in time *t-1*	(+)
$\text{INITIATE}_{i,t}$		Dummy variable that tests for a harassment effect (investigation effect) for case *i* in time *t*. The dummy takes the value of 1 in *t* = 3 and 0 in *t* = 1,2,4,5,6. This variable observes the effects of AD investigation when it is initiated, in year t = 3.	(-)
DUTY	$\text{DUMMY}_{i,t}$	Dummy variable that takes the value of 1 whenever there is an AD duty (surcharge duty) imposed in case *i* in *t* = 4,5,6, zero otherwise, since no AD duty is levied in *t* = 1,2,3.	(-) / (+)
	$\text{DUTYMIN}_{i,j,t}$	Actual minimum AD duty (surcharge duty) for named country *j* in case *i* time *t* = 4,5,6	(-)
	$\text{DUTYMAX}_{i,j,t}$	Actual maximum AD duty (surcharge duty) for named country *j* in case *i* in time *t* = 4,5,6	(-)
	$\text{DUTYAVG}_{i,j,t}$	Actual average AD duty (surcharge duty) for named country *j* in case *i* in time *t* = 4,5,6	(-)
	$\text{DUTYMIN}_{i,t}$	Actual minimum AD duty (surcharge duty) for case *i* in time *t* = 4,5,6	(+)
	$\text{DUTYMAX}_{i,t}$	Actual maximum AD duty (surcharge duty) for case *i* in time *t* = 4,5,6	(+)
	$\text{DUTYAVG}_{i,t}$	Actual average AD duty (surcharge duty) for case *i* in time *t* = 4,5,6	(+)
$RER_{i,t}$		Trade-weighted real exchange rate that controls for macroeconomic conditions for case *i* in time *t*.	(+)

Compiled by Author.

In sum, this chapter aims to find statistical support for the impact of:

- AD case initiation on imports: the $INITIATE_{i,t}$ variable tests for an investigation effect where a negative and statistically significant coefficient shows evidence of a harassment effect.
- Imposition of duties on imports: $DUTY_{i,t}$ variable tests for trade diversion and trade destruction effects of AD investigations. A statistically significant relationship of this variable with import values suggests evidence of trade diversion and trade destruction effects. A negative and statistically significant coefficient shows evidence of a trade destruction effect, which confirms how being named in an AD investigation affects the country's import trade. A positive and statistically significant coefficient provides evidence for a trade diversion effect, indicating shifts of import trade from countries named in an AD investigation to non-named countries.

4.4 Estimation results and analysis

Overall, the estimations from Eq. (4.2) and (4.3) produce stable results using fixed effects regression[47]. The estimation results for Eq. (4.2) and (4.3) are presented in

[47] The Hausman test was carried out which justified the use of Fixed-Effects. Detailed results are available in Appendix A.4 on page 204

Table 4.3. Detailed coefficient value estimates[48] are provided in Table 4.4 for named country results and in Table 4.5 for non-named country results.

According to Table 4.3:

- Investigation effects are not found in Indonesian imports overall, and for both named and non-named categories. This result is similar to NTK's results which suggest that the initiation of an AD investigation does not impede trade flow.

- Statistically significant support for the trade destruction effect is found for countries named in an AD investigation through the negative and significant coefficient at the 1% and 5% levels of the DUTY variable in all its forms. The use of AD instruments does reduce the import flow from import suppliers named in an AD investigation. In comparison, NTK also found a destruction effect.

[48] The overall R2 presents the goodness of fit of the regression with respect to the dependent variable on the independent, explanatory variables. The between R2 is the squared correlation between the predicted values of the analysis and the within-individual means of the original dependent variable. The within R2 provides the goodness of fit for the mean of the de-trended data.

- The trade diversion effect is evident through the positive and statistically significant coefficient of the DUTY variable for non-named countries. Support for a trade diversion effect is found only when AD duty is levied at minimum percentage. While all of the DUTY specifications (DUMMY, DUTYMIN, DUTYMAX, DUTYAVG) results are statistically significant in the equation for the named countries, only the variable that captures the minimum level of duty (DUTYMIN) is significant for the non-named countries. In other words, the floor level of the AD duty is apparently important for the diversion effect, that is, the extent of diversion depends on the tariff applied to the least affected named country. Contrary to NTK's results findings, this chapter finds evidence of the trade diversion effect in Indonesian import trade.

- The lagged import value variable and the RER variable both presented the expected positive coefficient value which is statistically significant at the 1% level.

Table 4.3 Summary of regression results of Eq. (4.2) and (4.3) – fixed effects

Trade effects		Expected coef.	Named country Eq. (4.2)	Non-named country Eq. (4.3)
			Coef. sign	Coef. sign
Investigation effect		-	+	X
Trade destruction effect	DUMMYi,t	-	-***	
	DUTYMINi,j,t	-	-**	
	DUTYMAXi,j,t	-	-***	
	DUTYAVGi,j,t	-	-***	
Trade diversion effect	DUMMYi,t	+		+
	DUTYMINi,t	+		+***
	DUTYMAXi,t	+		+
	DUTYAVGi,t	+		+

Notes: "+" indicates positive coefficient; "-" indicates negative coefficient; * = significant at the 10% level, ** = significant at the 5% level, and *** significant at the 1% level.

Table 4.4 Regression results of Eq. (4.2) – named country

Dependent variable: ln $M_{i,j,t}$	Mean (Standard Deviation)	Named Country			
		(1)	(2)	(3)	(4)
Ln $M_{i,j,t-1}$	5.854 (6.213)	0.143 (0.025)***	0.138 (0.025)***	0.140 (0.025)***	0.139 (0.025)***
$INITIATE_{i,t}$	0.166 (0.372)	-0.060 (0.286)	0.200 (0.272)	0.116 (0.278)	0.142 (0.276)
$DUMMY_{i,t}$	0.360 (0.481)	-0.946 (0.253)***			
$DUTYMIN_{i,j,t}$	0.911 (7.316)		-0.016 (0.006)**		
$DUTYMAX_{i,j,t}$	1.598 (9.399)			-0.014 (0.005)***	
$DUTYAVG_{i,j,t}$	1.254 (8.099)				-0.016 (0.006)***
Ln $RER_{i,j,t}$	4.533 (0.265)	0.928 (0.574)	1.197 (0.568)**	1.160 (0.041)**	1.163 (0.569)**
Number of panel observations		1,824	1,824	1,824	1,824
Overall R^2		0.4129	0.4113	0.4217	0.4167
Within R^2		0.0346	0.0295	0.0304	0.0303
Between R^2		0.8601	0.8153	0.8409	0.8280

Note: Estimated coefficients are shown with standard errors in parenthesis. ***means coefficient is significantly different from zero at 1% level; ** means significant at 5% level; * means significant at 10% level. "+" means positive coefficient sign; "-" means negative coefficient sign

Table 4.5 Regression results of Eq. (4.3) – non-named country

Dependent variable: ln $M_{i,k,t}$	Mean (Standard Deviation)	Non-named Country			
		(1)	(2)	(3)	(4)
Ln $M_{i,k,t-1}$	5.854 (6.213)	0.033 (0.009)***	0.032 (0.009)***	0.034 (0.009)***	0.033 (0.009)***
$INITIATE_{i,t}$	0.166 (0.372)	0.140 (0.114)	0.152 (0.108)	0.090 (0.112)	0.130 (0.111)
$DUMMY_{i,t}$	0.360 (0.481)	0.133 (0.104)			
$DUTYMIN_{i,t}$	5.695 (16.054)		0.010 (0.003)***		
$DUTYMAX_{i,t}$	15.633 (24.723)			0.000 (0.002)	
$DUTYAVG_{i,t}$	10.664 (18.700)				0.003 (0.002)
Ln $RER_{i,k,t}$	4.533 (0.265)	0.730 (0.216)***	0.778 (0.212)***	0.662 (0.212)***	0.716 (0.213)***
Number of panel observations		13,098	13,098	13,098	13,098
Overall R^2		0.1593	0.1146	0.1729	0.1531
Within R^2		0.0021	0.0028	0.0020	0.0021
Between R^2		0.5141	0.3687	0.5592	0.4939

Note: Estimated coefficients are shown with standard errors in parenthesis. ***means coefficient is significantly different from zero at 1% level; ** means significant at 5% level; * means significant at 10% level. "+" means positive coefficient sign; "-" means negative coefficient sign

4.5 Conclusion

With the growing usage of AD instruments in ASEAN, especially in Indonesia, this research aims to highlight trade effects arising from the use of AD instruments, in relation to trade flows. The Indonesian import trade data suggests that AD use does not hamper overall import growth. This condition supports earlier findings that demonstrate AD is implemented for non-economic reasons.

Nevertheless, when Indonesian import trade flow is observed closely by sector, the effect of AD on import trade varies for named and non-named countries. The growth in overall imports is made possible because increase in imports is found from non-named countries.

Using Indonesian data, this research seeks to find statistical support for the investigation effect, trade destruction effect and trade diversion effect, for both countries named and not named in an AD investigation. Two econometric models, adapted from Niels and ten Kate (2006), are used to analyse these effects. The results do not provide evidence of the investigation effect. This result indicates that investigation (harassment) effect of AD initiation is not found in the case of Indonesian imports. The imposition of AD duty shows a significant trade destruction effect, which signals an impediment to trade. A significant trade diversion effect is also found to non-named countries, showing a shift in imports from countries targeted in AD investigations to countries that are not.

These results further suggest that even with the evident impediments to trade for named country investigations, it is still possible for Indonesian imports to grow. This growth is enabled by the trade diversion effect, which allows imports from other countries of a similar product that has not had an AD duty imposed on it, to substitute for imports of the product that has, thus giving imports trade room to continue growing.

Chapter 5 Anti-dumping and trade liberalisation in ASEAN: Is there any contribution?

5.1 Introduction

Previous chapters have discussed AD in ASEAN. An overview of AD use in ASEAN revealed that ASEAN member countries are major targets of AD instruments (James 2002; Van Den Bossche 2008) and the number of AD initiations used by traditional AD users in ASEAN continuously increased. Furthermore, it was revealed that ASEAN member countries are found to be driven predominantly by strategic motives compared to economic motives, that is, the use of AD is mostly found in member countries that either have been targeted with AD investigation or had used AD instruments previously.

Following the growth of AD investigations in ASEAN and the goals of pursuing deeper economic integration, many have questioned and speculated on the impact of AD on trade. The discussion then continued with an analysis of the impact of AD duty on trade, especially on Indonesian imports. The AD instrument is effective in halting the flow of imports of countries specifically mentioned in an AD investigation, it was found.

After establishing the landscape on motivation and effects of AD instrument on trade, this discussion then asks whether the growing number of AD investigations provides ASEAN member countries with a safety valve for broader trade

liberalisation or is as an obstacle to trade – eventually hindering deeper economic integration.

The debate revolves around the idea of AD as an insurance for further liberalisation (safety valve argument) or as a method of offsetting tariff commitments. The work of Ketterer (2015) investigates AD as a 'safety valve' that allows temporary use of protectionist methods to pave the way to open trade. Niels and ten Kate (2006) formulate three types of safety valve arguments: (i) political-support, (ii) non-competitive and (iii) temporary adjustments. The first safety valve argument posits that AD provides the government with an operational negotiating tool to guarantee sustenance for the liberalisation of trade. The non-competitive safety valve argument highlights the existence of AD as a necessary response to unwarranted exercise of the international trading system. The last safety valve argument, temporary adjustment, justifies the utilisation of AD instrument when domestic industries require temporary protection to be able to survive the fierce external competition.

Even though AD is considered an example of administered protection procedures (Moore, Michael O & Suranovic 1992), research on AD has shown different outcomes on the contribution of AD to trade liberalisation. Previous research (Aggarwal 2004; Bown & Tovar 2011; Feinberg & Reynolds 2007; Miranda, Torres & Ruiz 1998; Moore, Michael O. & Zanardi 2011; Niels 2000) has found such correlation exists, especially for developing countries. This study also attempts to investigate whether there is a correlation between the growing numbers of AD

investigations and trade liberalisation in ASEAN, whose active AD users are mostly developing countries.

The analysis in this study is presented as follows. The second section presents a descriptive overview of existing applied tariffs in ASEAN and links it with the number of AD case initiations. The third section describes the empirical model used to establish whether AD contributes to trade liberalisation. The fourth section reveals estimation results, while the last section concludes.

5.2 ASEAN anti-dumping and trade liberalisation

The model proposed by Moore and Zanardi (2009) is referred to as a starting point to examine the contribution of AD to trade liberalisation. Moore and Zanardi (2009) posit that the simplest way to detect changes in trade policy is through observing the movement of tariffs, especially applied tariffs, which are expected to have a direct impact on trade flows and are understood as a reflection of trade policy implementation. Moreover, the trade liberalisation trend can also be observed through "the changes in applied tariffs" (Moore, Michael & Zanardi 2009, p.473), among other factors.

Therefore, ASEAN MFN applied tariff data are utilised in this chapter to find statistical support and evidence of AD's contribution towards applied tariff reductions. Applied tariff rates are chosen because they represent realistic levels of

tariff rate that often found to be lower than the bound rate[49]. Furthermore, since most of ASEAN member countries are developing countries, the gap of 'binding overhang'[50] would be relatively large (Bacchetta & Bora 2001; WITS n.d.) and will not be able to reflect the actual rate that affects trade flows.

The ASEAN applied MFN[51] tariff data from the period 2003–2012 are used as the dependent variable and are sourced from the WTO Tariff Analysis Online (TAO) facility (n.d.)[52]. The applied tariff is observed at the 6-digit HS level and compiled to show average applied MFN tariff fluctuations. Then, a list of ASEAN AD use is gathered from ASEAN national authorities AD reports (KADI, I4, pers.comm. 26 May, 2014 and MITI, I15-I17, pers. comm., 12 June 2014), Bown's (2012a) *Global Antidumping database* and the WTO's semi-annual AD reports.

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[49] The bound rate is the maximum tariff set by WTO member governments through multilateral trade agreements. This bound tariff rate is different from the actual tariff imposed on products (WITS n.d.).

[50] Binding overhang is the difference between bound tariff and applied tariff. Bound tariff is the tariff rate agreed upon from a multilateral agreement, whereas applied tariff is the actual rate implemented by a government. See Moore and Zanardi (2009), Goode (2007), Beshkar, Bond and Rho (2015), Busch and Pelc (2013) and WITS (n.d.).

[51] The MFN tariff is the expected tariff rate on imports between members of the WTO, which is often regarded as the most restrictive tariff made available (WITS n.d.).

[52] TAO provides an integrated and online database on tariffs.

Table 5.1 provides overview information on ASEAN AD and applied MFN tariff data used in this chapter. Basic information on the ASEAN data set of countries and statistics is provided as a preliminary descriptive analysis. The information consists of the average initial tariff level, average final tariff level, the number of AD initiations and measures and also the AD success rate[53]. Table 5.1 shows that ASEAN's average applied MFN tariff dropped from 7.66% to 6.35% during the period 2003–2012.

Table 5.1 ASEAN AD statistics, country list and summary statistics (2003–2012)

Country	Average initial tariff level (2003)	Average final tariff level (2012)	AD initiations (total)	AD measures imposed (total)	AD success rate (%)
Indonesia	6.73	6.53	22	15	68.18
Malaysia	7.49	5.51	8	4	50.00
Philippines	4.69	6.13	2	0	0.00
Singapore	0.00	0.00	0	0	0.00
Thailand	10.62	10.68	21	14	66.67
Viet Nam	16.40	9.24	0	0	0.00
Overall average	7.66	6.35	-	-	30.81

Source: Compiled and calculated from data provided by TAO (TAO n.d.), KADI (I4, pers. comm. 26 May, 2014), MITI (I15-I17, pers. comm., 12 June 2014), Bown (2012a).

[53] Success rate is also known as the conversion rate. This rate measures the percentage of how many AD investigations is finalised with an AD measures imposed. See Neufeld (2001) and Zanardi (2004).

As has been mentioned in previous chapters, only four out of ten ASEAN member countries had used the AD instrument. This chapter uses the data from six ASEAN countries, regardless of whether the member countries reported AD activity. The inclusion of member countries without records of AD use in our data set is important to establish comparison on the AD contribution towards tariff reductions and trade liberalisation.

Columns 2 and 3 of Table 5.1 provide member countries' average initial and final tariff level (the beginning and the final year average applied tariff – 2003 and 2012). The values in these columns represent the average applied MFN tariff throughout the time period observed. The biggest reduction in average tariff can be seen in Viet Nam, with a 7.16% reduction, followed by Malaysia and Indonesia with 1.98% and 0.20% reductions respectively. A slight increase in average tariff can be found in the Philippines (1.44%) and Thailand (0.07%).

Singapore's applied tariff is already at 0% from the beginning of the observed year and stays at that level throughout the period observed. This situation is consistent

with the explanation given in the previous chapters, that the use of AD is restrained through the conditions of Singapore's trade agreements on trade remedies[54].

Columns 4 and 5 summarise AD initiations and measures imposed during 2003–2012. The number of these columns represents the total number of AD initiations and measures imposed by the country throughout the time period. The AD initiations and measures imposed are calculated from the point of view of the country initiating the AD investigation[55]. Within the observed period, Indonesia remains the country initiating the most AD investigations (22)[56], followed by Thailand (21), Malaysia (8) and finally the Philippines (2). Indonesia imposed the most AD measures (15), followed by Thailand (14) and Malaysia (4). No AD measures were found to have been imposed in the Philippines' data during the observed period.

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[54] A detailed explanation is provided in Section 2.3.6 of Chapter 2: Trade Remedies in ASEAN. See also Okabe and Urata (2014).

[55] This calculation is consistent through the chapters; AD initiations and measures imposed are calculated from formal investigation initiations and final duty decision, based on products instead of the number of countries targeted in an AD investigation initiation.

[56] This condition show that Indonesia is a prominent user of AD instruments and has been consistently leading the region in AD use since 1995.

The last column (column 6) in Table 5.1 describes the AD success rate of all observed ASEAN member countries. This rate indicates the percentage of AD initiations that were finalised with imposition of AD measures (duties). Indonesia ranks first with 68.18% success rate, followed by Thailand (66.67%) and Malaysia (50%). AD initiations and measures were not found to have been imposed in Singapore and Viet Nam, simply because both countries had not initiated any AD investigations in the time period observed. Although the Philippines is recorded as initiating AD investigations, the investigations did not lead to any AD duty imposition.

Table 5.1 suggests that the number of AD initiations and measures imposed may contribute to the likelihood of a reduction in applied tariff, with the exception of Viet Nam and Singapore and possibly the Philippines. However, the amount of tariff reduction does not follow the trend of the AD success rate. This can be found in the case of Indonesia, where a high success rate is found on the lowest tariff reductions (0.2% reduction between initial and final average tariff rates) – the smallest among ASEAN member countries. Indeed, this situation triggers further statistical calculations to find supporting evidence for the relationship between AD and trade liberalisation.

5.3 Analytical and econometric approach using ASEAN data

This chapter follows Moore and Zanardi's (2009) approach, which looks into the movement of applied tariff as a means to interpret trade policy modification. However, this chapter finds a bias, since one of the independent variables is used to generate the dependent variable. This chapter will illustrate the model used by Moore and Zanardi and then follow up with an adjustment of the model, as contributions to the literature and an attempt to provide more sound statistical evidence of whether or not AD contributes to trade liberalisation in ASEAN.

Moore and Zanardi started their calculation by incorporating Finger, Ingco and Reincke's model (1996, cited in Moore and Zanardi 2009) to determine changes in tariff ($\Delta\tau$) as a dependent variable. Their formula is written as follows:

$$\Delta\tau_{k,i,t} = -\left[\frac{\tau_{k,i,t} - \tau_{k,i,t-5}}{(100 + \tau_{k,i,t-5})}\right].100 \qquad (5.1)$$

where $\Delta\tau_{k,i,t}$ is the changes in tariff for country *k,* sector *i,* and year *t.* Following the original model, the changes in tariff are calculated over a five-year period. Also, the tariff changes are kept as a positive number; any reduction in tariff will be represented in such a manner.

Then, Moore and Zanardi (2009) incorporate the calculated changes in tariff ($\Delta\tau$) into their model which is shown here as Equation (5.2):

$$\Delta\tau_{\boldsymbol{k,i,t}} = \delta \mathrm{AD}_{k,i,t} + \alpha\, X_{k,t} + \beta Z_i + \mu_{k,i} + \varepsilon_{k,i,t} \qquad (5.2)$$

where:

$\Delta\tau_{k,i,t}$ = negative change of 6-digit HS applied MFN tariffs (for years t and t – 5) divided by (100 + year t – 5 tariff)

$\mathrm{AD}_{k,i,t}$ = measure of AD activities

$X_{k,t}$ = country variable

Z_i = industry variable

$\mu_{k,i}$ = unobserved time-variant country–industry effects

$\varepsilon_{k,i,t}$ = error term

where "$AD_{k,i,t}$ is a measure of AD activities… [and] X_k and Z_i are matrices of country and industry variables" (p.478, Moore, Michael O. & Zanardi 2009) that has been previously calculated. The values δ, α, and β are coefficients of explanatory variables that will be estimated. The coefficient on the AD variable will be positive if the use of AD contributes to tariff reductions. The model expects to control for unobserved country–industry effects using country and industry fixed effects. Detailed explanation of the variables used in Moore and Zanardi's model can be found in Table 5.2.

Table 5.2 Summary of variables used in Moore and Zanardi (2009)

Variables	Description	Data Source
Dependent variable		
Sectoral trade liberalisation	Negative change of 3-digit ISIC applied MFN tariffs (for years *t* and *t – 5*) divided by (100 + year *t – 5* tariff)	World Bank (2001)
Explanatory variables		
TRADE POLICY INDEX	Index of trade policy for year *t* - 5 (1 = most restricted trade regime and 10 = open trade regime)	Gwartney et al. (2006)
LEGAL SYSTEM INDEX	Index of legal system (1 = poor legal and property rights enforcement and 10 = high protection of such rights)	Gwartney et al. (2006)
SECTOR TARIFF	Sector simple average of applied MFN tariff rates in 3-digit HS (for year *t – 5*)	World Bank (2001)
SECTOR TARIFF – SQUARED	Square of sector tariff	World Bank (2001)
GDP/CAP	Real GDP per capita: three-year average (for years *t* – 5, *t* – 6 and *t* – 7)	WDI
INFLATION	Percentage change of GDP deflator: three-year average (for years *t* – 5, *t* – 6 and *t* – 7)	WDI
GROWTH/CAP	Growth of real GDP per capita: three-year average (for years *t* – 5, *t* – 6 and *t* – 7)	WDI
CA/GDP	Current account as a percentage of GDP: three-year average (for years *t* – 5, *t* – 6 and *t* – 7)	WDI
IMF LOANS	IMF non-concessionary loans as a percentage of GDP: three-year average (for years *t* – 5, *t* – 6 and *t* – 7)	WDI
AD INITIATIONS (country)	Country's total initiated AD investigations: two-year totals (for years *t* – 6 and *t* – 7)	Government sources and Bown (2005)
AD MEASURES (country)	Country's total imposed AD measures: two-year totals (for years *t* – 6 and *t* – 7)	Government sources and Bown (2005)
AD INITIATIONS (sector)	Sectoral initiated AD investigation for a particular country: two-year totals (for years *t* – 6 and *t* – 7)	Government sources and Bown (2005)
AD MEASURES (sector)	Sectoral AD measures for a particular country: two-year totals (for years *t* – 6 and *t* – 7)	Government sources and Bown (2005)

ISIC is the United Nations International Standard Industrial Classification of All Economic Activities. WDI is the World Development Index from World Bank data

Source: Moore and Zanardi (Moore, Michael O. & Zanardi 2009).

As has been mentioned earlier, this chapter finds a bias in Moore and Zanardi's model. The analysis in this chapter noticed endogeneity issues where the lagged variable of tariff $\boldsymbol{\tau}$ (t-5) is used as a component in both the dependant variable and also as an explanatory variable.

Consequently, an adaptation of the model is presented to test the ASEAN data to examine whether or not support of AD contribution to trade liberalisation can be statistically established. Fixed effects regression is run on Equation (5.3:

$$\boldsymbol{\tau_{k,i,t}} = \alpha_0 + \alpha_1 \mathrm{AD}_{k,i,t} + \alpha_2 \tau_{k,i,t-5} + \alpha_3 \tau^2_{k,i,t-5} + \alpha_4 \ln GDP/CAP_{i,t} + \alpha_5 INFLATION_{i,t} + \alpha_6 GROWTH/CAP_{i,t} + \alpha_7 CA/GDP_{i,t} + \alpha_8 IMFLOANS_{i,t} + \varepsilon_{k,i,t} \quad (5.3)$$

where:

$\tau_{k,i,t}$ = simple average of 6-digit HS code applied MFN tariffs

$\tau_{k,i,t-5}$ = simple average of applied MFN tariff rates in 6-digit HS (for year $t - 5$)

$\mathrm{AD}_{k,i,t}$ = variable that measure AD initiations and imposed measures at the country and sectoral level specification. Four alternative specifications is used to indicate AD initiations and duty impositions:

ADINITc $_{k,i,t}$ = country's total initiated AD investigation: two-year totals (for years $t - 6$ and $t - 7$)

ADMEAc $_{k,i,t}$ = country's total imposed AD measures: two-year totals (for years $t - 6$ and $t - 7$)

ADINITs $_{k,i,t}$ = sectoral initiated AD investigation for a particular country: two-year totals (for years $t - 6$ and $t - 7$)

ADMEAs $_{k,i,t}$ = sectoral AD measures for a particular country: two-year totals (for years $t - 6$ and $t - 7$)

GDP/CAP = log of real GDP per capita: three-year average (for years $t - 5$, $t - 6$ and $t - 7$)

INFLATION Percentage change of GDP deflator: three-year average (for years $t - 5$, $t - 6$ and $t - 7$)

Growth/CAP = growth of real GDP per capita: three-year average (for years $t - 5$, $t - 6$ and $t - 7$)

CA/GDP = current account as a percentage of GDP: three-year average (for years $t - 5$, $t - 6$ and $t - 7$)

IMF loans = IMF non-concessionary loans as a percentage of GDP: three-year average (for years $t - 5$, $t - 6$ and $t - 7$)

In observing AD activities, variables in Eq. (5.3) still use the same specifications as Eq. (5.2), that is, AD initiations and measures at the country- and sector-level specifications.

As illustrated in Tables 5.2 and 5.3, the main differences between Eq. (5.2) and Eq. (5.3) applied in this chapter are:

- The dependent variable is a simple average of 6-digit HS of applied MFN tariffs, instead of negative changes in the applied tariff.
- The lagged tariff variable ($\tau_{k,i,t-5}$) is used only as an explanatory variable. This is changed due to bias found in the Eq. (5.2) model. Therefore, in Eq. (5.3), the dependent variable is no longer derived from any of the explanatory variables.
- The TRADE POLICY INDEX and LEGAL SYSTEM INDEX are excluded from the model.
- Log of GDP/CAP is used to observe the level of development of the country's economy.

As elaborated in Table 5.3, this chapter uses the applied MFN tariff sourced from the TAO (n.d.) website. The data set for this research can include the data from only six of the ten ASEAN member countries– Indonesia, Malaysia, Philippines, Singapore, Thailand and Viet Nam. The inclusion of Brunei Darussalam, Cambodia, Laos and Myanmar data would hinder the objective of compiling a consistent and coherent data set since these countries have not used AD instrument.

The time period of this study is from 2003 to 2012. However, the average tariff level needed to be determined by looking at the previous year's tariff level, this study

includes the applied tariff rate from five years[57] before the year of observation ($t - 5$). This method then instigated the inclusion of tariff data from the year 1996, where most of the AD investigations were initiated by ASEAN member countries.

As mentioned earlier, the 6-digit HS applied MFN tariff data is derived from teh TAO database, where the data appear in different versions of HS nomenclature[58]. Owing to variations in the 6-digit HS applied MFN tariff, this study sets up an initial 6-digit HS applied MFN tariff as a reference to all HS nomenclature variations. The initial applied tariff set uses the 6-digit HS 1992 nomenclature to avoid concerns about HS conversions.

Correspondingly, HS conversion tables only allow conversions to be done from a newer HS nomenclature to an older nomenclature (e.g. from HS 2012 to HS 1992), but not the other way around. Then, the conversions to the initial applied tariff set are applied to all year and across all available country data included in the dataset, where

[57] This study mimics Moore and Zanardi's (2009) consideration, where the time needed for a trade policy to change or adjust is said to be five years.

[58] The TAO data ranges from HS code nomenclature 1992, 1996, 2002, 2007 and 2012, depending on country's report and availability.

the initial applied tariff set of every year of a particular country consists of 4952 lines of 6-digit HS tariff subheadings.

Table 5.3 Summary of variables used in Equation (5.3)

Variables	Description	Data Source
Dependent variable		
Average tariff	Simple average of 6-digit HS applied MFN tariffs in time *t*.	TAO/WTO
Explanatory variables		
MFN TARIFF	Simple average of applied MFN tariff rates in 6-digit HS (for year t – 5)	TAO/WTO
MFN TARIFF – SQUARED	Square of MFN tariff	TAO/WTO
GDP/CAP LN	Log of real GDP per capita: three-year average (for years t – 5, t – 6 and t – 7)	WDI
INFLATION	Percentage change of GDP deflator: three-year average (for years t – 5, t – 6 and t – 7)	WDI
GROWTH/CAP	Growth of real GDP per capita: three-year average (for years t – 5, t – 6 and t – 7)	WDI
CA/GDP	Current account as a percentage of GDP: three-year average (for years t – 5, t – 6 and t – 7)	WDI
IMF LOANS	IMF non-concessionary loans as a percentage of GDP: three-year average (for years *t* – 5, *t* – 6 and *t* – 7)	WDI
AD INITIATIONS (country)	Country's total initiated AD investigation: two-year totals (for years *t* – 6 and *t* – 7)	WTO National authority Bown (2012)
AD MEASURES (country)	Country's total imposed AD measures: two-year totals (for years *t* – 6 and *t* – 7)	WTO National authority Bown (2012)
AD INITIATIONS (sector)	Sectoral initiated AD investigation for a particular country: two-year totals (for years *t* – 6 and *t* – 7)	WTO National authority Bown (2012)
AD MEASURES (sector)	Sectoral AD measures for a particular country: two-year totals (for years *t* – 6 and *t* – 7)	WTO National authority Bown (2012)

All through the conversion process, duplicates of the 6-digit HS subheadings occur since the newer HS nomenclature usually consists of numerous 6-digit HS subheading lines[59]. These duplicates then need to be adjusted into one 6-digit HS subheading line. The adjustment involves rearrangement and recalculation of all duplicated MFN tariff lines into one 6-digit tariff rate line. Recalculation of duplicated value has to be done manually so that no more duplication exists and the average of all duplicated value is calculated into a new tariff rate value. These steps are implemented in all years across all countries. As a result, the data set is compiled in a consistent and coherent manner in all years for all available ASEAN country data.

Table 5.4 specifies raw data on average sectoral tariff at the beginning of the observed year (initial year = 2003) and at the end of the observed period (final year = 2012). In the ASEAN dataset, within the observed time period (2003–2012), only eight of the 21 sectors are recorded as having been targeted in an AD investigation. These sectors are II, VI, and VII, X, XI, XIII, XV and XVII. The table indicates tariff reduction trends for most sectors, with the exception of sectors II, III and XIII. Tariff reductions among the sectors are found ranging from 4.63% to 0.53%. The highest reductions in average sectoral tariff can be found in sector XI (4.63%) and XII

[59] The newer HS 6-digit nomenclature usually contains more subheadings, owing to the split and new lines created based on the proportion of imports on a five-year observation basis.

(4.58%). Moreover, the lowest average sectoral tariff reductions are found in sector VII and XXI, both 0.53%. It is interesting that even though tariff reductions in sector XII are high at 4.58%, no records of AD investigation were found within the observed time period.

Sector XV is revealed as the sector in which AD investigations are most utilised, with 19 AD investigations and 10 AD measures imposed, followed by sector VI with 10 AD investigations and 6 AD measures imposed, and sector XIII with 7 AD investigations and 6 AD measures imposed. Furthermore, Table 5.4 also indicates that reductions of the average sectoral tariff are not always found in sectors that have a high level of AD engagement, such as in sector XIII, where the average sectoral tariff increases by 0.09%.

AD activities in Eq. (5.3) still follow Moore and Zanardi's (2009) model by dividing the activities into two specifications. Both AD investigations and measures imposed are divided into countrywide specifications: AD INITIATIONS (country) and AD MEASURES (country) and sectoral specifications: AD INITIATIONS (sector) and AD MEASURES (sector). The total number of AD investigations in a particular year is reflected in AD INITIATIONS, while the total number of AD measures imposed in a particular year is shown in AD MEASURES. It needs to be noted that this study considers only AD measures in terms of the final duty imposition and excludes other alternate forms of measures, for example, price undertakings.

Table 5.4 ASEAN average sectoral tariff list and summary statistics (2003–2012)

Sector	Sector description	Average sectoral tariff		AD initiations (total)	AD measures imposed (total)
		Initial year (2003)	Final year (2012)		
I	Live animals; animal products	9.19	8.51	0	0
II	Vegetable products	7.65	8.30	4	3
III	Animal or vegetable fats and waxes	4.68	7.44	0	0
IV	Prepared foodstuffs; beverages, spirits and vinegar; tobacco	13.12	11.29	0	0
V	Mineral products	2.52	1.95	0	0
VI	Products of the chemical or allied industries	2.93	2.30	10	6
VII	Plastics and articles thereof; rubber and articles thereof	8.13	7.60	5	3
VIII	Hides, skins and articles; saddlery and travel goods	5.91	4.75	0	0
IX	Wood, cork and articles; basketware	7.74	5.80	0	0
X	Pulp of wood, Paper, paperboard and articles	6.43	5.65	5	2
XI	Textiles and textile articles	12.62	7.99	3	2
XII	Footwear, headgear; feathers, artificial flowers, fans	16.36	11.78	0	0
XIII	Articles of stone, plaster, cement, asbestos, mica or similar materials; ceramic products; glass and glassware	9.73	9.82	7	6
XIV	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal and articles thereof	5.42	4.37	0	0
XV	Base metals and articles of base metal	6.98	5.60	19	10
XVI	Machinery and mechanical appliances; electrical equipment; parts thereof	4.59	3.65	0	0
XVII	Vehicles, aircraft, vessels and associated transport equipment	14.07	11.15	0	1
XVIII	Instruments, clocks, recorders and reproducers	4.24	3.28	0	0
XIX	Arms and ammunition; parts and accessories thereof	12.92	10.27	0	0
XX	Miscellaneous manufactured articles	11.53	8.80	0	0
XXI	Works of art, collectors' pieces and antiques	5.81	5.28	0	0

Source: Compiled and calculated from data provided by TAO (n.d.), KADI (I4, pers.comm. 26 May, 2014), MITI (I15-I17, pers. comm., 12 June 2014), Bown (2012a).

Several macroeconomic indicators are included in the calculation to control for macroeconomic factors. Log of real GDP per capita (GDP/CAP) is included to measure country's economic performance. This variable tests for any relationship between levels of development and trends in liberalisation. A negative coefficient is expected from GDP (GDP/CAP). A positive coefficient is expected from the average inflation rate (INFLATION) variable and also from the growth in per capita real GDP (GROWTH/GDP). Current account as a percentage of GDP (CA/GDP) is also taken into account as one of the macroeconomic controls. An ambiguous coefficient sign is to be anticipated from this variable. Macroeconomic indicators also make use of non-concessional IMF loans as a percentage of GDP (IMF LOANS). A negative coefficient is expected from this variable.

5.3.1 Excluding Singapore – ASEAN outliers

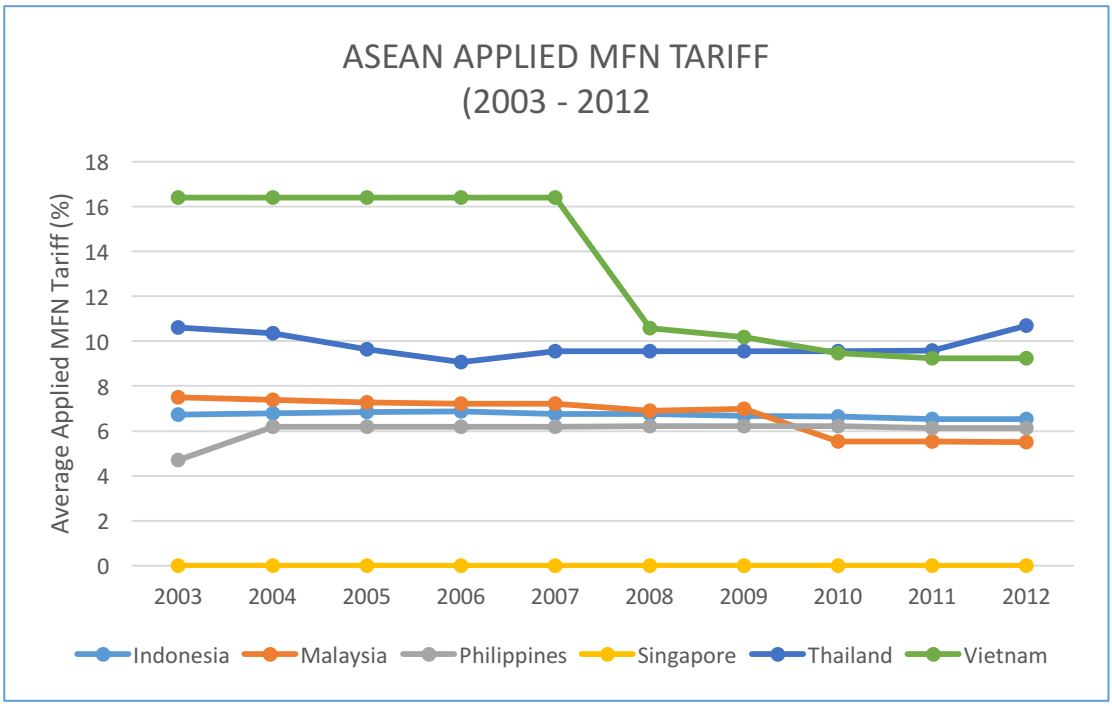
Singapore's data is considered an outlier in our ASEAN data set. It consistently shows zero applied tariff throughout the period of investigation (shown in Figure 5.1) and also, when observed, displays a macroeconomic value that is statistically diverse from the rest of the ASEAN members, if not the other five ASEAN members in the data set. In addition to that, within the observed period, Singapore has never used or initiated an AD investigation.

Figure 5.2 presents Singapore's GDP per capita in the observed period, 2003–2012. Following the yellow line, Singapore's GDP is placed well above the rest of the

AMCs in the data set; making the mean of AMC's GDP in the data set higher that it should be.

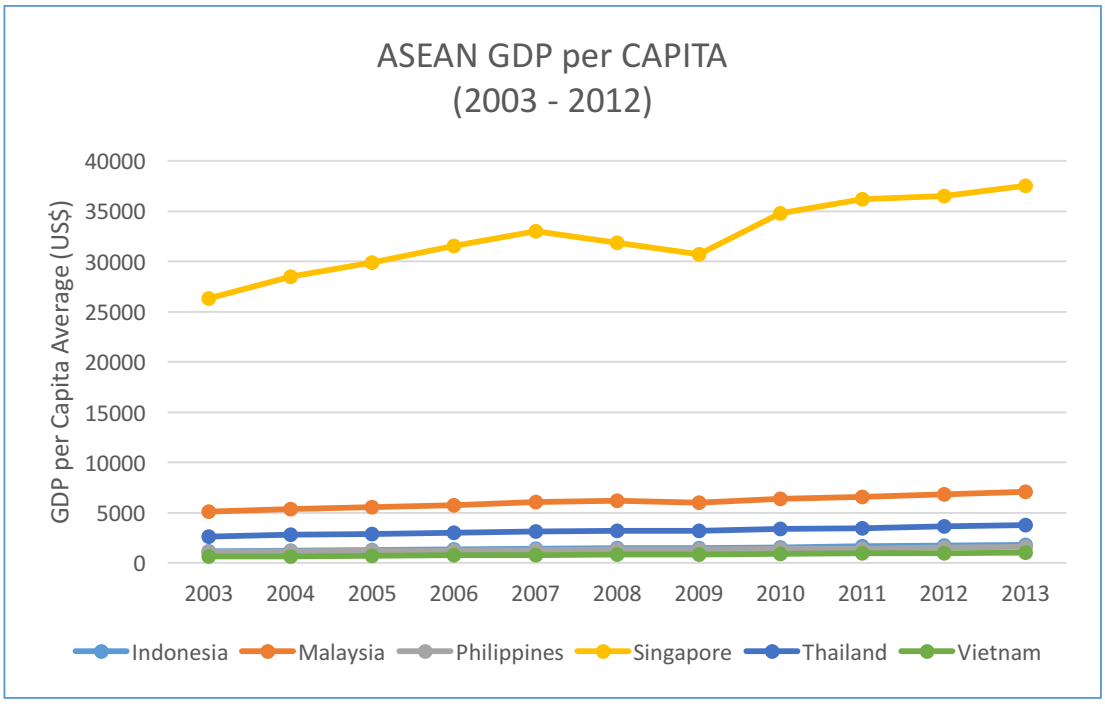
Singapore's inflation data are shown in Figure 5.3. Throughout the period, Singapore's inflation is rated below 5%, if not below 0%.

Figure 5.1 ASEAN Applied MFN Tariff



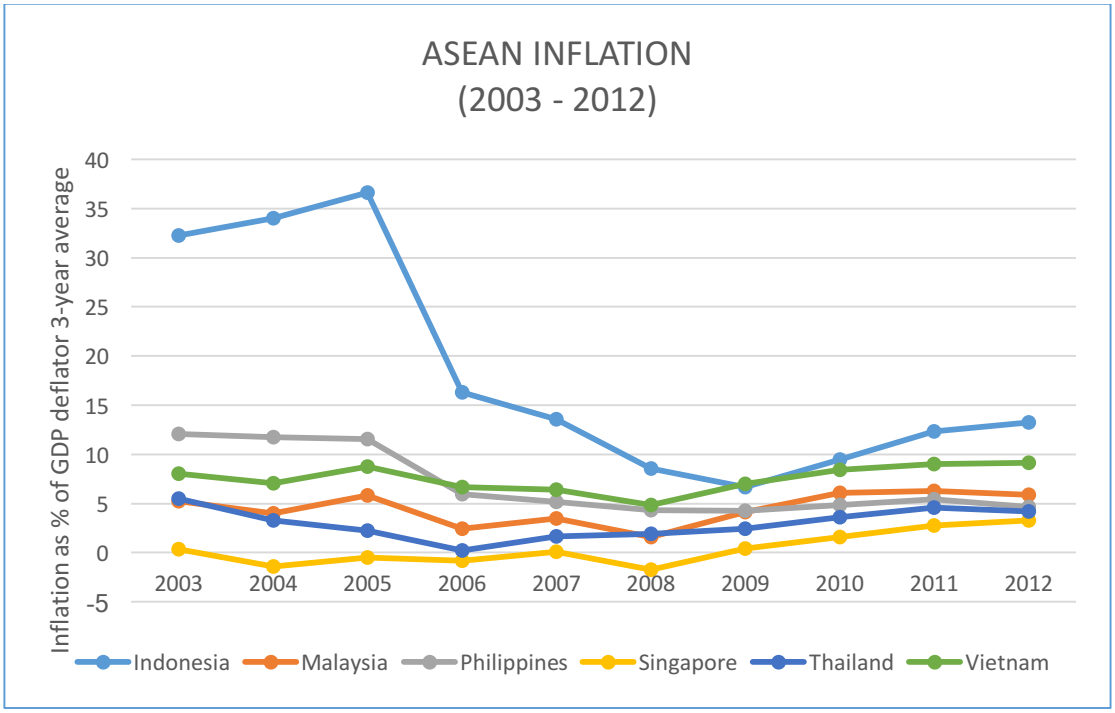
Source: Calculated from data at TAO (TAO n.d.).

Figure 5.2 ASEAN GDP per capita



Source: Calculated from data provided by WDI (WDI n.d.).

Figure 5.3 ASEAN inflation



Source: Calculated from data provided by WDI (WDI n.d.).

5.4 Regression results

A summary of the regression results is displayed in Tables 5.5–5.10. The ASEAN data set is regressed using fixed effects to cater to time series and heterogeneity issues. The results from computing Eq. (5.3) for the countrywide specifications are presented first, in Tables 5.5-5.7, and then followed with the results for the sectoral specifications in Tables 5.8–5.10.

Table 5.5 Result of Equation (5.3) – AD countrywide specifications

Variables	Expected Coef.	Fixed Effects With Year Dummies			
		(1)	(2)	(3)	(4)
AD INITc	--	-- ***		-- ***	
AD MEAc	--		-- ***		-- ***
ADINITcGDP	--/+			+ ***	
ADMEAcGDP	--/+				+ ***

Notes: "+" indicates positive coefficient; "-" indicates negative coefficient; * = significant at the 10% level, ** = significant at the 5% level, and *** significant at the 1% level.

The coefficient results in column 1 – 4 in Table 5.5 are found to be statistically significant at the 1% level. The negative coefficient in columns 1 and 2 indicates that AD initiations and the imposition of measures contributes to reduced MFN tariffs.

The detailed coefficient results of Eq. (5.3) on AD countrywide specifications are illustrated in Table 5.7.

This chapter then examines the interaction between AD activities and GDP/CAP variables (see Table 5.5, columns 3 and 4). In columns 3 and 4, AD activities interaction with GDP/CAP variables indicates that while AD initiations and measures contribute to reduction of applied MFN tariffs, as the country's economy grows bigger, the reduction effect on applied MFN tariffs becomes smaller.

Table 5.6 illustrates the results for macroeconomic and MFN tariff variables. Most of the variables in this table show statistically significant coefficients at the 1% level, except for IMF LOANS variable in column 1 and 3. Contrasting coefficient sign is also found in column 3 of this variable but was not statistically significant.

The MFN TARIFF variable shows a positive coefficient, indicating higher levels of tariffs in earlier years flow through to the dependent variable. A positive and statistically significant coefficient for the GROWTH/CAP variable shows countries with low (high) economic growth in previous years is associated with low (high) tariff . The positive and statistically significant coefficient results in the INFLATION variable provide support on the confidence of policy makers to initiate necessary actions supporting trade liberalisation. The negative and significant coefficient sign in CA/GDP specifies that a greater or smaller current account balance contributes to tariff reduction. The results also show that governments of richer countries (higher GDP/CAP) have greater confidence to liberalise. As expected, the IMF LOANS

variable shows a negative and statistically significant coefficient, suggesting that countries involved with IMF reform packages are directed to engage in liberalisation efforts.

Table 5.6 Result of Equation (5.3) –macroeconomic and MFN tariff variables

Variables	Expected Coef.	Fixed Effects With Year Dummies			
		(1)	(2)	(3)	(4)
MFN TARIFF	+	+ ***	+ ***	+ ***	+ ***
MFN TARIFF SQUARED	+	-- ***	-- ***	-- ***	-- ***
GROWTH/CAP	+	+ ***	+ ***	+ ***	+ ***
INFLATION	+	+ ***	+ ***	+ ***	+ ***
CA/GDP	--/+	-- ***	-- ***	-- ***	-- ***
GDP/CAP ln	--	-- ***	-- ***	-- ***	-- ***
IMF LOANS	--	-- *	-- ***	+	-- ***

Notes: "+" indicates positive coefficient; "--" indicates negative coefficient; * = significant at the 10% level, ** = significant at the 5% level, and *** significant at the 1% level.

Detailed coefficient results of Eq. (5.3) on AD countrywide specifications are illustrated in Table 5.7.

Table 5.7 Summary of Equation (5.3) Fixed effect estimation results – AD countrywide specifications

Dependent variable: Average Tariff	Mean (Std dev)	Fixed Effects With Year Dummies				
		(1)	(2)	(3)	(4)	(5)
Independent Variables						
MFN TARIFF	10.465 (14.331)	0.726 (0.001)***	0.727 (0.001)***	0.729 (0.001)***	0.727 (0.001)***	0.733 (0.001)***
MFN TARIFF SQUARED	314.935 (1032.807)	-0.001 (0.000)***	-0.001 (0.000)***	-0.001 (0.000)***	-0.001 (0.000)***	-0.001 (0.000)***
GROWTH/CAP	2.694 (2.583)	1.512 (0.016)***	1.541 (0.017)***	1.525 (0.016)***	1.525 (0.017)***	1.166 (0.017)***
INFLATION	8.058 (7.461)	0.386 (0.004)***	0.383 (0.004)***	0.414 (0.004)***	0.368 (0.005)***	0.445 (0.004)***
CA/GDP	2.977 (4.924)	-0.394 (0.006)***	-0.413 (0.007)***	-0.557 (0.007)***	-0.423 (0.007)***	-0.682 (0.008)***
GDP/CAP ln	7.353 (0.752)	-37.471 (0.541)***	-37.643 (0.542)***	-40.328 (0.543)***	-37.367 (0.542)***	-41.454 (0.539)***
IMF LOANS	0.007 (0.493)	-0.383 (0.066)***	-0.146 (0.076)*	-0.261 (0.066)***	0.022 (0.078)	-1.125 (0.067)***
AD INITc	2.5 (2.291)		-0.075 (0.011)***		-1.890 (0.176)***	
AD MEAc	1.66 (1.557)			-0.566 (0.013)***		-16.358 (0.243)***
ADINITcGDP	18.767 (16.571)				0.247 (0.024)***	
ADMEAcGDP	12.560 (11.452)					2.152 (0.033)***
No of panel observations	247600	247600	247600	247600	247600	247600
Overall R^2		0.1138	0.1132	0.1037	0.1161	0.1104
Within R^2		0.6357	0.6357	0.6383	0.6359	0.6444
Between R^2		0.3530	0.3555	0.3526	0.3633	0.3762

Notes: "+" indicates positive coefficient; "-" indicates negative coefficient; * = significant at the 10% level, ** = significant at the 5% level, and *** significant at the 1% level.

The AD activities in sectoral specifications are presented in Table 5.8. The AD initiations (AD INITs) variable result show a negative and statistically significant coefficient at the 1% level (see column 1 of Table 5.8). The interaction between AD INITs variable with GDP/CAP variable does not have an effect on AD, since the coefficient is not found to be significant. The AD measures imposition variable in Table 5.8 (column 2) points to a negative and statistically significant coefficient at the 1% level. In column 4, the inclusion of interaction of AD MEAs variable with GDP/CAP variables shows that the imposition of AD measures continues to contribute to the reduction of applied MFN tariffs but as the country's economy grows, the reduction effect on applied MFN tariffs reduces.

Table 5.8 Result of Equation (5.3) – AD sectoral specifications

Variables	Expected Coef.	Fixed Effects With Year Dummies			
		(1)	(2)	(3)	(4)
AD INITs	--	-- ***		+	
AD MEAs	--		-- ***		-- ***
ADINITsGDP	--/+			+	
ADMEAsGDP	--/+				+ ***

Notes: "+" indicates positive coefficient; "-" indicates negative coefficient; * = significant at the 10% level, ** = significant at the 5% level, and *** significant at the 1% level.

Next, Table 5.9. shows the results for macroeconomic and MFN tariff variables for AD sectoral specifications. Similar to countrywide specification results, the MFN TARIFF variable show a positive coefficient. A positive and statistically significant

coefficient for the GROWTH/CAP and INFLATION variables indicates a readiness to reduce tariffs that is supported by policy makers' confidence to engage in a trade liberalisation effort. The negative and significant coefficient sign is again found for CA/GDP, suggesting that current accounts balance may contribute to tariff reduction. GDP/CAP and IMF LOANS variables that are negative and statistically significant at the 1% level indicate that countries with higher GDPs have the tendency to liberalise more, as do also countries that have accepted an IMF reform package.

Table 5.9 Result of Equation (5.3) – macroeconomic and MFN tariff variables

Variables	Expected Coef.	Fixed Effects With Year Dummies			
		(1)	(2)	(3)	(4)
MFN TARIFF	+	+ ***	+ ***	+ ***	+ ***
MFN TARIFF SQUARED	+	-- ***	-- ***	-- ***	-- ***
GROWTH/CAP	+	+ ***	+ ***	+ ***	+ ***
INFLATION	+	+ ***	+ ***	+ ***	+ ***
CA/GDP	--/+	-- ***	-- ***	-- ***	-- ***
GDP/CAP ln	--	-- ***	-- ***	-- ***	-- ***
IMF LOANS	--	-- ***	-- ***	-- ***	-- ***

Notes: "+" indicates positive coefficient; "-" indicates negative coefficient; * = significant at the 10% level, ** = significant at the 5% level, and *** significant at the 1% level.

Detailed coefficient results of Eq. (5.3) on AD sectoral specification are elaborated in Table 5.10.

Table 5.10 Summary of Equation (5.3) fixed effect estimation results – AD sectoral specifications

Dependent variable: Average Tariff	Mean (Std dev)	Fixed Effects With Year Dummies				
		(1)	(2)	(3)	(4)	(5)
Independent Variables						
MFN TARIFF	10.465 (14.331)	0.726 (0.001)***	0.726 (0.001)***	0.726 (0.001)***	0.726 (0.001)***	0.727 (0.001)***
MFN TARIFF SQUARED	314.935 (1032.807)	-0.001 (0.000)***	-0.001 (0.000)***	-0.001 (0.000)***	-0.001 (0.000)***	-0.001 (0.000)***
GROWTH/CAP	2.694 (2.583)	1.512 (0.016)***	1.519 (0.016)***	1.517 (0.016)***	1.520 (0.016)***	1.505 (0.016)***
INFLATION	8.058 (7.461)	0.386 (0.004)***	0.386 (0.004)***	0.389 (0.004)***	0.387 (0.004)***	0.391 (0.004)***
CA/GDP	2.977 (4.924)	-0.394 (0.006)***	-0.396 (0.006)***	-0.401 (0.006)***	-0.396 (0.006)***	-0.409 (0.006)***
GDP/CAP ln	7.353 (0.752)	-37.471 (0.541)***	-37.506 (0.541)***	-37.650 (0.541)***	-37.511 (0.541)***	-37.703 (0.541)***
IMF LOANS	0.007 (0.493)	-0.383 (0.066)***	-0.336 (0.066)***	-0.371 (0.066)***	-0.339 (0.066)***	-0.404 (0.066)***
AD INITs	0.230 (0.690)		-0.147 (0.020)***		0.241 (0.318)	
AD MEAs	0.138 (0.505)			-0.385 (0.027)***		-6.579 (0.399)***
ADINITsGDP	1.707 (5.048)				-0.053 (0.043)	
ADMEAsGDP	1.031 (3.740)					0.836 (0.053)***
No of panel observations	247600	247600	247600	247600	247600	247600
Overall R^2		0.1138	0.1137	0.1132	0.1137	0.1133
Within R^2		0.6357	0.6358	0.6360	0.6358	0.6363
Between R^2		0.3530	0.3535	0.3532	0.3534	0.3538

Notes: "+" indicates positive coefficient; "-" indicates negative coefficient; * = significant at the 10% level, ** = significant at the 5% level, and *** significant at the 1% level

5.5 Conclusion

Continuing reductions in tariff and the growing number of AD investigations over time have triggered research on whether or not a connection exists between these two phenomena.

Previous research on this issue carried out by Finger and Nogues (2006) and Moore and Zanardi (2009), which focused on developing countries, displayed contrasting results on whether or not AD contributes to trade liberalisation. The former reports that AD promotes trade liberalisation for Latin American countries, whereas the latter concludes that AD support for trade liberalisation was not found among developing countries.

This study focuses on observing AD effects on trade liberalisation and analyses whether there is evidence for this effect in the South East Asian region. ASEAN data are utilised in this study, where most of its member countries are categorised as developing countries. By referring to Niels and ten Kate's (2006) safety valve argument and Moore and Zanardi's (2009) economic model, this study offers an adjusted model to determine whether AD activity in ASEAN contributes to tariff reductions. The adjustment in the specification of the dependent variable is done to correct for the endogeneity issue found in the original model.

For the AD countrywide variables, this chapter finds statistical evidence that AD initiation and duties imposition contributes to the reduction of applied tariffs. This relationship is also found at the sectoral level. Furthermore, this chapter finds an interaction between AD activities and GDP per capita, so that growth in GDP per capita reduces the estimated impact of AD activities on tariff levels.

The literature offers the interpretation that the results are consistent with AD safety valve argument, particularly the political-support and non-competitive safety valve arguments. Furthermore, the analysis indicates that the AD contribution is more significant in reducing barriers for developing (poorer) countries than for more developed (richer) countries.

Chapter 6 Conclusion

Trade remedies in the South East Asian region are the focus of this thesis. As the number of trade remedy investigations increases worldwide and within the ASEAN region, this thesis presents a comprehensive landscape, discussion and analysis on the existence of trade remedies in the region and how it affects efforts towards further trade liberalisation and economic integration.

Detailed elaboration and illustration of the use of trade remedies in ASEAN start the discussions in the first stage of this thesis. Actors, case statistics, national authorities and law implementation of each AMC are described to provide background information. The second stage of the thesis, which presents an investigation on what drives the AMC to utilise trade remedy instruments, acts as the first empirical analysis of trade remedies in ASEAN, particularly in the use of AD instruments. The third stage of the thesis and the second empirical analysis takes advantage of the figures and statistics compiled from the ASEAN trade remedy landscape and aims to determine how AD affects the import trade flow in Indonesia. The final stage of this thesis and the third empirical analysis investigates the correlation between the use of AD instruments and the process of trade liberalisation by analysing the movement in ASEAN applied tariffs.

The relevant literature is reviewed in Chapter 1, predominantly the literature that focuses on implementing an empirical economic model to calculate the impact and effect of trade remedy measures in relation to trade liberalisation efforts. A number

of the models reviewed in this chapter are then applied in the analysis using ASEAN information and statistics.

The landscape of ASEAN trade remedies is presented in Chapter 2. For all ASEAN member countries, the chapter provides detailed information on the three trade remedy instruments, the statistics of their use, duties imposition and trade remedy law implementation. It also elaborates on records of the products being investigated, the sectors, the period of investigation and the imposition of measures in a trade remedy investigation.

In compiling ASEAN's statistics, this thesis concentrates on the case initiator's point of view and the original investigation, excluding review investigations. This generates a considerably fewer statistics than most publications. Again, this is done to ensure that our analysis derived purely from the ASEAN initiator's point of view.

Interviews and data collection show that, to date, only six of the ten AMCs have utilised trade remedy instruments: Indonesia, Malaysia, Philippines, Thailand and Singapore and Viet Nam. Also, of all the cases initiated, AMC trade remedy users never initiated a subsidy and countervailing investigation, only AD and safeguards cases.

Research shows that in most cases, the adoption of the trade remedy law can be interpreted as a consequence of becoming a WTO member, while the utilisation of this trade remedy law reflects the competency and capability of each AMC's national authority in conducting trade remedy investigation. Overall, the length of trade remedy investigations launched by AMCs varies from six to twenty-five months and the duration of duties imposition ranged from one to five years, with a possible extension.

Detailed information on the sectoral products involved in ASEAN trade remedy investigation is also presented in Chapter 2. The summary indicates that ASEAN's sectoral engagement is similar to the world focus, which ranked sector XV (base metal), sector VI (chemical products) and sector XII (stone, cement, and ceramic and glassware products) as the top three.

From elaborating the landscape of trade remedies in ASEAN, several main points can be summarised. First, ASEAN is found to use the AD instrument more often that the other trade remedy instruments. Reference to using AD is found to be the result of a logical choice by the nature of the injury dealt, solving problems with a remedy that can accommodate their needs. Second, the continuous increase in AD investigation and duties imposition results from the fact that AD is a more direct and lesser risk approach compared to the non-discriminatory approach of safeguards, which obliges imposition on all partners involved. Finally, the fact that four AMCs are still in the process of implementing trade remedy law into their national law

indicates that the statistics of trade remedy use in ASEAN can only grow as more member countries adopt the law. These points then the drive the analysis empirically to establish the AMCs' motivation for using trade remedy instruments.

Chapter 3 focuses on AD instruments. With numerous AD investigation cases around the world and within ASEAN, more empirical analysis is being carried out on AD than on safeguards or countervailing instruments. That, as well as the fact that there are fewer safeguards investigations and AMCs have never initiated any subsidy investigations, is the main reason why this thesis concentrates on AD instruments. Numerous AD investigations and imposition of measures provide this thesis with more dependable alternatives for empirical analysis and data compilation.

Identification of AMCs' motivation for using AD in this thesis is based on testing four hypotheses relating to the initiation of an AD investigation. The hypotheses are divided into two categories: strategic and economic motivation. Strategic motivation refers to the trend of AD investigation initiations towards markets that have used AD previously (the club hypothesis) as well as AD investigation initiations towards markets that have particularly targeted the particular AMC (retaliation hypothesis). The economic motivation refers to the sudden increase of imports (import surge hypothesis) and the influence of big markets in supplying imports to AMCs (big supplier hypothesis). The binomial probability (non-parametric test) is used to prove these hypotheses.

Results in Chapter 3 show that, for the South East Asian region, AD investigations are more likely driven by strategic motives rather than economic motives. Statistical results from the binomial probability indicate support for the presence of the strategic motivation for Indonesia and Thailand although not for Malaysia and Philippines. Support for the presence of the economic motivation can only be found in an instance of the 'big supplier' hypothesis in the case of Indonesia.

Support for strategic motivation, though limited, signals the condition that the AD investigation is an instrument that revolves around and is used among actors (market/countries) that have previously been affected or targeted by AD investigation. This conclusion implies that AD encourages retaliation and non-cooperative behaviours. This situation provides an opportunity for regional platform negotiations to occur, where ASEAN would be able to mitigate non-cooperative strategic tendencies.

To further probe the effects of AD investigation, this thesis conducts empirical calculations on how AD affects import trade flows in Chapter 4. The Indonesian data set is used in this chapter, focusing on all AD investigations and products initiated from the year 1995 to 2012, based on the HS code.

An econometric model is applied in Chapter 4 to Indonesia's dataset. The econometrics work in this chapter seeks to find support for (1) the investigation effect, (2) the trade destruction effect and (3) the trade diversion effect. These refer

to the trade effects invoke by the utilisation of AD instrument and AD duty imposition, where it has been observed to halt and/or shift imports. This chapter observes trade effects at different stages of an AD investigation process, from the initiation all the way to when duties are imposed. Additionally, import suppliers to Indonesia are categorised according to whether they are formally mentioned in an AD case initiation (i.e. named or non-named country). This categorisation specifically highlights the impact of an AD investigation and AD duty imposition on the import suppliers.

Evidence of both the trade destruction effect and trade diversion effect is shown in the regression results. For countries that are named in AD case initiations, AD investigations are proven to impede trade when duties are imposed. The trade diversion effect is also found in the results when an AD duty is imposed following the AD investigation, particularly in Indonesia, for non-named countries.

The results in Chapter 4 suggest that even though AD investigations impede trade of import products being investigated, especially for countries named in an AD initiation, the overall import trade is not completely interrupted, because the trade diversion effect observed to the non-named countries allows the overall imports flow to grow. Even more so, this suggests that AD can be used strategically and effectively to halt imported goods from named countries.

Chapter 5 furthers the investigation to determine whether or not AD, as one of the trade remedy instruments, helps the trade liberalisation effort to achieve further

economic integration for the ASEAN region. An ASEAN-wide dataset is used to test for a relationship between AD instrument use and trade liberalisation efforts. The extent of trade liberalisation is assessed by the decrease in tariff, in this case, the ASEAN MFN applied tariff, recorded at the 6-digit HS code level across all sectors for the years 1996–2012. This chapter also contributes to the literature by investigating the effect of AD's contribution to an interaction between AD activities and GDP per capita.

The results in Chapter 5 show statistical evidence of a greater decline in the level of ASEAN average applied MFN tariff at the sectoral level when AD instruments are initiated in earlier periods and when duties are imposed especially for AD activities in the same sector. The interpretation is that AD contributes to trade liberalisation. In addition, there interaction of the application of AD with GDP per capita is significant. The results show that there is more significant support is found for the contribution of the AD instrument to tariff reductions at lower levels of GDP per capita. In other words, the growth of GDP per capita reduces the size of the effect.

These results are important for three reasons. First, The ASEAN trade remedy landscape explained in this thesis is the first comprehensive attempt to portray the region's dynamics in using trade policy instruments. Previous research has focused on developed and developing countries, yet none has concentrated on probing what is happening in the South East Asian region.

Second, this thesis is derived from the point of view of the trade remedy initiator; in this case the initiators are ASEAN member countries. As has been mentioned, the ASEAN region is one of the biggest global targets of trade remedy investigations, yet not enough attention has been put into exploring AD in ASEAN. In order to enrich the discussion and knowledge of trade remedies in ASEAN, it is imperative to provide a discussion that analyses and investigates motivation, effects, and contributions from the initiator's perspective – ASEAN member countries.

Third, this thesis is also one of the first to highlight the impact of using AD instruments on Indonesia's import trade. It provides a thorough elaboration of an empirical econometric model that shows the directions of trade when an AD investigation is launched and duties are imposed by a major AD user in the region.

ASEAN has never initiated or launched any subsidy and countervailing investigation. Also, when ranked, AMCs as a whole are more actively involved in initiating AD investigations compared to safeguards investigations, thus providing more consistent and abundant data on AD than the other two trade policy instruments. Consistency, because of the abundancy and availability of AD data, this thesis measures and selects AD to show the effects of the instruments on trade.

Subsequently, in analysing the AD effect on imports trade, this thesis focuses on Indonesia as the most active user of AD and also as ASEAN's largest economy to

date. Indonesia's sizeable economy and enthusiasm in launching AD investigations provides a reliable source of data for analysis.

Overall, the thesis finds that, where a motivation can be discerned, the purpose of the application of AD is mainly strategic, and responds to the actions of trading partners. The thesis also finds that a consequence of the application of AD is not so much to reduce imports overall but to redistribute them between named and non-named countries. That is, the application of AD is very specific and highly targeted. Apparently, according to the results on the relationship of the use of AD and tariff levels, the ability to manage trade in this way provides greater capacity to reduce tariffs over time. The inference made here, as prompted by the literature, is that the instrument allows countries to respond to practices in international trade which are regarded as unfair and which would otherwise impede the confidence to liberalise.

Nevertheless, this thesis does not suggest AMCs rush into exploiting AD instruments in the future; it simply aims to underline how AD, apparently as a safety valve, appears to have contributed to the goals of achieving a more integrated economic region. AD's strategic features and functions provide protection against the damages of international trade and offer the domestic market a feasible solution to respond to the challenges of international trade. However, as highlighted by previous research, there is always chances of AD to be abused and overused especially once all AMCs have implemented trade remedy law into their national law.

This thesis should be seen as the starting point on ASEAN's trade remedy analysis. Future research and analysis would be able to take advantage of the findings revealed in this thesis; for example, it could extend the analysis of the trade effects to other ASEAN members. Further research could contrast the trade effect of using AD and safeguards instruments. It could also analyse the role of the ASEAN platform to build confidence in trade among the members and to mitigate the exploitation of such measures, given the possibility that more AMCs are more likely to utilise this instrument when the domestic market is challenged by practices regarded as being 'unfair'.

Appendix A Supplementary material for Chapter 4

Table A4.1 Index of average Indonesian import values (overall)

Index of average Indonesian import values	1	2	3	4	5	6
Overall imports	77.63	108.70	100	116.05	144.72	118.27
Named country	92.69	130.09	100	133.74	171.07	130.00
Non-named country	47.00	65.16	100	80.06	91.10	94.40

Source: Calculated from data from the Ministry of Trade of The Republic of Indonesia 2014.

Table A4.2 Index of average Indonesian import values (final AD determination)

Index of average Indonesian import values	1	2	3	4	5	6
Named country (AFF)	84.38	123.64	100	135.66	148.91	102.99
Non-named country (AFF)	100.58	136.23	100	131.93	192.15	155.68
Named country (NEG)	40.25	66.88	100	78.74	85.67	66.84
Non-named country (NEG)	59.12	62.07	100	82.43	100.86	143.92

Source: Calculated from data from the Ministry of Trade of The Republic of Indonesia 2014.

Table A4.3 Index of average Indonesian steel import values (overall)

Index of average Indonesian steel import values	1	2	3	4	5	6
Overall	85.21	116.13	100	117.96	150.52	125.24
Named country	75.14	109.36	100	118.01	127.51	94.5
Non-named country	94.974	122.70	100	117.90	172.82	154.99

Source: Calculated from data from the Ministry of Trade of The Republic of Indonesia 2014.

Table A4.4 Average index of Indonesian steel import values (final AD determination)

Index of average Indonesian steel import values	1	2	3	4	5	6
Named country (AFF)	85.36	124.61	100	138.23	147.12	100.80
Non-named country (AFF)	107.5	142.85	100	129.89	191.01	145.90
Named country (NEG)	24.71	34.07	100	18.28	30.73	63.69
Non-named country (NEG)	37.7	30.76	100	63.23	89.84	196.44

Source: Calculated from data from the Ministry of Trade of The Republic of Indonesia 2014.

Table A4.5 Index of average Indonesian chemical import values (overall)

Index of average Indonesian chemical import values	1	2	3	4	5	6
Overall	362839.9	376414.1	411891.6	447238.3	457633.3	360482.5
Named country	2123241	2128996	2333682	2638854	2509497	1675159
Non-named country	174225.5	189748.5	203504.7	197892.8	224187.7	210007.5

Source: Calculated from data from Ministry of Trade of The Republic of Indonesia 2014.

Table A4.6 Index of average Indonesian chemical import values (final AD determination)

Index of average Indonesian chemical import values	1	2	3	4	5	6
Overall	89.04	92.87	100	109.76	112.31	87.99
Named country	90.98	91.22	100	119.35	113.50	75.76
Non-named country	86.64	94.92	100	97.82	110.82	103.19

Source: Calculated from data from Ministry of Trade of The Republic of Indonesia 2014.

Table A4.7 Summary of Indonesia AD investigations (1995–2012)

No	Product Name	Date of initiation	Year of initiation	Exporting country	HS code	Year of AD duty imposition
1	Polyester staple fiber	30-Sep-96	1996	Taiwan	550320000	-
2	Polyester staple fiber	7-Nov-96	1996	Rep. of Korea	550320000	-
3	Carbon black	7-Nov-96	1996	India	280300190	-
				Thailand		
4	Hot rolled coil	19-Dec-96	1996	China	720810000 720825000 720826000 720827000 720836000 720837000 720838000 720839000	1997
				Ukraine		
				Russian Federation		

No	Product Name	Date of initiation	Year of initiation	Exporting country	HS code	Year of AD duty imposition
				India	720840000 720851100 720851990 720852000 720853000 720854000 720890000	
5	Wire rod	24-Mar-97	1997	India Turkey	721310100 721391910 721391939 721391990	1998
6	Newsprint white	30-Nov-97	1997	Canada France USA	480100100 480100100 480100100	-
7	Ampicillin and amoxycillin trihydrate (antibiotics)	16-Mar-98	1998	India	294110200 294110300	1999
8	Tin Plate	24-Mar-98	1998	Japan Rep. of Korea Taiwan Australia	721012100 721012900	1999
9	H beam and I beam	30-Apr-98	1998	Russian Federation Poland	721632000 721633000	1999
10	Ferro manganese and silicon manganese	13-May-98	1998	China	720211000 720230000 811100000	1999
11	Welded pipe or steel pipe	13-Sep-99	1999	Japan Rep. of Korea China Singapore	730511000 730512000 730519000 730520000 730610000 730620000	-
12	Sorbitol	13-Sep-99	1999	European Union	290544000	2001
13	Carbon black	3-Dec-99	1999	India Rep. of Korea Thailand	2803001000 2803003000	2004
14	Wheat flour	22-Mar-00	2000	Australia	110100000	-

No	Product Name	Date of initiation	Year of initiation	Exporting country	HS code	Year of AD duty imposition
				United Arab Emirates		
				European Union		
15	Ferro manganese and silicon manganese	14-May-01	2001	India	720211000 720230000	-
				Rep. of Korea		
				Singapore		
16	Double submerge arc welded longitudinally pipe	11-Oct-01	2001	Japan	730511000 730512000	-
17	Phthalic anhydride	22-Apr-02	2002	India	291735000	-
				Japan		
				Rep. of Korea		
18	Calcium carbide	24-Jun-02	2002	China	2849100000	2004
				Malaysia		
19	Coated writing and printing paper	10-Feb-03	2003	Finland	4810112000	-
				Rep. of Korea		
20	Uncoated writing & printing paper	10-Feb-03	2003	Finland	4802554000 4802563000 4802573000	2004
				Rep. of Korea		
				India		
				Malaysia		
21	Polyester staple fiber	27-Jun-03	2003	Rep. of Korea	550320000	-
				Taiwan		
				Thailand		
22	Paracetamol	2-Sep-03	2003	China	2924299010	2005
				USA		
23	Ampicillin and amoxicillin trihydrate	3-Nov-03	2003	India	294110200 294110300	-
24	Wheat flour	1-Mar-04	2004	China	1101001000	2005
				India		
				United Arab Emirates		
25	Wheat flour	1-Sep-04	2004	United Arab Emirates	1101001000	2006
26	Cavendish bananas	7-Oct-04	2004	Phillipines	0803000000	2006
27	Hot rolled coil	28-Jun-06	2006	China	720810	2008

No	Product Name	Date of initiation	Year of initiation	Exporting country	HS code	Year of AD duty imposition
				Russian Federation	720825 720826 720827 720836 720837 720838 720839 720890	
				Taiwan		
				Thailand		
				India		
28	Sodium tripolyphospate (STTP)	29-Jun-07	2007	China	2835310000	-
29	Bi-axially oriented polypropylene film	9-May-08	2008	Thailand	3920200010	2009
30	Hot rolled plate	5-Nov-08	2008	China	7208400000 7208510000 7208520000 7208530000 7208540000	-
				Taiwan		
				Malaysia		
31	Wheat flour	17-Nov-08	2008	Australia	1101001000	-
				Sri Lanka		
				Turkey		
32	Hot rolled coil	8-Apr-09	2009	Rep. of Korea	7208100000 7208250000 7208260000 7208270000 7208360000 7208370000 7208380000 7208390000 7208900000	2011
				Malaysia		
33	Polyester staple fiber	20-Apr-09	2009	China	5503200000	2010
				India		
				Taiwan		
34	H & I section	30-Jun-09	2009	China	7216330000 7216320000	2010
35	Aluminium meal dish	11-Sep-09	2009	Malaysia	7612909000	2010
36	Hot rolled plate	31-Mar-10	2010	China	7208510000 7208520000	2012
				Singapore		
				Ukraine		

No	Product Name	Date of initiation	Year of initiation	Exporting country	HS code	Year of AD duty imposition
37	Ceramic tableware	21-Jun-11	2011	China	6911100000 6911900000 6912000000	2012
38	Cold rolled coil/sheet	24-Jun-11	2011	China Taiwan Rep. of Korea Japan Viet Nam	7209160010 7209170010 7209189000 7209260010 7209270010 7209289000 7209909000 7211232000 7211239090 7211292000 7211299000 7211901000 7211909000	2013
39	Tin plate	25-Jun-12	2012	Rep. of Korea China Taiwan	7210121000 7210129000	2014
40	Polyethylene terephthalate	29-Jun-12	2012	Rep. of Korea China Taiwan Singapore	3907601000 3907602000 3907609000	-

Source: Compiled from data from KADI (I4, pers. comm. 26 May, 2014)

Hausman Test Results

```
. xtreg lnt1 lntm1 initiate dutyminj lnreer, re

Random-effects GLS regression                   Number of obs      =     14922
Group variable: country_ca~i                    Number of groups   =      2487

R-sq:  within  = 0.0022                         Obs per group: min =         6
       between = 0.9213                                        avg =       6.0
       overall = 0.3189                                        max =         6

Random effects u_i ~ Gaussian                   Wald chi2(4)       =   6985.61
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
        lnt1 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       lntm1 |   .5592707   .0067888    82.38   0.000     .5459649    .5725764
    initiate |    -.17773   .1129591    -1.57   0.116    -.3991257    .0436657
    dutyminj |   .0123618   .0057668     2.14   0.032      .001059    .0236646
      lnreer |   1.628258   .1586268    10.26   0.000     1.317356    1.939161
       _cons |  -4.652698   .7203131    -6.46   0.000    -6.064486   -3.240911
-------------+----------------------------------------------------------------
     sigma_u |          0
     sigma_e |  4.4738002
         rho |          0   (fraction of variance due to u_i)
------------------------------------------------------------------------------

.

. estimates store b_re

. xtreg lnt1 lntm1 initiate dutyminj lnreer, fe

Fixed-effects (within) regression               Number of obs      =     14922
Group variable: country_ca~i                    Number of groups   =      2487

R-sq:  within  = 0.0038                         Obs per group: min =         6
       between = 0.5836                                        avg =       6.0
       overall = 0.2053                                        max =         6

                                                F(4,12431)         =     11.86
corr(u_i, Xb)  = 0.5461                         Prob > F           =    0.0000

------------------------------------------------------------------------------
        lnt1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       lntm1 |   .0456976   .0088918     5.14   0.000     .0282682    .0631269
    initiate |   .1127928    .098822     1.14   0.254    -.0809137    .3064992
    dutyminj |  -.0180288   .0070543    -2.56   0.011    -.0318562   -.0042013
      lnreer |   .7268605   .1951693     3.72   0.000     .3442984    1.109423
       _cons |   2.300097   .8917303     2.58   0.010     .5521679    4.048027
-------------+----------------------------------------------------------------
     sigma_u |  4.4686949
     sigma_e |  4.4738002
         rho |  .49942909   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(2486, 12431) =     2.89         Prob > F = 0.0000

.
```

```
. estimates store b_fe

. hausman b_fe b_re, sigmamore

Note: the rank of the differenced variance matrix (3) does not equal the number
        of coefficients being tested (4); be sure this is what you expect, or
        there may be problems computing the test.  Examine the output of your
        estimators for anything unexpected and possibly consider scaling your
        variables so that the coefficients are on a similar scale.

                 ---- Coefficients ----
              |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
              |     b_fe         b_re        Difference          S.E.
--------------+----------------------------------------------------------------
        lntm1 |    .0456976     .5592707       -.5135731        .0076038
    initiate  |    .1127928      -.17773        .2905228        .0086177
    dutyminj  |   -.0180288     .0123618       -.0303905        .0056693
      lnreer  |    .7268605     1.628258       -.9013978        .1577849
------------------------------------------------------------------------------
                           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(3) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =     4651.60
                Prob>chi2 =      0.0000
                (V_b-V_B is not positive definite)

.
```

Prob>chi2 = 0.0000, random-effects model is resoundingly rejected. Fixed Effects is justified.

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