Determinants and Impacts of Rules of Origin in Australia's Free Trade Agreements

By

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THESIS

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Abstract

This thesis investigates the determination of the rates of utilisation of Australian free trade agreements (FTAs).

The topic is important and interesting because the utilisation rates show the usage of the agreements by traders. Low utilisation rates imply that trade agreements fail in their objective.

Following a review of relevant literature, the study presents data on the utilisation rates of Australia's preferential trade agreements (PTAs) over the time frame of 2000-9. This work requires some care in the definition of the utilisation rate, a matter which is discussed in detail in the presentation of this part of the empirical work. It is found that utilisation rates vary a lot. The variations appear to be related to low preferential tariff margins and the degree to which there are strict rules of origin (ROO). These rules are associated with FTAs to manage the problem of trade deflection (TD). The ROO schemes of five Australian FTAs are investigated and a ROO restrictiveness index is developed and applied to these five Australian trade agreements. The main findings are that all five ROO regimes differ significantly between the agreements, indicating that ROO are negotiated according to criteria beyond their role in managing TD.

A question of interest therefore arises about the set of important determinants of ROO. One hypothesis in the literature is that more restrictive ROO are negotiated in tariff lines with relatively high preferential margins. To examine and test this hypothesis in detail, a political economy (PE) model is applied. PE and TD factors are taken into account in a test of the relative importance of these different factors. The results confirm that TD concerns in form of potential transshipment are reflected by ROO design;

however this is the case only for the Australian agreements with its developing country partners. The results also show that more restrictive ROO are negotiated in tariff lines with high applied tariff rates and for commodities where a potential import penetration may occur. The higher the potential competition in the form of trade penetration and the higher market access in the form of low preferential tariff rats, the more restrictive are the negotiated ROO. Therefore, these results suggest that ROO are used as both a trade protection and as a tariff substitution tool.

The research then returns to the question of the impact of ROO on the utilisation rates and trade development in Australia's FTAs. An equation is estimated in which the relationship and impact of ROO and preferential tariff margins on the utilisation rates is tested.

To avoid endogeneity between tariff rates and ROO as identified in this thesis, the study employs the instrumental variable method by using the results of the determinants of ROO as an instrument.

Two main hypotheses are examined, namely (1) do more restrictive ROO increase trade costs and with that lower the application of preferential treatment in form of utilisation rates, and (2) do preferential tariff margins serve as an incentive to apply for preferential treatment.

The results show a strong negative relationship between the degree of restrictiveness of ROO and the utilisation rates and a positive relationship between preferential tariff margins, and utilisation rates.

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Table of Contents

1. Introduction 1

2. Literature review 7

2.1 The utilisation of preferential trade agreements 7

2.2 Determinants of utilisation rates of preferential trade agreements 10

3. The usage of Australia's bilateral FTAs and SPARTECA 14

3.1 Introduction..... 14

3.2 Australia's FTAs and PTAs 17

3.2.1 Australia's non-reciprocal PTAs..... 17

3.2.2 Australia's regional and bilateral FTAs 22

3.3 Data and measurement of utilisation..... 25

3.4 The utilisation rates of selected Australian PTAs and RTAs 27

3.5 Observations from a disaggregated data analysis 40

3.5.1 A disaggregated analysis of the raw utilisation rate – an overview 40

3.6 Conclusions..... 46

4. ROO in Australia's RTAs and PTAs and their restrictiveness 51

4.1 Introduction..... 51

4.2 ROO 54

4.3 ROO in more detail 57

4.4 ROO in PTAs and FTAs 58

4.5 ROO in Australia's FTAs under consideration in this study 63

4.5.1 Examples..... 65

4.6 Measuring the restrictiveness of ROO 66

4.6.1 How is the restrictiveness index applied in Australia's FTAs? 73

4.7 Overview of the restrictiveness of ROO in Australia's RTAs and PTAs..... 74

4.8 Conclusions..... 77

5. The determinants of ROO 79

5.1 Introduction..... 79

5.2 Determination of ROO in a bargaining process..... 84

5.3 Empirical methodology..... 87

5.3.1 TD variables..... 87

5.3.2 PE variables 89
5.4 Model 93
5.5 Results 95
5.5.1 Step 1: Default/preferred equation 96
5.5.2 Step 2: Robustness check 102
5.6 Conclusions 109
6. Evaluating the impact of ROO on the utilisation rates and the benefits of Australia's FTAs 112
6.1 Introduction 112
6.2 The impact of FTAs and binding effects of ROO 114
6.2.1 The impact of FTAs 114
6.2.2 Binding effects of ROO and their impact on trade costs 118
6.3 Statistical analysis: The impact of ROO and preferential tariffs 120
6.4 Empirical Analysis: The impact of ROO and preferential tariff margins on utilisation rates and trade 128
6.4.1 Modelling the impact of ROO and preferential tariff margins on utilisation rates 129
6.4.2 Applied model on the impact of ROO and preferential tariff margins on trade 133
6.5 Results 136
6.6 Conclusions 139
7. Conclusions 141
Appendix 149
Appendix to Chapter 3 149
A. Disaggregated Analysis by Agreement 149
B. Disaggregated analysis of Australia's FTAs by Sector 166
Appendix to Chapter 5 214
A. Discussion of the Results of Tables 5.2 to 5.6 214
Appendix to Chapter 6 220
A. ROO, Preferential Tariff Margins and Utilisation Rates of Australia's bilateral FTAs for 2009 220
References 234

List of Figures

Figure 3.1: Utilisation rates of Australia's PTAs, 2000-9 31

Figure 3.2: Average applied customs duties and tariffs of Australia's PTAs, 2000-9 ... 32

Figure 4.1: A three-country model..... 55

Figure 4.2: A three-country model with an FTA 56

Figure 4.3: Comparison of restrictiveness of ROO of Australia's FTAs by section, 2009 75

Figure 5.1: Determinants of ROO and preferential market access 81

Figure 6.1: The impact of an FTA 116

Figure 6.2: Binding effects of ROO and their impact on trade costs..... 119

Figure 6.3: Assumed impacts of ROO restrictiveness and preferential tariff margins on the utilisation rate..... 121

Figure 6.4: Actual empirical impact of ROO restrictiveness and preferential tariff margins on the utilisation rates, 2009 123

List of Tables

Table 3.1: Overview of Australia's preferential trading schemes 18

Table 3.2: Summary statistics of Australia's imports from PTA partners, 2009..... 28

Table 3.3: Average applied customs duties and tariffs on Australia's imports from PTA partners, 2009..... 29

Table 3 4: Customs duty collected on imports from New Zealand, 2009 34

Table 3.5: Customs duty collected on imports from the United States, 2009 39

Table 3.6: HS classification by section and HS tariff chapters..... 41

Table 3.7: Australia's applied tariff structure, 2009 48

Table 4.1: Merits and de-merits of ROO criteria 59

Table 4.2: Common RVC methods..... 60

Table 4.3: Restrictiveness points of the Harris (2007) restrictiveness index..... 70

Table 4.4: Adjusted RVC value test points..... 72

Table 5.1: Determinants of ROO under Australia's bilateral FTAs 97

Table 5.2: Determinants of ROO under the CER 104

Table 5.3: Determinants of ROO of the SAFTA 105

Table 5.4: Determinants of ROO of the TAFTA 106

Table 5.5: Determinants of ROO of the Australia AUS-FTA 107

Table 5.6: Determinants of ROO under the Chile/AUS-FTA 108

Table 6.1: Utilisation rates and preferential tariff margins 124

Table 6.2: Utilisation rates, preferential tariff margins and ROO restrictiveness..... 124

Table 6.3: Utilisation rates and preferential tariff margins at a given ROO-i (1-4) 125

Table 6.4: Utilisation rates and preferential tariff margins at a given ROO-i (5-8) 125

Table 6.5: Utilisation rates and preferential tariff margins at a given ROO-i (9-19) ... 126

Table 6.6: Utilisation rates, preferential tariff margins and ROO-i at increasing trade volumes 127

Table 6.7: Utilisation rates, preferential tariff margins and ROO-i at different trade volume 127

Table 6.8: Determinants of utilisation rates and the impact of ROO and preferential tariff margins 138

Table 6.9: Determinants of Australian FTA imports and the impact of ROO and preferential tariff margins 138

Table A3.1: CER - Development of raw utilisation rates (2000-09) 160

Table A3.2: SPARTECA - Development of raw utilisation rates (2000-09) 161

Table A3.3: SAFTA - Development of raw utilisation rates (2000-09) 162

Table A3.4: TAFTA - Development of raw utilisation rates (2000-09) 163

Table A3.5: AUS-FTA - Development of raw utilisation rates (2000-09) 164

Table A3.6: Chile/AUS-FTA - Development of raw utilisation rates (2000-09) 165

Table A6.1: CER – Applied ROO and ROO index, preferential tariff margins and utilisation rate in 2009 229

Table A6.2: SAFTA – Applied ROO and ROO index, preferential tariff margins and utilisation rate in 2009 230

Table A6.3: TAFTA – Applied ROO and ROO index, preferential tariff margins and utilisation rate in 2009 231

Table A6.4: AUS-FTA – Applied ROO and ROO index, preferential tariff margins and utilisation rate in 2009 232

Table A6.5: Chile/AUS-FTA – Applied ROO and ROO index, preferential tariff margins and utilisation rate in 2009 233

List of Abbreviations

ABS	Australian Bureau of Statistics
ACS	Australian Customs Service
ACTA	Australian Customs Tariff Act
ASTP	Australian System of Tariff Preferences
AFTA	ASEAN Free Trade Area
AUS-FTA	Australia United States Free Trade Agreement
APEC	Asian Pacific Economic Community
AV	Adjusted value
A$	Australian dollars
BEC	Broad Economic Classification index
CER	Australia New Zealand Closer Economics Relation Trade Agreement
Chile/AUS-FTA	Chile Australia Free Trade Agreement
CTC	Change in tariff classification
CUs	Customs Unions
DFAT	Department of Foreign Affairs and Trade
FTAs	Free Trade Agreements
GATT	General Agreement on Tariffs and Trade
GDP	Gross domestic product
GSP	Generalized System of Preferences
HS	Harmonized System
JS-EPA	Japan-Singapore Economic Partnership Agreement
JETRO	Japan External Trade Organization
LDCs	Least Developed Countries
MFN	Most favoured nations
NAFTA	North American Free Trade Agreement
NC	Net cost
PACER	Pacific Agreement on Closer Economic Relations
PATCRA	Papua New Guinea Australia Trade and Commercial Relations Agreement
PE	Political economy

PTAs	Preferential Trade Agreements
OCTA	Office of the Chief Trade Adviser
OECD	Organisation for Economic Co-operation and Development
ROO	Rules of origin
ROO-i	Rules of origin restrictiveness index
RTAs	Regional Trade Agreements
RVC	Regional value content
SAFTA	Singapore Australia Free Trade Agreement
SPARTECA	South Pacific Regional Trade and Economic Cooperation Agreement
TAFTA	Thailand Australia Free Trade Agreement
TD	Trade deflection
TR	Technical requirements
TV	Transaction value
UNCTAD	United Nations Conference on Trade and Development
VNM	Value of non-originating materials
VOM	Value of originating materials
VUOM	Value of materials with uncertain origin
WCO	World Customs Organization
WTO	World Trade Organization

Chapter 1

Introduction

The interest in trade agreements in the form of regional trade agreements (RTAs), FTAs, PTAs, or Customs Unions (CUs) has increased over the past three decades. According to the World Trade Organization (WTO), as of August 2013, 575 regional trade agreement notifications have been received under the General Agreement of Tariffs and Trade (GATT)/WTO and 379 of these have entered into force.[1] Many studies have investigated the impact of FTAs and PTAs and reached differing conclusions and arguments in favour and against their importance in trade growth, economic development, market access and poverty reduction. Some of these studies have focused on the usage of the agreements by highlighting that their design influenced by political factors and the complexity of these agreements are some of the main obstacles to their use. The topic of the determinants of utilisation rates is important and interesting because the number of preferential agreements is growing rapidly yet the utilisation rates show that the usage of the agreements by traders is often low and variable. The aim of this dissertation is to respond to this issue by exploring and investigating the determinants of the utilisation rates of Australia's bilateral FTAs.

[1] In June 2013, the bilateral agreements of the Costa Rica and Peru Goods and Services FTA and Economic Integration Agreement and the Turkey – Mauritius Goods FTA entered into force. According to the WTO RTA database, the EU (28) Enlargement of the Customs Union and Economic Integration Agreement was the last agreement to enter into force in July 2013.

The goal of thesis is achieved by first looking in detail at measurement of the utilisation rates of Australia's FTAs. Because the utilisation rates vary significantly and appear to be related to both preferential tariff margins and the agreement specific ROO, the thesis has its focus on the design of those ROO and their interaction with the preferential tariffs. In the second step, an Australian FTA specific ROO restrictiveness index is developed to empirically investigate the determinants of the ROO of Australia's FTA by considering PE and TD factors. In a third step the impact of market access rules and the agreement-specific design of ROO on the utilisation rates in Australia's FTAs is examined. Therefore, this thesis helps to shed light onto why some preferential trade agreements are not being used by focusing on the usage of Australia's FTAs and by looking at the interaction of market access and ROO design.

FTAs, RTAs and PTAs offer members market access in form of preferential tariff rates. Besides preferential tariffs, other components of FTAs and PTAs are covered by specific chapters and annexes of trade agreements such as the national treatment, safeguard mechanism, customs administration, technical barriers to trade, sanitary and phytosanitary measures, cross border trade in services, investments, intellectual property rights, government procurement and ROO. All of these chapters and annexes have the aim to generally facilitate goods and services trade, investment and trade and economic development between the trading partners. However, beause these components are regulations set up in a formal and binding agreement, the 'free trade' character of FTAs/PTAs needs to be questioned. Evidence that in practice these regulations are not as free as the names of the agreements suggests comes from several studies which show that benefits offered, especially in goods trade in form of preferential market access, are not completely or only limited taken advantage of. As these results contradict the expectations that traders between the signatories of

FTAs/PTAs take advantage of benefits offered and trade under the agreement specific rules, the question arises in regard to obstacles of the usage of FTAs/PTAs and their benefits.

The increasing and large number of multilateral RTAs and bilateral FTAs in Asia is often referred to as a "noodle bowl". The name refers to the overlapping trading arrangements, varying tariff rates and ROO. The complexity of the "noodle bowl" is also often used as an explanation for the low or limited usage of FTAs/PTAs. Additionally, the existence of low or zero-MFN tariff rates is cited as reason. When MFN tariff rates are low, the opportunity costs for traders are found to be too high to apply for preferential treatment under the specific FTA/PTA. The further question then arises of why their features vary between agreements. One hypothesis of interest, and one that is examined here, is that these differences are driven by PE forces. The varying conditions of market access in the form of preferential tariff rates and ROO schemes have led to numerous PE studies for that reason.

The thesis has the following structure.

In Chapter 2 relevant literature on the utilisation of FTAs/PTAs and the design of ROO and preferential tariff margins as determinants of utilisation rates is reviewed.

Chapter 3 draws on conclusions of previous work on the utilisation of Australia's trading agreements by Pomfret, Kaufmann, and Findlay (2010a, 2010b) and Kaufmann, Pomfret, and Findlay (2013) in which I performed all the statistical analysis of the utilisation rates. Even though it draws on previous research, this chapter presents new research as it provides evidence of the utilisation rates for Australia's regional and bilateral trading arrangements over the period 2000 to 2009 from the analysis of high-quality Harmonized System (HS) HS 6-digit disaggregated customs data and therefore

adds significantly to the literature. This work requires some care in both the definition of the utilisation rate and the type of the analyses. Different definitions are discussed in some detail in the presentation of this part of the empirical work. The examination of the utilisation rates is undertaken at the aggregated level and at the sectoral disaggregation and further controls for zero-MFN tariff lines. The analysis finds mixed results of high utilisation rates for the Australia New Zealand Closer Economic Relations Trade Agreement (CER) and low utilisation rates for the Singapore Australia FTA (SAFTA). Furthermore, the disaggregated investigation reveals a stark difference among sectoral utilisation rates. The overall varying results of the aggregated and disaggregated analyses of the utilisation rates of the trade agreements raises the question whether ROO indeed play a role and may help in explaining the utilisation rates in more detail.

One explanation of the variation in utilisation rates is the effects of ROO. Therefore, chapter 4 covers three main topics:

1. The chapter takes a closer look at the general provisions of ROO, clarifies their discriminatory nature, meaning that ROO discriminate between eligible goods that may take advantage of preferential tariffs and those commodities that cannot. The economic justification in form of avoiding TD was also discussed in detail before the interest turns towards the design of different ROO schemes. Product specific and RVC schemes were discussed including their advantages and disadvantages.
2. The chapter provides insights into the different ROO schemes applied in Australia's bilateral FTAs and finds that these ROO vary significantly in complexity and therefore in the degree to which they may be restrictive

3. The chapter then investigates the restrictiveness of Australia's ROO by making use of literature on ROO restrictiveness and developing a ROO restrictiveness index for Australia's bilateral FTAs. The chapter also provides an overview of the different levels of restrictiveness of the different ROO regimes of Australia's FTAs by sector. The analysis finds that more restrictive ROO are set-up in sectors with higher MFN tariff lines, indicating that stricter ROO are negotiated in areas with larger market access under the specific Australian FTAs. Especially in combination with the general complexity of the design of the different ROO schemes, this also raises the question of whether ROO only serve to protect from TD or whether other interests prevail.

To investigate this question in more detail, chapter 5 makes use of the Australian FTA specific ROO restrictiveness index developed in chapter 4 and sets its focus on the determinants of the different ROO schemes in Australia's FTAs with the help of econometric analysis. The hypotheses of both TD concerns and PE factors, based on the political bargaining theory and the PE model, are tested. The analysis carried some important results, which support previous findings of the literature. These are, for example, that TD concerns are taken into account in the design and negotiations of ROO, but that in addition import and export oriented industries succeed in lobbying for beneficial ROO to protect their competitiveness and to regain protection lost from lower MFN and preferential tariffs.

In chapter 6 the thesis then returns to the question of what determines the utilisation rates in Australia's FTAs by making use of the findings of the previous chapters. In chapter 6 a statistical analysis is undertaken using the restrictiveness index developed in chapter 4 and looking at its relationship with the utilisation rates from chapter 3. Furthermore, an equation is estimated in which the interrelationship of ROO,

preferential tariff rates and utilisation rates is examined. The analysis applies the instrumental variable methodology to avoid the problem of the endogeneity of ROO and preferential tariffs by using the results of chapter 5 as instruments for ROO. Chapter 6 finds evidence that ROO indeed reduce the utilisation rates. At the same time preferential tariffs are found to have the opposite effect. Therefore, a movement to higher level of restrictiveness of ROO offsets the increment of the preferential tariff.

With this analysis, this dissertation adds significantly to the literature on FTAs/PTAs and the impact of ROO and preferential tariffs on utilisation rates. The thesis also sheds noteworthy light into the discussion of the determinants of ROO and together with preferential tariffs their impact on the utilisation of FTAs.

Chapter 2

Literature review

This chapter provides a brief review of relevant literature on the utilisation of FTAs/PTAs and on ROO. The first part of the literature focusses specifically on the utilisation of preferences in trade agreements and on utilisation rates. The second part discusses literature on the design of ROO and ROO restrictiveness. Furthermore, literature on ROO and preferential tariff margins as determinants of utilisation rates is reviewed. Here the focus is also on the consequences, the effect and the impact of ROO in international trade.

This chapter is a starting point and literature is then revisited in more detail throughout this thesis where specific literature is reviewed according to the subject of the chapter.

2.1 The utilisation of preferential trade agreements

The usage of FTAs and PTAs has been topic to several empirical studies. In a report by the United Nations Conference on Trade and Development (UNCTAD) (1981) on the usage of the Generalized System of Preferences (GSP) of the European Communities, Japan and USA it was revealed that only about 50 per cent of preferences offered were claimed for preferential treatment. According to the UNCTAD (1981) exclusions and restrictions of these GSP schemes were recognized as the cause for low utilisation

rates.

There is significant literature on the ASEAN Free Trade Area (AFTA) which for a long time showed low utilisation rates. Ando and Kimura (2005) report that ASEAN countries, in particular the Philippines and Thailand unilaterally reduced most favoured nation (MFN) tariff rates on a large range of commodities implying an overall reduction in preference margins. Ando et al (2009) conclude that the low utilisation rates of the 1990s and early 2000s were mainly caused by the negative list of excluded commodities. Once excluded items were introduced into the preferential scheme of the AFTA, an increasing development in utilisation rates was found. The authors further report that in 2000 about ten per cent of Thailand's exports to its ASEAN partners (excluding Singapore) entered under AFTA preferences. Based on numbers from the Japan External Trade Organization (JETRO) (Daily World News, 2009), the utilisation rate increased to about one third in 2008 indicating an increasing trend since 2000. In more detail an increase from 10 per cent to 60 per cent was recorded for Thailand's imports into Indonesia and the utilisation rate of Thailand's imports to Vietnam increased from close to zero to about 50 per cent. Thailand's exports to the Philippines increased from about 15 per cent in 2000 to circa 45 per cent in 2008. On the basis of questionnaire data, Kawai and Wignaraja (2009) conclude that the increasing utilisation rates since 2000 were due to a learning process. They find that it took traders considerable time to respond to the preferences offered by the AFTA and the more knowledge they started to gain about preferences, the more they took advantage of these.

A survey conducted by Takahashi and Urata (2010) with a focus on the Japan-Singapore Economic Partnership Agreement (JS-EPA) indicates that the erosion of preferences and multilateral agreements are reason for low utilisations of preferences. According to their results only a few Japanese firms make use of the preferences

offered by the JS-EPA when Singapore's MFN tariff rates are almost zero. Accordingly, only 3.6 per cent of international trading firms applied for preferential treatment under the JS-EPA. On the JS-EPA, Hertel et al (2001) also point to their findings that most of the preferences gained do not come from preferential tariff treatment but instead from trade facilitation in the form of customs automation, measures of security and harmonization of e-commerce, and business and construction services trade liberalization.

That non-tariff measures and compliance costs offset most of the preferences with the result that tariff preferences offered had hardly any impact on ASEAN trade in the 1990s was found by Manchin and Pelkmans-Balaoing (2008). A lot of literature points to similar findings, namely that administrative regulations which are part of the FTAs/PTAs process to claim preferences as reasons for low utilisation and usage rates. Pomfret (2001) points out that overly complex ROO may lead to an increase in bureaucratic and administrative costs of compliance above the actual tariff preferences. Therefore, ROO intended to prevent TD from non-PTA member countries, may actually reduce preferential trade by legitimate traders. Additionally Grossman and Sykes (2005) find that costs to comply with ROO and preference erosions are reasons for the low utilisation rates. UNCTAD (1999) also found that benefits are too low to compensate for additional compliance costs.

Francois et al (2005) and Amiti and Romalis (2006) set out to explore the threshold below which there are no benefits in claiming for preferences. Francois et al (2005) investigate the scope of the erosion of preferences in the Organisation for Economic Co-operation and Development (OECD) and find that compliance costs and administrative regulations increase costs to claim preferences significantly. In their analysis this threshold is at about 4 per cent. In a similar study on the effects that tariff reductions have had on market access for developing countries under the Doha Round,

Amiti and Romalis (2006) find that the biggest benefits are those in high margin tariff lines (e.g. agriculture). The authors' findings underline the results of Francois et al (2005) and point to an about 5 per cent threshold.

2.2 Determinants of utilisation rates of preferential trade agreements

ROO and their effects and impacts on trade agreements have been topic since the beginning of trade agreements. Several empirical studies have shown that political motivations have been important determinants of ROO. Estevadeordal (1999, 2000) developed an endogenous selected ordinal ROO restrictiveness index based on ex post data observations. In an empirical study the author uses the restrictiveness index and shows, by endogenously estimating ROO regressions, that PE forces that influence tariff protection are the same that influence ROO. With these findings, Estevadeordal (1999, 2000) showed that the set-up of ROO is driven also by political motivations as well as pure economic justifications of TD. By modifying the Estevadeordal (1999, 2000) index by including product specific exemption rules Anson et al (2005) confirm the initial findings that trade preferences are correlated with stricter ROO. While making use of the Anson et al (2005) modified restrictiveness index, Portugal-Perez (2006, 2009, 2011) assesses the impact that PE factors have on NAFTA ROO by developing a two-stage model which looks in more detail on TD forces and PE factors, and finds that especially PE forces raise the restrictiveness of ROO in NAFTA.

Harris (2007) analyses in great specificity the Estevadeordal (1999, 2000) restrictiveness index and the Anson et al (2005) version and discusses and presents several shortcomings (for example the widely overlooked variation of specific rules

such as differentiating and adjusting for one and more exceptions). Adjusting for these, the author proposes a new more complex and robust restrictiveness methodology. Furthermore, Harris (2007) points out quantitative differences contradicting the findings of Estevadeordal (1999, 2000) who reports a strong positive relationship between higher MFN tariff differentials and stricter ROO, a result widely supported by other literature, e.g. Portugal-Perez (2006, 2009, 2011).

Harris (2007) refers to TD as the 'standard explanation' of the determination of ROO. The author argues in favor of ROO as a form to prevent TD which is he finds to be a serious concern. For example the author finds potential fiscal implications of TD a valid reason for ROO. Additionally, Harris (2007) also provides other grounds such as protectionism of import competing and export creating industries as potential ROO determining factors that go beyond TD.

The literature finds that ROO can be applied as trade policy tools and can serve as protectionist trade policy instruments, offsetting the trade liberalizing aim of trade agreements. Some of the notable literature on the topic is the work of Grossman (1981) on the effects of domestic content protection policies, an early version of ROO. Here the author argues that these policies can be aimed to support the domestic intermediate goods market and import-competing industries. Wonnacott and Wonnacott (1967) and Johnson (1971) show that the Canadian automobile industry successfully used domestic content rules for protection against US competitors. Färe and Logan (1988) find that domestic content requirements have evolved as standard alternatives of protection to tariffs and quotas and are especially successful when all of these are used as complements. If used as a protective tool, domestic content policies or ROO can raise administrative costs of claiming preferences and lead to low usage rates of the FTA/PTA. Krueger (1993) underlines this by showing theoretically that ROO can serve

as protectionist instruments and can increase the costs of foreign exporters the more restrictive the schemes are. Since the authors' ground breaking work there have been several papers on the impact of restrictive ROO. The definition of ROO and their application in trade agreements plays an important role not only in determining the degree of protection but also in the in the level of trade distortion these ROO cause and produce are some of the main findings of Hoekman (1993).

Krishna and Krueger (1995) illustrate that ROO as a tool for trade policy can easily be used for other purposes than the prevention of TD. ROO can be applied to increase intra-FTA trade and indirectly reduce FTA-world trade by protecting domestic intermediate goods producers. This can in return lead to a decline in the actual welfare benefits of free trade as intra-FTA exporters are 'forced' to turn towards relatively cheaper intra-FTA intermediate goods producer if they seek preferential treatment for their final product. Lloyd (2001) and Falvey and Reed (2002) show that in that sense ROO are similar to a tariff that is levied onto the intermediate goods and confirm previous findings of Krueger (1993 and 1999) and Krishna and Krueger (1995).

In four 'laws' Krishna (2006) presents and summarizes the economic effects of ROO, namely first that ROO can serve as hidden protectionist instruments and second that the details of ROO matter and can impact trade considerably. The third law states that there is a significant difference between the short-run and long-run response by interest groups to ROO. While exporter and importer are affected in the short-run, the long-run impacts investors and investment flows. That ROO can reduce trade on the whole when ROO are too restrictive is discussed in the fourth law.

This thesis builds on and extends previous work in investigating the relationship and impact of ROO, preferential tariff margins and volume of trade on the utilisation rates of Australian trade agreements. In the next chapter, literature on the utilisation of

preferences is revisited and extended for selected Australian trade agreements. In chapter 4 the main focus is on the restrictiveness of ROO. Chapter 5 is based on the political bargaining theory and the PE model of Helpman and Grossman (1994) and the analysis in this chapter follows and builds on work by Estevadeordal (1999, 2000), Anson et al (2005), Cadot et al (2006), Portugal-Perez (2006, 2009, 2011) and Harris (2008) who concentrate with their analysis on NAFTA and its interaction between the United States and Mexico.

The theory behind the impact of FTAs by Panagariya (1999) and the binding effects of ROO by Krishna and Krueger (1995) is discussed in chapter 6 of this thesis. Both studies suggest that if ROO are restrictive and preferential tariff margins are an incentive, then ROO also likewise affect the development of both utilisation rates and trade volume. Empirical studies are incorporated in the investigation of the impacts and determinants of ROO and preferential tariff margins on the utilisation rates such as work by Carrere and de Melo (2006) and Cadot, Estevadeordal and Suwa-Eisenmann (2006) who have focused on NAFTA and empirically investigate how ROO and preferential tariffs impact utilisation rates and trade volumes. With that the thesis extends the literature both conceptually and by focusing in detail on a new case, Australia.

Chapter 3

The usage of Australia's bilateral FTAs and SPARTECA

3.1 Introduction

There is ongoing proliferation of regional and bilateral trading agreements in Asia and the Pacific region. As many of these agreements include preferential tariff regimes, the utilisation of these is an important and interesting topic, as it reveals whether or not the PTAs are being used. This has led to several empirical studies investigating the usage of these agreements; see Ando and Kimura (2005), Ando et al (2009), and Kawai and Wignaraja (2009).

With the introduction of CUs in the 1960s as a result of the earlier waves of PTAs, utilisation rates were not considered as an issue. This was because the focus in these CUs was on intra-union trade, which applied automatically for duty-free entry. This changed, however, in the 1980s and 1990s, when PTAs became more complex and began to include ROO, exclusion rules, and other general restrictions. At the same time, preference erosions due to a decline of MFN tariffs were noted. This combination led to relatively low utilisation rates of only about 50 per cent for the GSP of the European Communities, Japan, and the United States; see UNCTAD (1981) and Grossman and Sykes (2005).

In the 1990s, the relatively non-existing impact of the AFTA, which was underlined by low utilisation rates, became a significant concern in East Asian ASEAN member countries (Manchin and Pelkmans-Balaoing, 2008). Analysis of the set-up of the AFTA highlighted several potential reasons for low utilisation rates, such as that preferential tariff rates would be reduced to 5 per cent or less over a 15-year period. Furthermore, the reductions of preferential tariff rates were put back as far as possible in this 15-year transition period. What made matters worse was a lengthy negative list with excluded commodities (Ando et al, 2009). Additionally, the unilateral reduction of MFN tariff rates led to the erosion of preferences (Ando and Kimura, 2005).

The increasing number of preferential and bilateral trading arrangements in Asia is often referred to as the 'noodle bowl', and plays its part in low utilisations of agreements. Therefore, these overlapping trading arrangements, with their varying tariff rates and complex agreement-specific ROO, are often used as an explanation for low utilisation rates, additionally to low- or zero-MFN tariff rates. When tariff rates are low, the opportunity costs for traders are found to be too high to apply for preferential treatment under the specific PTA. Administration costs of applying for preferential treatment play a vital role. When these costs outweigh the possible benefits in the form of marginal tariff preferences, an explanation of low usage might be identified. Hertel et al (2001) and Takahashi and Urata (2010) show that this is the case under the JS-EPA, where only a few firms take advantage of preferences offered. Empirical studies of preferential and bilateral trade arrangements find a 4-5 per cent threshold, below which there is no net benefit from claiming preferences (e.g., Francois et al, 2005; Amiti and Romalis, 2006). If these assumptions hold true, countries with average applied MFN tariff rates below 5 per cent, such as Australia, will see hardly any net benefits from offering preferential tariff rates, implying low utilisation rates should be

the case. Analysis of Australia's FTAs and PTAs, however, finds this to be the case only to a limited extent. Even low preferential margins of 2 per cent in the case of the Australia-United States Free Trade Agreement (AUS-FTA) are utilised. The disaggregated analysis that is presented in this chapter also reveals that the depth of utilisation is commodity specific. In some sectors, average preference margins as low as 0.2 per cent are utilised, whereas in other sectors average preference margins of more than 3 per cent are not. It is also important to consider the overall monetary benefit instead of pure preference margins. With changes in the size of a shipment, the relative costs of claiming preferential treatment change, as do the relative preferences.

The research of this chapter draws on conclusions of previous work on the utilisation of Australia's trading agreements by Pomfret, Kaufmann, and Findlay (2010a, 2010b) and Kaufmann, Pomfret, and Findlay (2013) in which I performed all the statistical analysis of the utilisation rates. Even though it draws on previous research, this chapter presents new research as it provides evidence of the utilisation rates for Australia's regional and bilateral trading arrangements over the period 2000 to 2009 from the analysis of high-quality Harmonized System (HS) HS 6-digit disaggregated customs data and therefore adds significantly to the literature.

In the next section, Section 3.2, the chapter provides an outline of Australia's FTAs and PTAs. Section 3.3 discusses the data used and different measurements of the utilisation of PTAs. Section 3.4 provides evidence of the utilisation rates of Australia's PTAs and RTAs at the aggregated trade level and an analysis. Observations from a disaggregated data analysis are presented in Section 3.5, followed by conclusions in Section 3.6.

3.2 Australia's FTAs and PTAs

Table 3.1 provides an overview of Australia's FTAs and PTAs. The table provides the name of the specific trade agreement and the year the trade agreement entered into force. In some cases, the negotiations for the trade agreements have not been completed yet (an * in the table indicates the year when the negotiations were officially launched). The table further presents the type of the trade agreement (multilateral, bilateral, or regional), the trading partners, and their total trade with Australia. The following two subsections review the non-reciprocal trade agreements and the regional and bilateral FTAs that entered into force before 2009.

3.2.1 Australia's non-reciprocal PTAs

In 1966, Australia became the first country to implement a GSP tariff scheme that offered preferential market access to developing countries (Sekkel, 2009; UNCTAD, 2000). The system aimed to support goods from developing countries over products from developed economies by offering preferential tariff rates on a unilateral, non-contractual, and non-reciprocal basis that are below the applied MFN tariff rates. With its early proactive initiative, Australia followed the conclusions of GATT Part IV[2] of 1965/66 and implemented the Australian System of Tariff Preferences (ASTP) before the UNCTAD suggested the establishment of a GSP system in 1968 and well before the full official GSP waiver was granted by GATT in 1971 (Manchin, 2005).

[2] GATT Part IV focussed on helping and advancing developing countries to overcome trade and development disadvantages compared to developed countries. GATT Part IV came legally into force in June 1966 after being introduced in February 1965; for further information, see Official Year Book of the Commonwealth of Australia No. 62 - 1977 and 1978.

Table 3.1: Overview of Australia's preferential trading schemes

Name	Year	Reciprocity	Type	Trading partner	Trade (billion A$)
Australian GSP	1966	No	Multilateral	Developing Countries and LDCs, special list of eligible countries	Imports: N/A Exports: N/A
PATCRA	1977	Yes	Bilateral	Papua New Guinea	Imports: N/A Exports: N/A
SPARTECA	1981	No	Regional	14 Pacific Forum Island countries	Imports: 16.3 Exports: 14.8
CER	1983	Yes	Bilateral	New Zealand	Imports: 10.6 Exports: 11.0
SAFTA	2000	Yes	Bilateral	Singapore	Imports: 18.2 Exports: 9.5
TAFTA	2005	Yes	Bilateral	Thailand	Imports: 10.7 Exports: 7.7
AUS-FTA	2005	Yes	Bilateral	United States	Imports: 39.3 Exports: 14.9
Chile/AUS-FTA	2009	Yes	Bilateral	Chile	Imports: 0.7 Exports: 1.2
AANZFTA	2010	Yes	Regional	ASEAN members plus New Zealand	Imports: 63.7 Exports: 46.3
AUS/MLY-FTA	2013	Yes	Bilateral	Malaysia	Imports: 9.9 Exports: 6.1
AUS/ROK-FTA	2014	Yes	Bilateral	Republic of Korea	Imports: 7.6 Exports: 25.0
Agreements under negotiation (the year indicates the begin of negotiation)					
AUS/CH-FTA	2005*	Yes	Bilateral	People's Republic of China	Imports: 43.9 Exports: 77.1
AUS/JAP-FTA	2007*	Yes	Bilateral	Japan	Imports: 20.1 Exports: 52.4
AUS/GCC-FTA	2007*	Yes	Regional	Gulf Cooperation Council	Imports: 5.6 Exports: 5.4
PACER Plus	2009*	Yes	Regional	14 Pacific Forum Island countries and New Zealand	Imports: 16.3 Exports: 14.8
AUS/INO-FTA	2010*	Yes	Bilateral	Indonesia	Imports: 6.7 Exports: 8.2
TPP	2010*	Yes	Bilateral	Trans-Pacific	Imports: 84.2 Exports: 45.5
AUS/IND-FTA	2011*	Yes	Bilateral	India	Imports: 3.0 Exports: 17.4
RCEP	2012*	Yes	Regional	Regional Comprehensive Economic Group ASEAN + 6	Imports: 146.3 Exports: 220.6

Source: Australian Government, Department of Foreign Affairs and Trade (2013).

According to the latest available information from Sekkel (2009), today, the Australian GSP covers about 187 customs territories. Since its establishment, the ASTP has been reviewed, revised, and extended in the form of product coverage, preferential tariff margins, and eligibility. The scheme was overhauled, simplified, and extended to all dutiable goods for developing countries under the Developing Country tariff rate in a major reform in 1986. In 1991, Hong Kong, the Republic of Korea, Singapore, and Taiwan were identified as 'developing countries' under the Australian GSP that have progressed sufficiently to graduate from the Developing Country tariff rate into the Special Rates for Selected Economies (SRSE) preference scheme under the ASTP[3] that offers preferential tariffs on a reduced product coverage.

From 1994 onwards, the Australian government stated interest in phasing out the ASTP with the aim of focussing on Least Developed Countries (LDCs) and some Pacific Forum Island countries. However, in its actions the Australian government has been reluctant to remove countries from its GSP benefits and instead began to pursue bilateral preferential trading arrangements (e.g., with Singapore, Thailand, Chile, and the Republic of Korea).

In Section 12 of the Australian *Customs Tariff Act 1995* (Cth), the phasing out of the ASTP was organised. This was done by differentiating special tariff rates for classified countries and territories to which these apply. Special preferential tariff rates were set up for the Pacific Forum Island countries and LDCs. Furthermore, a country list was created for which the least-developed preferential tariff rates apply. According to the Australian *Customs Tariff Act 1995* (Cth), a DC tariff rate was defined for developing countries and territories and those to be treated as developing countries. Additionally,

[3] Singapore enjoyed preferential market access under the SRSE scheme until 2003 when the country entered into an FTA with Australia.

the Australian *Customs Tariff Act 1995* (Cth) specifies special rates for selected countries and territories such as the Developing Countries rates (for example for Chile and Thailand) and a DCT rate (for example Singapore).[4]

According to UNCTAD (2000) and the Australian *Customs Tariff Act 1995* (Cth), preferences under the ASTP are based on a 5 percentage point margin when the applied Australian MFN tariff is higher than or equal to 5 per cent. This implies that the applied MFN tariff is reduced by 5 percentage points (for example, a 5 per cent preferential tariff applies if the applied MFN tariff rates equals 10 per cent). If the applied MFN tariff is below 5 per cent, imports receive free preferential market access to Australia if the commodity is covered under the specific ASTP program.

In 2003, the Australian GSP program was further revised to offer more generous tariff preferences in the form of product coverage to LDC countries. Lippoldt (2006) states that in 2004 imports under the DC tariff preference scheme under the Australian GSP exceeded 75 per cent of total 2004 Australian GSP plus Pacific Forum Island countries imports (around A$19.3 billion).[5] The SRSE preferential market access is the second most applied preference scheme. Since Singapore, by far the largest trading partner in this category, changed its market access to Australia to FTA status in 2003, however, imports as a percentage of total Australian GSP (plus Pacific Forum Island countries) imports fell from around 22 per cent in 2002 to around 2 per cent in 2004. For the same

[4] DC, DCS, and DCT are sub-categories of Australian preferential tariff rates for developing countries as defined in http://www.customs.gov.au/webdata/resources/files/contentsintro.pdf

[5] Lippoldt (2006) categorises the Australian preferential market access scheme of the South Pacific Regional Trade and Economic Cooperation Agreement (SPARTECA) as part of the Australian GSP. Under his calculation, the Pacific Forum Island countries' imports made up less than 1 per cent of total imports under the Australian GSP in 2004. He further states that imports under the Developing Country tariff preference scheme more than doubled between 1996 and 2004 and ranged between 33 and 40 per cent of total Australian imports throughout this time period.

year, Lippoldt (2006) reports that import flows under the LDC preference scheme amounted to about A$23 million or 0.1 per cent of Australian GSP.

In 1981, Australia offered more generous non-reciprocal tariff preferences to Pacific Forum Island member countries of the Pacific Forum Island Secretariat.[6]

The establishment of the South Pacific Regional Trade and Economic Cooperation Agreement (SPARTECA) was seen as a valuable move as it extended coverage of products such as garments and textiles, clothing, and footwear, which are largely excluded from the Australian GSP scheme, to the Pacific island member countries. Additional tariff preferences are granted under the 1991 Papua New Guinea Australia Trade and Commercial Relations Agreement II (PATCRA II).[7]

As part of the Australian and New Zealand initiative to deepen trade, economic, and investment relations with the Pacific Forum Island countries, the Pacific Agreement on Closer Economic Relations (PACER) was signed in 2001. PACER came into force in 2002 with a commitment by all members to commence negotiations towards an FTA by 2011 at the latest, a deadline that has not been reached. In August 2008, due to the unpopularity of the originally envisaged FTA a, 'PACER Plus' RTA was advocated by Australia. PACER Plus negotiations commenced in October 2009. Since then, the Pacific Islands Forum Secretariat Trade Ministers held several PACER Plus meetings, taking on several topics and decisions relating to the negotiations of RTAs such as the creation of an independent Office of the Chief Trade Adviser (OCTA). OCTA aims to assist Pacific Forum Island countries on PACER Plus matters. Several meetings were

[6] Under SPARTECA, Australia grants preferences to the 14 Pacific Forum Island Secretariat member countries, namely the Cook Islands, Fiji Islands, the Federated States of Micronesia, Kiribati, Nauru, Niue, Papua New Guinea, the Republic of the Marshall Islands, the Republic of Palau, Samoa, the Solomon Islands, Tonga, Tuvalu, and Vanuatu. The agreement officially came into force in June 1982.

[7] PATCRA came into force in February 1977. Benefits under the program are included in SPARTECA.

held such as in November 2011 with a focus on customs procedures and rules of origin as well as regional labour mobility.[8]

3.2.2 Australia's regional and bilateral FTAs

The Australia-New Zealand Closer Economics Relations Trade Agreement (CER) is Australia's most comprehensive preferential trading arrangement. Bilateral trade relations with New Zealand date back to a first agreement signed in 1922.[9] The CER of 1983 was an extension of the limited New Zealand-Australia Free Trade Agreement of 1965 (which came into force in 1966) and provides much deeper trade and economic integration (McLean, 1995). The CER can be seen as a living trade agreement that pursues a single cross-Tasman economic market and is therefore often referred to as a benchmark for RTAs and FTAs.[10]

The Singapore-Australia Free Trade Agreement (SAFTA) of 2003 was a direct result of the 1990s policies of the Australian government to phase out tariff preferences of more advanced countries receiving preferential market access under the ASTP. Instead of further reducing preferential market access for Singapore – in 1991, Singapore graduated from receiving preferential market access under the general developing country tariff rates to the SRSE tariff preference scheme – the Australian government pursued stronger bilateral trade and economic relations.

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[8] December 2011 Update on PACER Plus negotiations, Department of Foreign Affairs and Trade, Australian Government.

[9] Australia also applied PTAs within the British Commonwealth. In the 1960s, however, following the United Kingdom's applications to join the European Communities, these lost importance. The 1960 Canada-Australia Trade Agreement offered limited tariff preferences, but multilateral tariff reductions that have been negotiated in the WTO have superseded these. The Australian and Canadian governments are currently reviewing options for deepening trade relationships between the two countries.

[10] Scollay, Findlay, and Kaufmann (2011) provide a detailed evaluation of CER and examine the development of the agreement to draw lessons for future trade agreements.

Following an official declaration by Singapore and Australia at the APEC Leaders' Meeting in Brunei Darussalam in November 2000, formal negotiations for an enhanced trading arrangement were initiated. The negotiations, which took 10 rounds during April 2001 and October 2002, were finalised with the signing of the SAFTA in February 2003. After parliamentary approval and diplomatic notes exchange, the agreement entered into force in July 2003. The SAFTA is somewhat special, considering that Australia already enjoyed tariff-free market access to Singapore and Singaporean preferential access under the Australian GSP regime. Accordingly, the trade agreement was set up to further and strengthen goods and services trade and economic and investment relations between the two trading partners. Under the trade agreement, tariffs have been eliminated completely, guaranteeing enhanced preferential market access for both countries. Besides trade in goods, the agreement covers the service sector, including education, environmental services, internet and telecommunication services, and professional services. Additional strengths of the SAFTA are the joint work in competition policy and government procurement, intellectual property rights, e-commerce, trade facilitation in customs procedures, and business travel.[11]

Similar to the SAFTA, the 2005 Thailand-Australia Free Trade Agreement (TAFTA) and the 2009 Chile-Australia Free Trade Agreement (Chile/AUS-FTA) are also direct results of the Australian policy to phase out tariff preferences with trading partners receiving preferential market access under the ASTP. Instead of resulting in loss of market access for the beneficiaries, enhanced bilateral trade and economic relations were pursued.

[11] Singapore-Australia Free Trade Agreement (SAFTA), available at http://www.dfat.gov.au/trade/negotiations/australia_singapore_agreement.html

As Thailand was Australia's twelfth-largest trading partner, it was an interesting and important candidate for closer linkages. Back in 1997, a White Paper on Foreign and Trade Policy highlighted an increased emphasis on bilateral trade relationships with Thailand. First clear indications for a possible bilateral trading arrangement were raised at the APEC Meeting of Ministers of Foreign Affairs and Trade in June 2001. In July 2001, both countries agreed to investigate the possibilities for a TAFTA with the undertaking of a joint study. The aim was to investigate how a WTO- and APEC-consistent trade agreement could be implemented. The study was concluded in May 2002 and found significant potential for Australia and Thailand in forming a comprehensive FTA. At the end of May 2002, formal negotiations were launched, which were concluded successfully in October 2003. The TAFTA officially entered into force in January 2005. According to information from the Department of Foreign Affairs and Trade (2012), total trade between Australia and Thailand has increased significantly and has more than doubled since the TAFTA entered into force in 2005.

Chile and Australia agreed on pursuing negotiations for a bilateral trading arrangement in December 2006. Official negotiations were initiated in mid-2007 and were finalised in May 2008. The Chile/AUS-FTA entered into force in March 2009. Even though Chile is a relative small trading partner with Australia, according to information from the Department of Foreign Affairs and Trade (2012), Chile is Australia's third-largest trading partner in the Latin American region and Australia ranks as the fourth-largest foreign direct investor in Chile, underlining the relative importance and interest of both countries in pursuing this bilateral trading arrangement.

3.3 Data and measurement of utilisation

Data on utilisation rates are not freely publicly available for Australia's FTAs and PTAs. However, the Australian Customs Service (ACS) of the Australian Government does collect detailed data on customs clearance of trade entering Australia by country of origin, by preference code, and by Harmonized Tariff Classification. It was possible to access highly detailed customs value data compiled by the Australian Bureau of Statistics (ABS). The report consists of HS 6-digit level imports that enter Australia at the MFN tariff rate and imports that enter Australia at a preferred tariff rate according to the preferential tariff scheme. The data set covers the period 2000 to 2009 on a quarterly basis. The data have been aggregated to annual data.

There are many different ways to calculate the utilisation rate for trading arrangements. Hayakawa, Kim, and Lee (2013) find that in academic studies the definition of utilisation rates of FTAs varies. Some studies use the definition of trade under the specific FTA as a ratio of trade under the specific FTA to total trade between the particular trading partners. Other studies only focus on trade with a positive tariff preferential margin. Hayakawa, Kim, and Lee (2013) also identify studies that look at eligible firms and how many of these use the FTAs.[12] Additionally, some studies adjust for the fact that tariff preferences of trade agreements might not cover 100 per cent of the tariff lines and only focus on eligible trade – this issue becomes viable, especially when newly signed trade agreements are investigated that reduce tariffs over a particular period.[13] Furthermore, FTA member parties make use of GATT Article XXIV, which leaves room for the exemption of tariff lines in FTAs as it only asks for the

[12] For example, Kawai and Wignarraja (2008), in an Asian Development Bank (ADB) study, investigate how often firms make use of FTAs when trading with countries with which an FTA relationship exists.

[13] For example, when the AUS-FTA entered into force, only about two-thirds of tariff lines covering agricultural products and only 97 per cent of non-agricultural tariff lines were initially covered by the agreement.

liberalisation of 'substantially all trade'.[14] Furthermore, this definition differs slightly from the 'positive tariff preferences' definition as it includes zero-MFN tariff lines.

Each one of the above definitions has different benefits and the choice depends largely on the interest of the study. This study follows the discussion of Pomfret et al (2010) and Kaufmann et al (2011) by defining the raw utilisation rate as:

$$\frac{\textit{Value receiving preferential treatment}}{\textit{Total value of imports eligible for preferential treatment}} \tag{3.1}$$

With the HS 6-digit level data, the raw utilisation rate provides an opportunity to investigate whether low utilisation rates are due to the existence of zero-MFN tariff rates or whether low utilisation rates are found in specific categories. These categories might be excluded from the PTA or subject to complex rules of origin. Alternatively, there might be commodity-specific explanations for possible non-utilisation of trade.

Additionally to the raw utilisation rate (3.1), an alternative utilisation rate is put forward that adjusts for zero-MFN tariff rates. This is done under the assumption that if instead of a zero-MFN tariff a dutiable MFN tariff rate were to be levied, importers would make use of the preferences granted under the preferred trading scheme. This assumption is questionable but helps to correct for a potential zero-MFN tariff bias of low raw utilisation rates. Furthermore, this definition allows for the application of a graphical analysis to show the distribution of zero-MFN trade. The zero-MFN adjusted utilisation rate is therefore defined as:

$$\frac{\begin{array}{c}\textit{Value receiving preferential treatment}\\ \textit{+ zero-MFN tariff value not receiving preferential treatment}\\ \textit{but eligible for preferences}\end{array}}{\textit{Total value of imports}} \tag{3.2}$$

[14] The AUS-FTA will be fully implemented by 2022, but it will exclude sugar and selected dairy products.

Additionally, the study uses Australian customs duty data to analyse whether extensive duties are levied on imports to Australia. Therefore, two additional ratios are calculated, namely the ratio of customs duties to the value of imports (3.3) and the ratio of tariff revenue to import value (3.4), which are defined as follows:

$$\frac{\textit{Total customs duty collected from preferred trading partner}}{\textit{Total value of imports from preferred trading partner}} \tag{3.3}$$

$$\frac{\textit{Total tariff revenue collected from preferred trading partner}}{\textit{Total value of imports from preferred trading partner}} \tag{3.4}$$

The differentiation between (3.3) and (3.4) is undertaken as Australian customs duties include excise taxes additionally to import tariffs. This implies that the comparison between (3.3) and (3.4) provides evidence for potentially high excise taxation and low average applied tariff rates.

3.4 The utilisation rates of selected Australian PTAs and RTAs

Table 3.2 provides an overview of Australia's imports from its preferential trading partners of interest in this chapter. The table shows imports that have been claimed for preferential market access and total imports and presents the raw utilisation rates and zero-MFN adjusted utilisation rates for the year 2009 as defined in the previous section.

Table 3.2: Summary statistics of Australia's imports from PTA partners, 2009

	Total imports (million A$)	**Imports at preferential rate (million A$)**	**Imports not claimed for preferential treatment (million A$)**	**Raw utilisation rate**	**Adjusted utilisation rate**
New Zealand	6,559.99	3,312.79	3,247.20	50.6	95.2 – 98.6
Pacific Island Forum countries	3,080.33	98.59	2,982.29	3.2	99.3 – 99.8
Singapore	11,178.26	324.17	10,854.09	2.1	91.0 – 94.8
Thailand	11,626.97	4,883.33	6,743.64	41.0	76.0 – 78.8
United States	22,277.63	5,168.41	17,109.22	23.1	69.4 – 83.9
Chile	612.24	39.80	572.44	6.5	96.1 – 96.3

Notes:
i. The 'Raw utilisation rate' is derived as the ratio of 'Imports at preferential rate' to 'Total imports'.
ii. The 'Adjusted utilisation rate' is computed as the sum of 'Imports at preferential rate' and 'Imports subject to zero-MFN tariffs' divided by 'Total imports'.
iii. The 'Adjusted utilisation rate' reports the lower and upper bounds of imports paying zero-MFN tariffs according to HS 6-digit MFN tariff lines.

Sources: Author's calculations; Australian Bureau of Statistics (2010).

In 2009, the United States was by far Australia's largest importing trading partner among the countries of interest, with a trade volume of more than A$22 billion, followed by Thailand and Singapore with A$11.6 billion and A$11.2 billion, respectively. Ignoring the fact that the importing partner 'Pacific Island Forum countries' comprises 14 small island states, Chile was Australia's smallest importing trading partner, with about a A$600 million trade volume.

The table also shows that in 2009 imports from New Zealand entered Australia at the highest raw utilisation rate, with more than 50 per cent of the goods entering Australia under preferences of the CER. In that same year, Singapore had the lowest raw utilisation rate, with only 2.1 per cent of all imports from Singapore receiving SAFTA preferences.Table 3.3 reports the average applied customs duties and average applied

tariff rates on Australia's imports from its preferred trading partners in 2009. The reason for this differentiation is that the data on 'total customs duty collected' is biased by excise duties on alcoholic beverages and tobacco. As this study aims to investigate if importers take advantage of Australia's preferential market offers, customs revenue collected from MFN tariffs and excise duties on alcoholic beverages and tobacco need to be separated. The results indicate that the agreements neither involve tariff nor duty-free entry into Australia; see columns 4 and 5 of Table 3.3.

Table 3.3: Average applied customs duties and tariffs on Australia's imports from PTA partners, 2009

	(1)	**(2)**	**(3)**	**(4)**	**(5)**		
	Total imports (million A$)	**Total customs duty collected (million A$)**	**Total tariff revenue collected (million A$)**	**Average applied customs duty (2)/(1)**	**Average applied tariff (3)/(1)**	**Average Australian MFN tariffs (simple average)**	**Average Australian applied trade weighted tariffs**
CER	6,559.99	403.33	6.81	6.15	0.11	3.16 – 3.70 (3.57)	5.5
SPARTECA	3,080.33	4.01	1.78	0.13	0.06		
SAFTA	11,178.26	147.41	126.72	1.32	1.13		
TAFTA	11,626.97	50.05	41.29	0.43	0.35		
AUS-FTA	22,277.63	635.44	76.87	2.85	0.35		
Chile/AUS-FTA	612.24	0.98	0.86	0.16	0.14		

Notes:
i. The 'Average applied customs duty' is derived as the ratio of 'Total customs duty collected' to 'Total imports'.
ii. The 'Average applied tariff' is computed as the ratio of 'Total tariff revenue collected' divided by 'Total imports'.
iii. The 'Average Australian MFN tariffs (simple average)' and the 'Average Australian applied trade weighted tariffs' are derived from the World Trade Organization (2011).

Sources: Author's calculations; Australian Bureau of Statistics (2010); World Trade Organization (2011).

In more detail, in 2009, Singapore faced the highest average applied tariff rate, with 1.13 per cent, compared to an average applied duty of 1.32 per cent. The lowest average applied tariff rate was paid by the group of Pacific Forum Island countries, with 0.06 per cent (0.13 per cent customs duty). The largest difference between customs duty and tariff duty was recorded for imports from New Zealand. The country had the highest average applied customs duty, with 6.15 per cent, but the analysis shows that the average applied tariff rate was only 0.11 per cent. This implies that less than 2 per cent of the total duty paid is tariff duty. Similar results are revealed for the other trading partners.

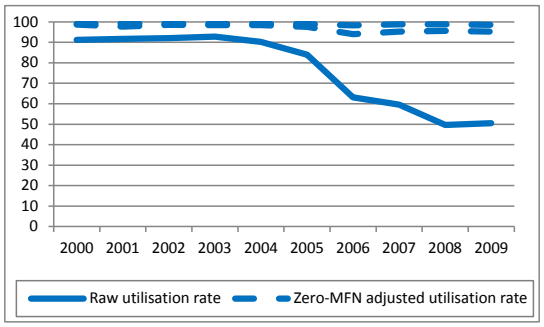
Figures 3.1 and 3.2 summarise the development of the main indicators of interest in this chapter, namely the utilisation rates and the average applied tariff rates for each of the six preferred trading arrangements. Following Kaufmann et al (2011), Figure 3.1 presents the raw utilisation rate as a percentage of all imports from the preferred partner (shown as a solid line) and as the zero-MFN tariff rate adjusted utilisation rate as a percentage of all dutiable imports (shown as a dashed line).[15] To indicate clearly the year that the specific trade agreement entered into force, a vertical grey line in the specific panel of Figure 3.1 (panels a to f) is included. There are no vertical lines included for the CER and the SPARTECA, as the trade agreements entered into force before the year 2000.

The results for the aggregated trade (HS01-97) show that Australia's most comprehensive PTA, the CER, has the deepest integration, as presented by panel a) of Figure 3.1. The results do, however, also indicate that it is not a complete FTA.

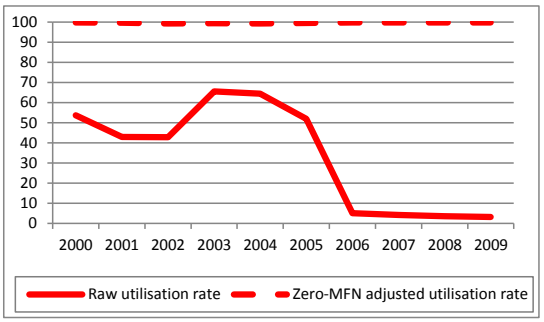
[15] The tariff data are not congruent with HS 6-digit categories, which in a few cases contain both dutiable and tariff-free goods. These mixed categories show up in Figure 3.1 in the two dashed lines. The lower line assumes no imports in the mixed HS 6-digit categories entered duty free, and is a lower-bound, zero-tariff-adjusted utilisation rate. The upper dashed line, which assumes all imports in the mixed HS 6-digit categories entered duty free, is an upper-bound, zero-tariff-adjusted utilisation rate.

Figure 3.1: Utilisation rates of Australia's PTAs, 2000-9

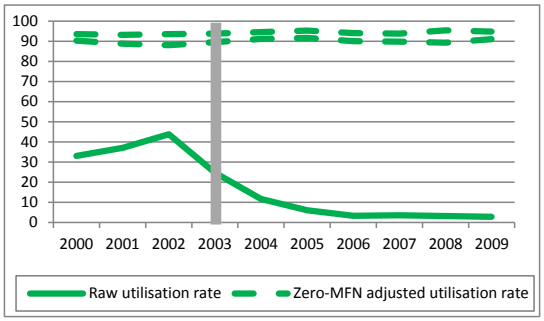
a) CER



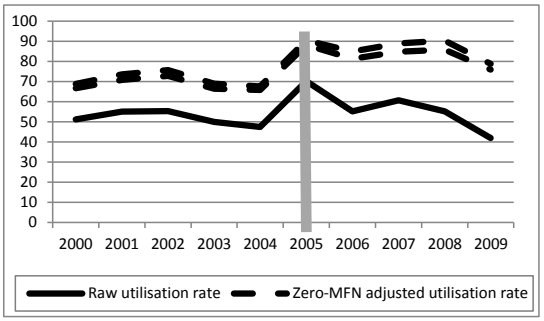
b) SPARTECA



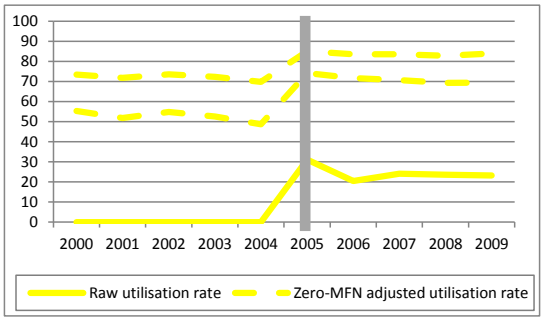
c) SAFTA



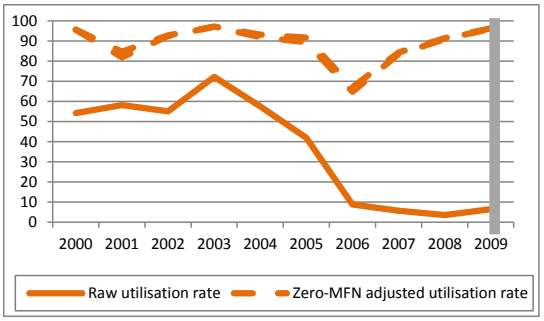
d) TAFTA



e) AUS-FTA



f) Chile/AUS-FTA

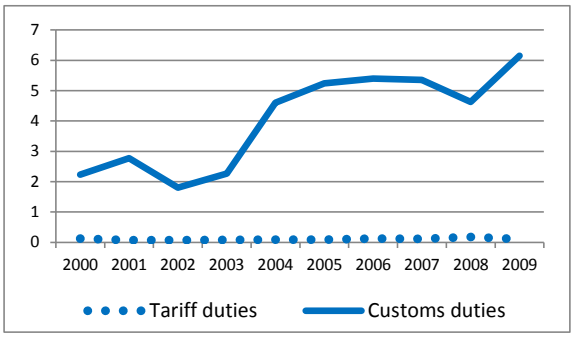


Note: The vertical line indicates the date when the agreement came into force.

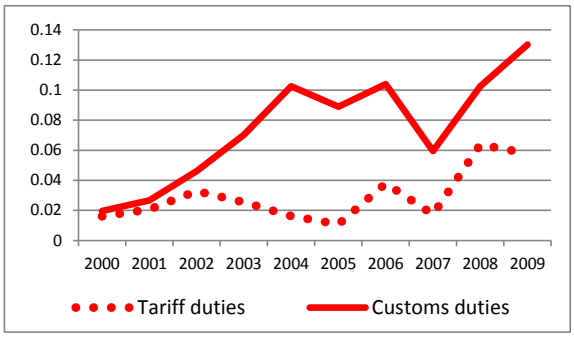
Source: Author's calculations.

Figure 3.2: Average applied customs duties and tariffs of Australia's PTAs, 2000-9

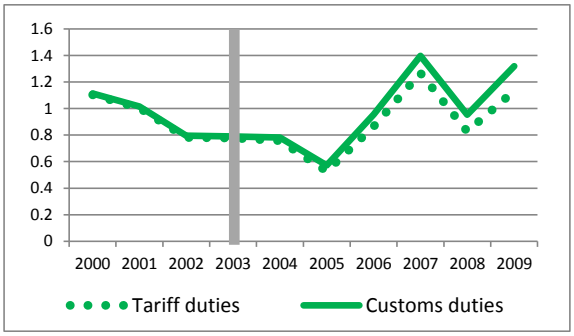
a) CER



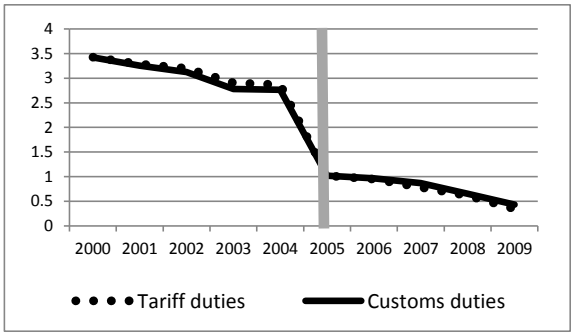
b) SPARTECA



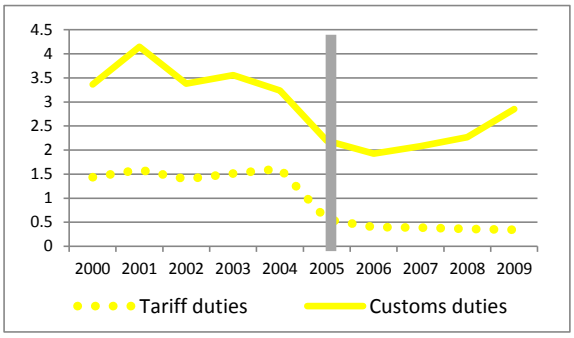
c) SAFTA



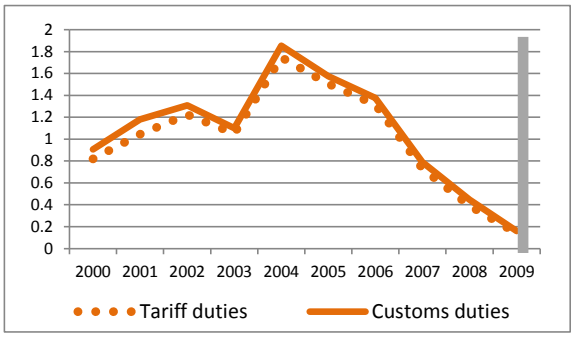
d) TAFTA



e) AUS-FTA



f) Chile/AUS-FTA



Note: The vertical line indicates the date when the agreement came into force.

Source: Author's calculations.

Over the period 2000 to 2004, the raw utilisation rate averages about 90 per cent. It falls significantly in the following years (2005 to 2008) to only 50 per cent in 2009. The dotted lines indicate that much of the non-utilisation was due to imports of commodities with a zero-MFN tariff. Taking these into account, the zero-adjusted utilisation rate was close to 100 per cent between 2000 and 2004, and declined only slightly to 95 per cent in 2009. Therefore, even though the utilisation rate seems to have dropped significantly since 2004, the primary reason is found to be the large proportion of zero-MFN tariff exports from New Zealand into Australia.

Figure 3.2 (Panel a) indicates that imports of alcoholic beverages and tobacco commodities from New Zealand increased significantly after 2003, which is also the main cause of increasing raw duty revenues since 2003 as the adjusted average tariffs (which were about 0.1 per cent) insignificant. Table 3.4 shows that the high average applied customs duties on these exports from New Zealand are allocated from excise taxes on a limited number of products. The table shows that these are, for example, cigarettes and tobacco, with A$344 million in duties in 2009, and alcoholic beverages, with A$52 million in duties that year out of the total duties collected on New Zealand exports of A$403 million. Taking these excise duties into account, the excise-duty-adjusted average applied tariff rate stood at only 0.11 per cent.

Panel b) of Figure 3.1 shows that the raw utilisation rate for the Pacific Island Forum countries averaged between 40 and 65 per cent between 2000 and 2005. The utilisation rate saw a significant drop in 2006 to about 5 per cent and it continued to fall to just 3.2 per cent in 2009. This is a surprising observation considering that the countries should have benefitted widely from the preferential and tariff-free entry to Australia.

Table 3 4: Customs duty collected on imports from New Zealand, 2009

HS	Commodity	Value of duty (million A$)
240220	Cigarettes	169.11
240310	Tobacco	175.12
220860	Vodka	19.20
220890	Other distilled alcoholic beverages	17.88
220850	Gin	7.26
220300	Beer made from malt	6.80
220870	Liqueurs and cordials	0.78
	Total of above categories	**396.15**
	All imports	**403.33**

Source: Australian Bureau of Statistics (2010).

The data do, however, also show that the zero-MFN-adjusted utilisation rate ranges between 98.9 and 99.8 per cent. This implies that virtually all imports from the Pacific Forum Island countries to Australia are zero-MFN tariff products. This implies that the reason for the development of overall low raw utilisation rates since 2006 is found to be a trade composition effect – Australia reduced significantly its applied MFN tariff rates on commodities that are also imported from the SPARTECA members.

Australian customs duty revenue on SPARTECA imports has increased insignificantly throughout the decade. Panel b) of Figure 3.2 shows that total average applied duties increased from 0.02 per cent in 2000 to 0.13 per cent in 2009, mainly due to higher excise tax collection as the adjusted average applied tariffs remained relatively stable and below 0.07 per cent. In 2009, A$4 million of customs duties were collected, with more than A$2 million in excise taxes on A$3 billion of imports.

As discussed earlier, the Australian government's policy of the mid-1990s was twofold. On the one hand, more advanced developing countries were planned to be phased out from the Australian GSP, but on the other hand, the Australian government wanted to

avoid significant loss of preferential market access for these potential candidates. Instead, the aim was to improve economic and trade relations by establishing stronger bilateral trade arrangements. For Singapore, Thailand, and Chile, this implied continued broad preferential market access that can be identified by the positive raw utilisation rates of these countries prior to entering into reciprocal PTAs with Australia.

The analysis of the specific pre-PTA Australian preferences granted shows that Singapore, Thailand, and Chile have received broad preferential market access. The raw utilisation rates of these countries have ranged between 30 and 45 per cent for Singapore (2000 to 2002), between 48 and 58 per cent for Thailand (2000 to 2004), and between 3 and 73 per cent for Chile (2000 to 2008). Adjusting for zero-MFN tariff rate imports from the specific countries, however, sees much stronger utilisation rates. The relatively large amounts of zero-MFN tariff imports also explain why the raw utilisation rate for Chile was only 3 per cent in 2008.

A more detailed analysis shows that in combination with the expansion of Australian applied zero-MFN tariffs, in essence, Singapore experienced a loss in preferential tariff market access to Australia after the SAFTA entered into force. Since 2003, the raw utilisation rate for imports from Singapore declined to less than 3 per cent in 2009. However, adjusting for zero-MFN tariff rates shows a similar result in the form of strong utilisation rates throughout the decade. This also indicates that the SAFTA did not have any significant effect on preferential market access; see panel c) of Figure 3.1. Nevertheless, one could argue that the slight increase in the zero-adjusted-MFN utilisation rate from around 90 per cent to more than 95 per cent was SAFTA driven.

Panel c) of Figure 3.2 shows that the average applied customs duties collected on Singaporean exports to Australia reveals a mixed result. Customs duties have dropped

with the formation of the SAFTA from 1.1 per cent to below 0.6 per cent in 2005. The average duties recovered to 1.3 per cent in 2009. The excise tax contribution, with less than 0.2 per cent in 2009, is rather insignificant. This suggests that the zero- and low-MFN tariffs trade composition of Singaporean exports leads to the relative insignificance of tariff preferences.[16] This becomes even clearer when considering that about 15 per cent of all customs duties collected are in the form of excise taxes. This further indicates that it is unlikely that preferential tariffs were of much concern and interest to the majority of Singaporean exporters to Australia considering that pre-SAFTA average applied tariffs were less than 1 per cent.

Similar to Singapore, Chile was also affected by a decline in preferential market access due to the increase in Australian zero-MFN tariff rates. Panel f) of Figure 3.2 shows that Chile's raw utilisation rate was at peak with 72 per cent in 2003, but fell to 6.5 per cent in 2009. The panel also shows, however, that most imports from Chile into Australia were at zero-MFN tariff lines. The zero-MFN adjusted utilisation rate stood at around 96 per cent in 2009. The relative low result of 2006, with only 65 per cent, is likely the result of trade composition effects and low overall trade. The average applied tariff on imports from Chile between 2004 and 2009 fell from 1.8 per cent to below 0.2 per cent. Therefore, with average applied tariffs of less than 1 per cent after 2007, there is hardly any FTA effect visible; see panel f) of Figure 3.2.

For Thailand, the utilisation rate increased after the TAFTA entered into force, even though it was just on a small scale. The TAFTA is also a perfect example of Australia's strategy to increase bilateral relations by phasing out developing countries' preferential market access under the Australian GSP without letting beneficiaries lose overall

[16] Contrast the United States; the value of United States exports to Australia in 2009 was less than double that of Singapore's exports, but the duty paid on imports from the United States was well over four times larger (Table 3.2).

preferential market access. Therefore, the TAFTA gives Thailand stronger and clearer guarantees of preferential market access to Australia than was the case under the Australian GSP, under which Australia could withdraw preferences any time. Additionally, the TAFTA deepens the market access and the economic and trade integration, which can be seen by the utilisation rates.

The raw utilisation rate for Australian imports from Thailand stayed close to 50 per cent prior to the TAFTA. It reached its peak in 2005, the year that the TAFTA entered into force, with about 70 per cent, and fell to only 41 per cent in 2009; see Panel d) of Figure 3.1. It is likely that the peak in 2005 was due to a marketing and publicity effect from the TAFTA, but it did not have a long-run impact on utilisation rates. The decline since 2006 can be attributed to an increase in applied zero-MFN tariff lines of Australia. The analysis underlines this point, as the zero-adjusted-MFN tariff utilisation rate increased from below 70 per cent in 2004 to around 90 per cent in 2008. In 2009, the adjusted utilisation rate declined to around 77 per cent, indicating that not all preferences are taken advantage of. As Panel d) of Figure 3.2 shows, however, the applied average tariff rate has dropped significantly since the TAFTA entered into force – the analysis shows applied tariff rates plummeting from about 2.8 per cent in 2004 to 1 per cent in 2005. The rates further declined to less than 0.5 per cent in 2009. The initial decline was due to extended tariff preferences under the TAFTA – according to the Australian Department of Foreign Affairs and Trade (DFAT, 2011),[17] Australia has bound its tariffs on 3,080 tariff lines at the HS 8-digit level to zero for Thailand's Table products that accounted for about 36 per cent of Thailand's exports to Australian in 2004. Furthermore, Australia eliminated tariffs on Thailand's commodities on an additional 2,003 tariff lines that accounted for about 47 per cent of 2004 Australian

[17] Key outcomes are available at http://www.dfat.gov.au/fta/tafta/key-outcomes.html

imports of Thai goods when the TAFTA entered into force.[18] This, in combination with the continuous unilateral reduction of Australian MFN tariff rates and in essence the increase in zero-MFN tariff rates, explains the significant decline of applied tariff rates on exports from Thailand into Australia.

Similar to the SAFTA and the SPARTECA, the TAFTA's post-2005 decline in the raw utilisation rate can be explained entirely by an increase in zero-MFN tariff-rated commodities. Evidence for that shows the zero-MFN-tariff-adjusted utilisation rate, which is significantly higher after 2005.[19] A positive impact of the TAFTA can be indicated from the continuous decline in tariff duties collected – revenues as a percentage of total imports from Thailand fell from about 3 per cent before the TAFTA to less than 1 per cent.[20]

Because the United States did not enjoy any preferential market access prior to the AUS-FTA, the raw utilisation rate for exports from the United States to Australia reveals the clearest evidence of an effect of preferential tariffs. The AUS-FTA entered into force in 2005 when the raw utilisation rate immediately increased to 31.1 per cent; see Panel e) of Figure 3.1. The utilisation rate declined to about 20 per cent in 2006 and remained between 20 and 25 per cent in the following years until 2009. The zero-MFN-adjusted utilisation rate does not, however, show a decline since 2006.

[18] According to DFAT (2012), in 2010, Australia phased out another 786 tariff lines to zero on Thai-originated products accounting for 13 per cent of 2009 imports from Thailand. The remaining 239 non-zero tariff lines (mostly apparel and textiles) covering 4 per cent of 2010 imports will be eliminated by 2015.

[19] The 10-20 per cent non-utilisation rate since 2005 in part reflects the staged introduction of Australian preferential tariff cuts under the TAFTA: 83 per cent of tariff lines in 2005; 96 per cent by 2010; and 100 per cent by 2015.

[20] If Thailand is a 'small country' whose exporters face perfectly elastic Australian import demand, then a Thai supplier receives the Australian domestic price minus the tariff. Any reduction in customs duty on imports from Thailand will be transferred from the Australian government to the Thai exporter, and in addition there will be a producer surplus on any new exports whose magnitude will depend on the exporters' responsiveness to the higher net price.

Table 3.5: Customs duty collected on imports from the United States, 2009

HS	Commodity	Value of duty (million A$)
220830	Whiskies	350.66
220860	Vodka	114.0
220840	Rum and other spirits	32.81
220870	Liqueurs and cordials	32.03
220300	Beer made from malt	21.25
240210	Cigars, cheroots and cigarillos	5.25
240220	Cigarettes	1.91
220890	Distilled alcoholic beverages	0.59
	Total of above categories	**558.50**
	All imports	**635.44**

Source: Australian Bureau of Statistics (2010).

Therefore, similar to the other preferential agreements outlined above, the analysis shows that the main reason for the decline in raw utilisation rates since 2006 can be attributed to an increase in Australian zero-MFN tariff lines. The zero-MFN-adjusted utilisation rate increased from between 48 and 70 per cent in 2004 to between 70 and 84 per cent in 2009.

Panel e) of Figure 3.2 provides strong evidence of a positive impact of the AUS-FTA preferential tariff rates in the form of a significant decline in average applied tariff rates. The average tariff rates declined from 1.6 per cent in 2004 to below 0.4 per cent in 2009. These findings are somewhat surprising since the AUS-FTA's main focus was on indirectly trade-related topics such as copyright issues and pharmaceutical patents, and received critical reviews for the overall absence of significant tariff reductions. As outlined earlier, preferential tariff margins are set at a 2 per cent level. Following the effect of preferential tariffs, total customs duty revenues on United States exports to Australia declined. Furthermore, as Table 3.5 indicates, in 2009, whiskies and vodka and other selected alcoholic beverages and tobacco accounted for more than 85 per cent of these customs duties collected on excise taxes for imports from the United States.

3.5 Observations from a disaggregated data analysis

This section provides an overview of observations of a disaggregated analysis. The analysis is carried out over the 21 sections as defined by the United Nations International Trade Statistics and outlined in Table 3.6. The table also presents the specific chapters according to the HS and their description as defined by the World Customs Organization (WCO). With the help of the disaggregated analysis, this section discusses and analyses some main observations of the raw utilisation rates of the specific trading arrangement with the aim to provide insights into potential reasons for low utilisation rates. To preserve space, this part of the chapter merely aims to provide evidence that the utilisation rates of different products traded under Australia's FTAs and RTAs under consideration differ substantially. A complete and detailed analysis of all 21 sections with a full tabular and graphical analysis for the utilisation rates and the applied tariff rates can be reviewed in the Appendix to Chapter 3.

3.5.1 A disaggregated analysis of the raw utilisation rate – an overview

Figure 3.3 provides an overview of the raw utilisation rates of the six PTAs under investigation in this study by sections as defined in Table 3.6 for the year 2009.[21]

An initial look at Figure 3.3 reveals that the CER shows the deepest integration throughout the 21 sections. On the opposite end, the SAFTA shows on average the lowest utilisation rates.

[21] The Appendix to Chapter 3 provides a detailed analysis of the development of the utilisation rates over the period 2000-09 for each specific sector.

Table 3.6: HS classification by section and HS tariff chapters

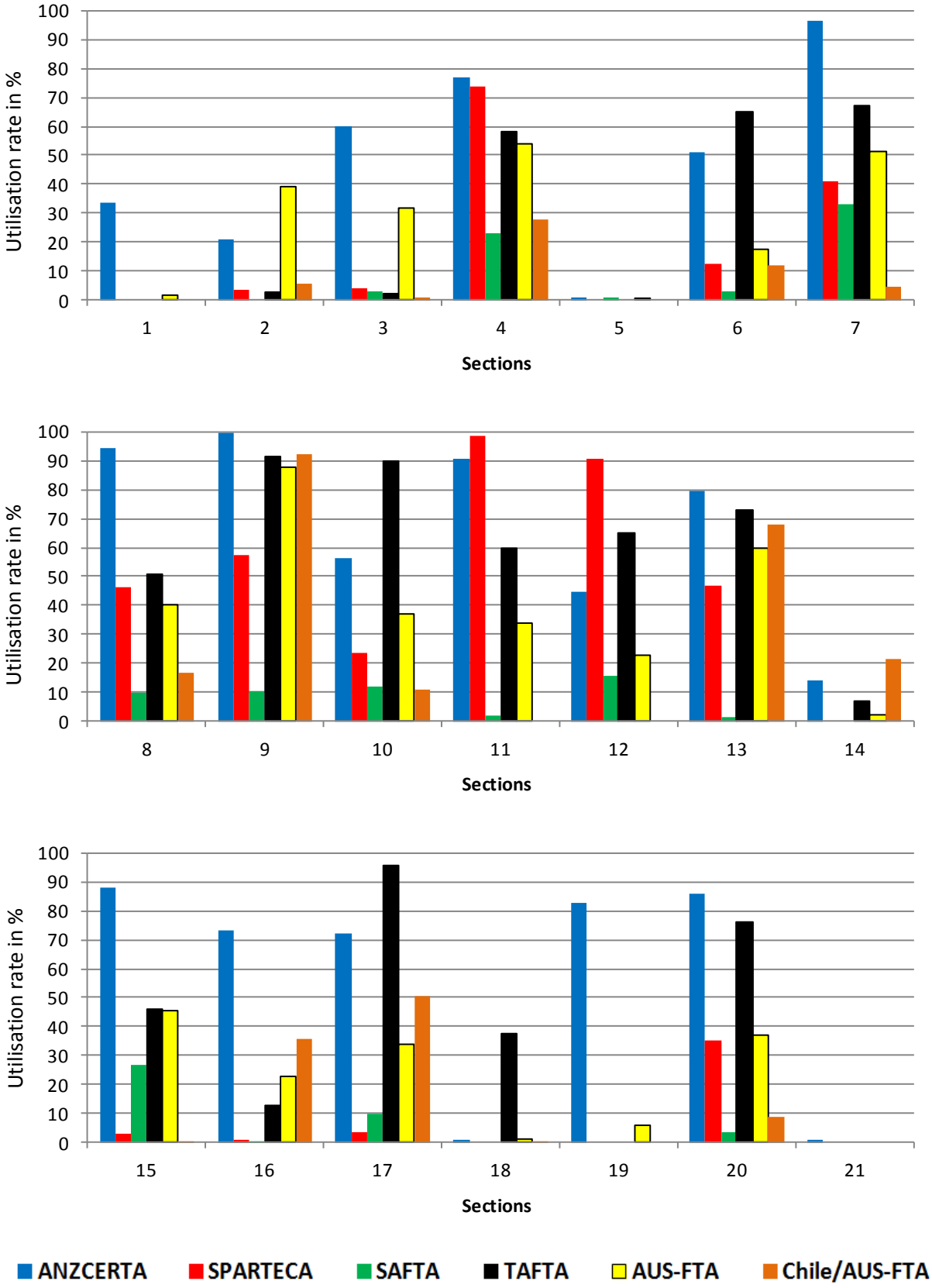
Section	HS tariff chapters	Description
1	01-05	Live animals; animal products
2	06-14	Vegetable products
3	15	Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes
4	16-24	Prepared foodstuffs; beverages, spirits and vinegar; tobacco and manufactured tobacco substitutes
5	25-27	Mineral products
6	28-38	Products of the chemical or allied industries
7	39-40	Plastics and articles thereof; rubber and articles thereof
8	41-43	Raw hides and skins, leather, furskins and articles thereof; saddlery and harness; travel goods, handbags and similar containers; articles of animal gut (other than silk-worm gut)
9	44-46	Wood and articles of wood; wood charcoal; cork and articles of cork; manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork
10	47-49	Pulp of wood or of other fibrous cellulosic material; waste and scrap of paper or paperboard; paper and paperboard and articles thereof
11	50-63	Textiles and textile articles
12	64-67	Footwear, headgear, umbrellas, sun umbrellas, walking-sticks, seat-sticks, whips, riding crops and parts thereof; prepared feathers and articles made therewith; artificial flowers; articles of human hair
13	68-70	Articles of stone, plaster, cement, asbestos, mica or similar materials; ceramic products; glass and glassware
14	71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal and articles thereof; imitation jewelry; coin
15	72-83	Base metal and articles of base metal
16	84-85	Machinery and mechanical appliances; electrical equipment; parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles
17	86-89	Vehicles, aircraft, vessels and associated transport equipment
18	90-92	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; clocks and watches; musical instruments; parts and accessories thereof
19	93	Arms and ammunition; parts and accessories thereof
20	94-96	Miscellaneous manufactured articles
21	97	Works of art, collectors' pieces and antiques

Source: United Nations International Trade Statistics (2010), available at http://unstats.un.org/unsd/tradekb/Knowledgebase/HS-Classification-by-Section

Furthermore, there are only some sectors with relatively high utilisation rates for the Chile/AUS-FTA; the reason for the low or zero or close to zero utilisation rates are found to be related to the low or zero trade volume. However, as discussed earlier, the low trade volume is a unique observation for the Chile/AUS-FTA. This implies that other factors drive high or low utilisation rates. Throughout the sections, with the exception of the SAFTA, relatively high utilisation rates are found for Section 9 (Wood and articles of wood, etc.) and Section 13 (Articles of stone, etc.). Also relatively high on average is the utilisation rate for Section 11 (Textiles and textile articles). Low utilisation rates are recorded for Section 1 (Live animals; animal products), Section 5 (Mineral products), Section 14 (broadly speaking, 'jewelry'), Section 18 (broadly speaking, 'optical and medical instruments'), Section 19 (Arms and ammunition, etc.), and Section 21 (Works of art, etc.).

A closer look at the average MFN tariff rates and the actual preferential tariff margins for 2009 shows that all high utilised sectors as listed above also have relatively high tariff rates and tariff margins. For example, Section 9 has a simple average MFN tariff rate of 3.3 per cent and shows preferential tariff margins between 3.7 and 5 per cent. Section 13 shows average preferential tariff margins ranging between 3.8 and 8.3 per cent and Section 11 up to 12.3 per cent. In comparison, the sectors with low utilisation rates (see list above) also have relatively low average MFN tariff rates and low preferential tariff margins; the average MFN tariff rates ranged between 0 and 1.4 per cent, with lower actual preferential tariff margins. These results indicate clearly a correlation between high utilisation rates and relatively higher preferential tariff margins and low utilisation rates and low preferential tariff margins.

Figure 3.3: Raw utilisation rates by sections for Australia's PTAs, 2009



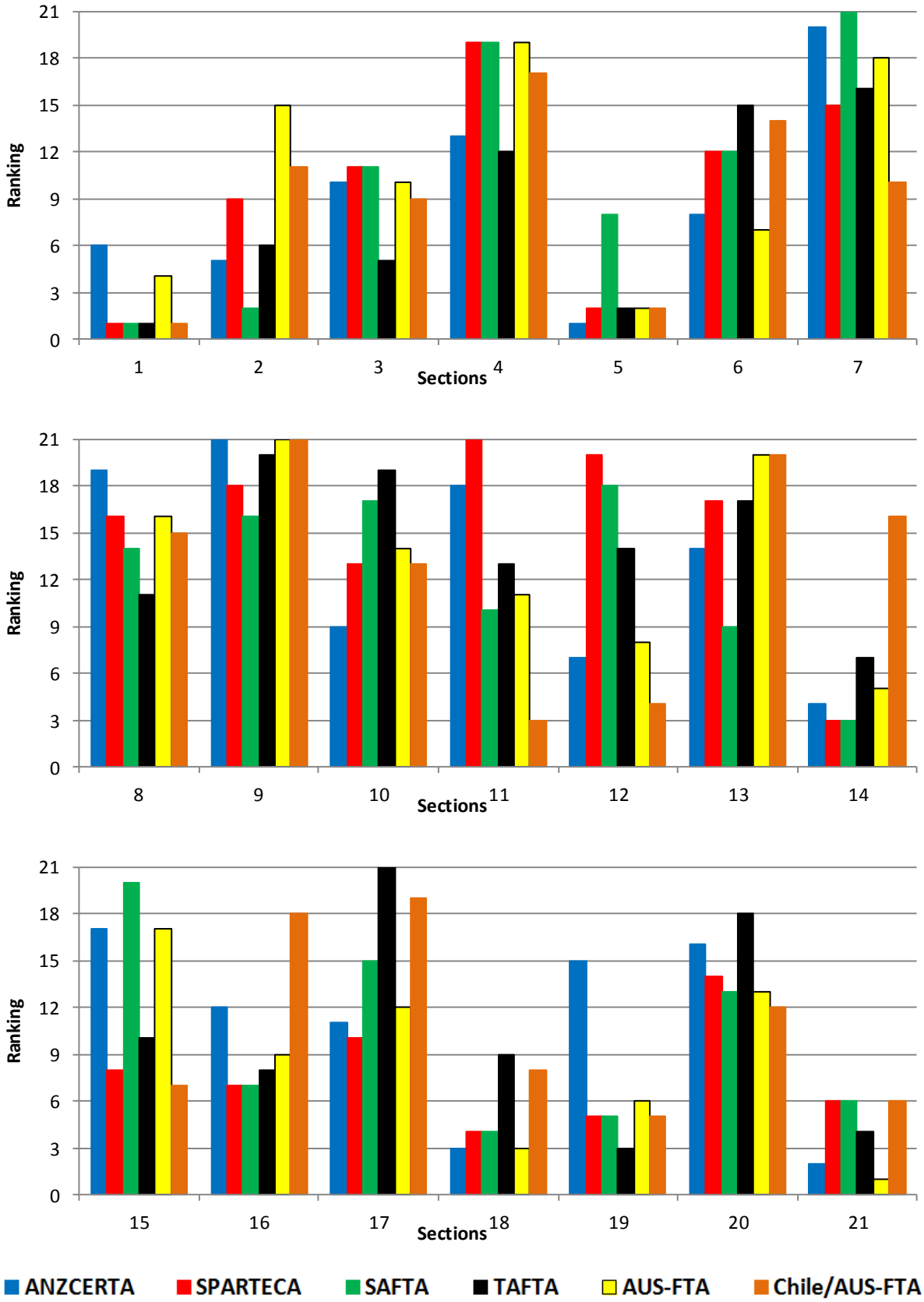
Source: Author's calculations.

A question that arose from these observations was whether there is also a common relationship of the ranking of the different sections according to their utilisation rate. Is it true that the specific sections are, on average, more utilised than other sections throughout the different agreements?

Therefore, in Figure 3.4, the ranking of the utilisation rates of each sector is presented, where the higher the rank, the higher the utilisation rate. As before, on average, the highest ranking is found for Section 9, underlining the previous result of Figure 3.3. The ranking also reveals, however, sections that did not appear initially to be, on average, highly utilised. All of these sections also show relatively high average MFN tariff rates and preferential tariff margins: Section 7 (Plastics, etc.) with an average MFN rate of 5.3 per cent; Section 8 (broadly speaking, 'raw hides and leather, etc.); with 4 per cent; and Section 20 (Miscellaneous manufactured articles) with 3.7 per cent. A rather surprising result is Section 4 (Prepared foodstuffs, etc.), where an average MFN tariff rate of only 2.65 per cent leads to relatively high ranking in the utilisation. On the lower ranks, Figure 3.4 confirms and matches the findings of Figure 3.3.

On the one hand, the results seem to confirm the result that higher preferential tariff margins are an incentive for exporters to claim for preferential treatment, leading to higher utilisation rates. On the other hand, it is interesting that some sectors with equally high preferential tariff margins do not show similar high utilisation rates. For example, Section 16 (Machinery and mechanical appliances, etc.) records average preferential tariff margins between 3.5 and 5 per cent throughout the agreements, comparable to similarly high preferential tariff margins in the sectors with high average utilisation rates as listed above. However, the utilisation rate for Section 16 is relatively low, as is the average rank (Figures 3.3 and 3.4).

Figure 3.4: Ranking of utilisation rates by section, 2009



Source: Author's calculations.

A similar mixed result is revealed for Section 15 (Base metal and articles of base metal). These results and the fact that the SAFTA has, with a 4.2 per cent actual average preferential tariff margin, a much higher incentive than for exporters under the TAFTA (an average preferential tariff margin of 2.8 per cent), but the fact that the SAFTA records much lower utilisation rates raises the question of what else might affect the utilisation of preferences. Product-specific ROO come into mind and the effect of trade volumes as evidence already indicated from the results of utilisation rates of the Chile/AUS-FTA.

3.6 Conclusions

The study of the six Australian PTAs of interest in this chapter indicates that traders do utilise well-publicised preferential tariffs. Furthermore, the disaggregated investigation reveals a stark difference among sectoral utilisation rates. The disaggregated analysis shows that traders in some sectors gained in a substantial way from the bilateral trade arrangements, indicated by significant increases in the utilisation rates. The same analysis also shows, however, that the utilisation rate declined for some sectors even though preferences were retained or even increased. At the aggregated level, over half of Australian imports in 2000 from each of New Zealand, the Pacific Island Forum countries, Singapore, Thailand, and Chile claimed preferential treatment. While New Zealand and the Pacific Forum Island Countries did so under the CER and the SPARTECA, respectively, Singapore, Thailand, and Chile benefitted from the Australian GSP. An interesting observation made is that even though these three economies entered into bilateral trading arrangements with Australia, their utilisation

rates declined. Under the TAFTA, Thailand's developing country status is retained. The TAFTA led to a slight decline in the raw utilisation rates, but the analysis also indicates that the PTA retained (roughly) the tariff preferences the country enjoyed under the Australian GSP. For Singapore and Chile, the bilateral agreements with Australia implied that their economic statuses of relatively high-income transitioning economies was taken into account. Combined with an increase in Australian zero-MFN tariff rates, both countries experienced a relative net loss in preferential market access from their PTAs with Australia. The analysis for Singapore and Chile shows that both countries saw their raw utilisation rates deteriorate. The disaggregated analysis also reveals that for Singapore all sectors saw a decline in the usage of the SAFTA, even though preferential tariff margins averaged up to 12 per cent.

Australia's continuing multilateral trade liberalisation contributed to the decline in utilisation rates. The analysis shows an increasing number of zero-MFN tariff lines. This, in combination with the reduction of other tariff rates to lower levels, made the claim for preferential treatment not worth troubling over. Chilean utilisation rates saw a decline primarily because of an increase in zero-MFN applied tariffs on most Chilean exports to Australia (slightly less than half of Chilean exports into Australia). Table 3.6 summarises Australia's applied tariff scheme for the year 2009 and also indicates that roughly half of Australian imports enter the country under zero-MFN tariff lines.

The analysis of this chapter also revealed some interesting anomalies in the data. The most obvious observation comes from imports from New Zealand. Here, utilisation rates decline while simultaneously an increasing and relatively high average applied customs duty is recorded. A further investigation showed that this is due to a handful of

commodities of the categories tobacco and alcohol being subject to relatively high Australian domestic excise taxes collected at the border. Table 3.3 summarises this in more detail for the year 2009. If these excise taxes are excluded, the average applied tariff rates for the CER remain at around 0.1% throughout the time 2000-9, indicating its deep integration.

On the whole, importers into Australia do utilise preferential tariffs, resulting in preferred trading partners paying lower applied tariff duties. The question that remains considering the ongoing proliferation of trade liberalisation is how large the economic impact is of average MFN tariff rates of only 4 per cent.

Table 3.1: Australia's applied tariff structure, 2009

Non-agricultural goods	**MFN tariff rate**	**Agricultural goods**
44.9 (52.2)	0	74.9 (48.1)
40.5 (36.0)	$0 < \tau \leq 5$	24.5 (47.8)
9.9 (9.3)	$5 < \tau \leq 10$	0 (0)
0 (0)	$10 < \tau \leq 15$	0.1 (0)
4.6 (2.3)	$15 < \tau \leq 25$	0.5 (4.1)
0 (0)	$\tau > 25$	0 (0)
0.1 (0.1)	Non-*ad valorem*	1.6 (4.1)

Notes: Australia had 5,985 distinct tariff lines in 2009 at the HS 6-digit level. The numbers in the first and last columns are the percentage of tariff lines (HS 6-digit) falling in the indicated range of MFN tariff rates. The numbers in parentheses are the shares of imports paying the applied tariff (2008 import weights); note that for agricultural goods, there is a discrepancy in the totals in the source. The simple average MFN applied tariff in 2009 was 3.5 per cent, and the trade-weighted average MFN tariff in 2008 was 5.5 per cent. Over the same period, for agricultural products (non-agricultural products), the simple average MFN applied tariff was 1.3 per cent (3.8 per cent) and the trade-weighted average MFN tariff was 2.9 per cent (5.6 per cent).

Sources: World Trade Organization (2011); World Tariff Profiles (2010, p. 34).

On the one hand, at the aggregated level, the data reveal little scope for ROO or other adverse 'noodle bowl'-type effects to have reduced the trade impact of tariff preferences. On the other hand, the disaggregated analysis does raise questions about the potential effect of non-tariff barriers to trade.

In conclusion, it is important to emphasise that positive utilisation rates show clearly that preferential tariffs do have an impact and do make a difference. At the margin, exporters who claim preferential treatment are better off than in a case in which there would be no preferences. At the same time, however, utilisation rates, especially at the aggregated level, provide little information on the impact on trade flows or on economic development. The disaggregated analysis shows some evidence for both the fact that preferential tariff margins are an incentive for traders to utilise them and also that traders may be discouraged by potential complex ROO or low trade volumes. However, this does not directly and clearly show up in the data. Similarly, there seems to be evidence that the simplification of procedures and general trade facilitation under a bilateral trading arrangement was of benefit for some traders. This is only signalled in the data at the disaggregated level and requires further trade-agreement-specific analysis on ROO, the development of preferential tariff margins, and the trade flows among the trading partners.

It is also worth mentioning that measures such as utilisation rates and the reductions of average applied tariff rates can only provide a partial indication of the impact of a bilateral trading agreement. For example, one of the interesting features of post-2000 Asia-Pacific region trade agreements is not the aim to create traditional PTAs with zero preferential tariff rates among members. Instead of focussing on the reduction or elimination of tariffs, a much larger concern is on specific obstacles and barriers to

bilateral trade, especially in the form of regulatory regimes or administrative and bureaucratic procedures.[22]

The inconclusive results of the aggregated and disaggregated analysis and of Figures 3.3 and 3.4 raise the question of whether ROO indeed play a role and may help in explaining the utilisation rates in more detail. Therefore, the next chapter takes a closer look at ROO and the product-specific ROO schemes in Australia's bilateral trade agreements.

[22] One of the People's Republic of China's principal goals in its ongoing negotiations with Australia, for example, is to shed the 'non-market economy' label, which distorts calculations in anti-dumping determinations.

Chapter 4

ROO in Australia's RTAs and PTAs and their restrictiveness

4.1 Introduction

In the previous chapter, the utilisation rates of Australian PTAs were discussed. The disaggregated analysis indicated a relationship between preferential tariff margins and utilisation rates. However the disaggregated analysis also showed cases in which sections with relatively high preferential tariff margins are not utilised. Furthermore, the analysis also revealed that within the same section the utilisation rates differ between different trade agreements. This shows that even though the preferential tariff margins are similar, exporters and importers utilise the trade agreements differently. This raises the question of what, besides preferential tariffs, might affect the usage of these trading arrangements. The trade volume was identified in the case of the Chile/AUS-FTA. A more viable candidate for explaining the variation of the utilisation rates, however, is product-specific ROO, which have to be met if an exporter or importer seeks to take advantage of the preferential market access offered under the specific FTA. These, in general complex, rules come into mind as a possible explanatory variable influencing utilisation, as ROO can increase the difficulty of using preferential tariffs offered.

In trade agreements, ROO are amongst the most crucial part and trade negotiations focus at length on these, as ROO serve as the key instruments to prevent TD. TD is the transshipment of goods by a non-member country via the FTA member with the lowest MFN tariff towards the other member. The consequences of the transshipment would imply preference erosion among the preferred trading partners. Therefore, ROO are set up to determine the origin of commodities being claimed for preferential treatment and to avert the development of TD.

The complex sets of ROO are subject to long negotiation processes of PTAs or FTAs and include product-specific norms, rules, and regulations. As these regulations can influence a country's trade patterns and its domestic industries, it is common that special interest groups lobby to see ROO determined in a form that will be most beneficial to them. Exporters, for example, want easy access to intermediate commodities but also to enjoy protection for their final goods. In non-FTA circumstances, these exporters would lobby for lower MFN tariff lines for inputs and higher MFN tariffs for their final goods to raise their relative competitiveness. In FTAs, ROO take the role of tariffs as they can serve as protectionist instruments. Therefore, the negotiated ROO go beyond their economic justification of avoiding TD and instead serve special interest groups. Accordingly, ROO can lead to reduced market access for trading partners and therefore partially eliminate the benefits of free trade.

ROO or domestic content policies can be used as trade policy tools for purposes other than the prevention of TD such as for protective purposes; see, for example, Grossman (1981), Krueger (1993), and Krishna and Krueger (1995). Furthermore, researchers have also argued that ROO are similar to a tariff that is levied on intermediate goods and can serve as hidden protectionist instruments, with their impact depending significantly on the details and complexity of their set-up; see Krueger (1993, 1999),

Krishna and Krueger (1995), Lloyd (2001), Falvey and Reed (2002), and Krishna (2004, 2006).

Several empirical studies have investigated the impact of the restrictiveness of ROO on the NAFTA and find that trade preferences are correlated with stricter ROO and report a strong positive relationship between higher MFN tariff differentials and stricter ROO; see Estevadeordal (1999, 2000), Anson et al (2005), and Portugal-Perez (2006, 2009, 2011). Recent literature has addressed several shortcomings of previous ROO restrictiveness methodologies (Harris, 2007).

In this chapter, the shortcomings of previous ROO restrictiveness index methodologies have been taken into account and ROO restrictiveness indexes have been developed for five Australian FTAs.[23]

The remainder of this chapter is organised as follows. Section 4.2 introduces ROO and their purpose while Section 4.3 discusses ROO in more detail and outlines their economic implications. Section 4.4 presents an overview of the different ROO schemes and their advantages and challenges, followed by Section 4.5 with a focus on ROO in the five Australian bilateral FTAs under consideration in this study. Section 4.6 outlines the measurement of restrictiveness of ROO and Section 4.7 provides a statistical overview of the restrictiveness of the ROO schemes in the five Australian agreements under investigation. Section 4.8 concludes.

[23] Due to data limitations, SPARTECA is not included in the following investigation.

4.2 ROO

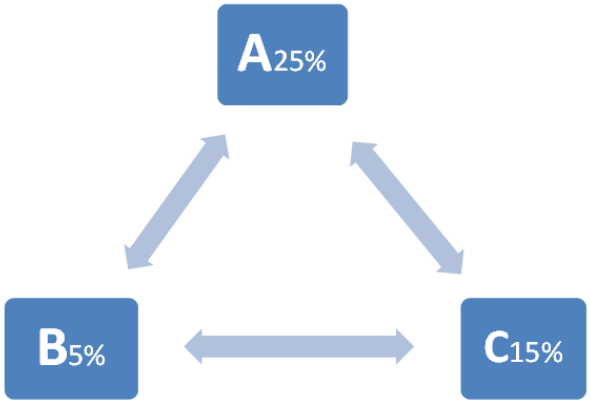
A key component of a modern FTA or PTA is ROO. ROO are a set of rules that determine the eligibility of exporters or importers to trade a commodity under the preferential rules according to the PTA. If successful, preferential treatment in the form of preferential tariff rates applies. Vice versa, if it is not possible to meet the agreement-specific ROO, the commodity is traded under the applied MFN tariff rates of the importing country.

On the one hand, ROO are discriminatory in nature as they distinguish between products that do not meet the agreement-specific ROO from those that do. The 'penalty' for not complying with the ROO is the tariff benefit forfeit. On the other hand, by being of a discriminatory nature, ROO assure that only those commodities that are traded according to the rules of the PTA enter the market under the preferential treatment. Therefore, ROO assure that a third-party country not being a member of the specific FTA does not take advantage the preferences offered to member countries.

A simple three-country model as illustrated in Figure 4.1 demonstrates the problem at hand. The three-country model (Figure 4.1) shows countries A, B, and C with their country-specific average applied MFN tariff rates of 25 per cent, 5 per cent, and 15 per cent, respectively. In the absence of PTAs, these average applied tariff rates will be levied on trade between these countries.

Let us now assume that countries A and B were to sign an FTA (which we will define as AB-FTA) and for simplicity agreed to eliminate all tariffs on their bilateral trade (Figure 4.2). In this case, all trade between countries A and B would now face zero tariff rates. However, the country specific MFN tariff rate will continue to be imposed on trade with non-member countries, in this example, country C.

Figure 4.1: A three-country model

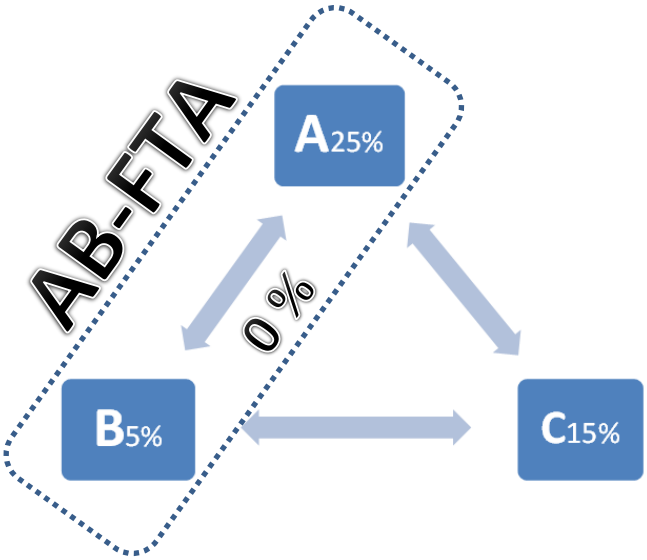


Because of that, without any further restrictions and obligations of the AB-FTA, there would be a shift in trade from country C. Specifically, this means that exports from that country would be redirected and transshipped via the country with the lowest external tariff rate as long as the benefits of the transshipment exceed the additional trade costs involved. In the example of Figure 4.2, the 25 per cent average applied MFN tariff rate of country A would lead to a decline or even complete cessation of trade from country C to country A. This is because country C has an incentive to transship commodities destined for country A via country B, as this would be relatively cheaper. This is the case, as country B's external tariff rate is 5 per cent, which is significantly lower than that of country A with 25 per cent. Therefore, exporters in country C would react to the relative disadvantage (discrimination) of not enjoying the free market access offered by the AB-FTA by deflecting trade designated for country A to country B.

By transshipping or deflecting trade via country B, country C benefits by taking advantage of the AB-FTA and gains from the lower external tariff rate, while losing in the form of additional trade costs involved in the transshipment.

If one were to ignore the trade costs, the AB-FTA would in fact turn into a CU with one external tariff rate, the tariff rate of the country with the lowest MFN tariff.

Figure 4.2: A three-country model with an FTA



According to the example in Figure 4.2, the tariff rate would be 5 per cent, the rate of country B. External trade (towards the AB-FTA) would therefore be completely deflected towards country B and then transshipped. From a welfare perspective, in combination with the tariff revenues lost by country A, this TD creates an efficiency loss as the additional transport costs created outweigh the gains made by paying the reduced tariff (Panagariya, 1999).

To not only prevent the efficiency loss from the deflection of trade but also to protect the true beneficiaries of an FTA or PTA, namely the preferred trading partner, ROO are set up. ROO create disincentives to deflect trade by providing restrictions and regulations aimed to determine the eligibility of preferential treatment for specific commodities.

Therefore, depending on how rigorous the ROO are (for simplicity, it is assumed here that the ROO clearly and uniquely identify the origin of the commodity), in the example of Figure 4.2, country C would be prevented from deflecting trade via country B towards country A. This is because the ROO would determine that the AB-FTA tariff

rate does not apply to goods from country C traded via country B into country A. If, nevertheless, country C were to deflect trade via country B into country A, additionally to the 5 per cent tariff rate paid at the border of country B, an additional 25 per cent tariff would be levied at the border of country A, on top of the additional trade costs. Therefore, there would be no benefit achieved in the deflection of trade, as this would increase the costs of the commodity from country C significantly.

4.3 ROO in more detail

In reality, the negotiations for an FTA or PTA are far more complex. The agreement of a preferential tariff regime and a set of ROO often differ in the extent of coverage and the form of negotiation. For preferential tariff schedules, it is not uncommon to see different, separate, member-specific schedules for the specific preferred trading partner. Often, the specific tariff schedules vary in the form of scope, of commodity coverage, of the period, and in the form of the depth of tariff reductions and/or eliminations.

Historically, ROO were set up in a relatively simple way. A general ROO was applied in the form of a regional or domestic value content rule that was applicable for all commodities. While being easy to understand, there was hardly any flexibility and/or adjustments possible to the general ROO without re-negotiations between the trading partners. Furthermore, because of its characteristic, the general ROO neither adjusts nor responds to trade patterns and/or potential changes in trade between the trading partners. Instead, the main aim of the general ROO was the prevention of TD, as discussed in the example of Figure 4.2.

As a result of the proliferation of FTAs and PTAs, more explicit, product-specific ROO were introduced. As part of an increasing pattern of globalisation and the development of firm-specific production processes, product-specific ROO evolved in the form of tailored rules to serve the particular interests of specific exporters. Therefore, ROO developed away from general rules towards detailed rules for all products of the HS system.

4.4 ROO in PTAs and FTAs

There are three main sets of ROO in PTAs identified by the WCO. The methodology of the change in tariff classification (CTC), which is based on the HS, is the most widely used method to determine origin in PTAs and is also the preferred choice of the WCO. Most ROO in today's PTAs are based on the CTC methodology and are set up at the HS 6-digit level of disaggregation. The CTC requires changes in the chapter (2-digit), the heading (4-digit), the subheading (6-digit), and, in some cases, in the item and sub-item (8- to 10-digit) of the HS.

The regional value content (RVC) or value-added requirement is the second-most common ROO applied and determines origin according to a minimum RVC or domestic value content requirement. Often, the RVC is written in the form of the de minimis rule that sets a maximum value of non-originating materials that may be included in the production process of a particular commodity to make it eligible for the preferential treatment of the FTA or PTA.

Table 4.1: Merits and de-merits of ROO criteria

	Merits	**De-merits**
CTC	Simple comparison between intermediate materials and final products	HS is for trade classifications rather than for industrial classifications
RVC	Simple, transparent, easy to check	Manipulations in accounting, the effect of exchange rates, coverage of costs (logistics, trademark etc)
TR	Objective rules	No incorporation of technical development. Requirements are too stringent in most cases

Source: Cheong and Cho (2009), cited in Findlay and Urata (2009, p. 3).

The third alternative is known as the technical requirement (TR) or product-specific production process a commodity has to go through to meet origin requirements. This can be a simple method of product modification but can also include strict rules on packaging and other standards.

Each one of these methods has advantages but also has difficulties when used to determine the origin of commodities. Cheong and Cho (2009) provide an overview of 'merits' and 'de-merits' and these are outlined in Table 4.1.

Accordingly, even though the HS was not designed for the purpose of determining origin in international trade, the CTC methodology makes good use of distinguishing final goods and inputs in a simple manner. The main reason the HS was adapted for the determination of origin was to avoid additional bureaucratic burden by creating an additional precise set of classifications.

In theory, the RVC methodology provides a simple and easy way to verify origin, which explains why it was often applied as the general rule. Further investigation, however, revealed that the method also provides the greatest opportunities for manipulating the actual customs value due to the many different ways of calculating the minimum regional value. Table 4.2 shows several different calculation methods, namely the build-

down, build-up, and share of non-originating parts methods. A closer look at the different methodologies shows that it is obvious that these seemingly unambiguous and simple descriptions are not as clear after all. For example, in the case of the build-down method, it is not explained easily how the adjusted value (AV) and the value of non-originating materials (VNM) are calculated. Furthermore, when considering that the VNM has to be converted into the currency of the country of final destination, the exchange rate offers ways to lower the actual value of inputs coming from countries other than the FTA member countries. The same is true for the other methods presented in Table 4.2 and for other issues such as the value of labour costs, marketing, or logistics. Manipulations of the input of the latter methods can be used to meet the required minimum value of regional value added to the final product.

Table 4.2: Common RVC methods

Method	**Equation**	**NAFTA Method**
Build-down method	$\frac{AV - VNM}{AV} \times 100$	Transaction valued method: $\frac{TV - VNM}{TV} \times 100$
Build-up method	$\frac{VOM}{AV} \times 100$	Net cost method: $\frac{NC - VNM}{NC} \times 100$
Share of non-originating parts	$\frac{VNM - VUOM}{AV} \times 100$	

Notes: The table presents the adjusted value (AV), value of non-originating materials (VNM), the value of originating materials (VOM), the value of materials with uncertain origin (VOUM), the transaction value (TV), and the net cost (NC) for the build-down, build-up, and share of non-originating parts RVC methodologies.

Source: Cheong and Cho (2009) in Findlay and Urata (2009, p. 4).

Additionally, Table 4.2 indicates that different trade agreements apply agreement-specific RVC methodologies such as the transaction-value methodology or the net-cost method in the case of the NAFTA. Therefore, the potential incentive for manipulating the accounting can lead policy makers to define RVC methods in a way that adds to the complexity and can make RVC methods overly restrictive themselves. In the same way, however, the RVC also offers the opportunity for special interest groups to lobby for the most or least restrictive method when it serves their self-interest. The same is true for a TR.

Even though described as objective rules in Table 4.1, TR can become very subjective when considering that an additional TR may increase the restrictiveness sufficiently to increase an import-competing industry's relative competitiveness. For example, when a preferential tariff rate lifts the protection an import-competing country enjoyed in the form of the MFN tariff rates, a strict, complicated, product-specific production method that only the import competing country can achieve can reapply the protection.

Very often, instead of applying a single ROO methodology, most FTAs and PTAs use combinations of CTC, RVC, and TR. Therefore, ROO become inclusive and exclusive by varying between a simple rule that needs to be met for originating status and a combination of rules such as a CTC in addition to a minimum RVC, making ROO much more restrictive. Furthermore, more restrictive rules may be included to support intra-regional trade of intermediate goods. An example of such a regulation is the cumulation rule. The cumulation rule allows non-originated inputs from other member countries of the specific FTA to be used and to be accounted for as originated. Three different types of cumulation are distinguished in international trade, namely diagonal cumulation, bilateral cumulation, and full cumulation. Diagonal cumulation allows the use of inputs of any member country within the same ROO-based FTA or PTA. Bilateral cumulation

restricts the use of the input to the direct trading partner of the FTA or PTA. A trading arrangement that applies full cumulation allows the usage of inputs originating outside the FTA, as long as the country of origin is a member of another trading arrangement with one of the trading partners. For example, assuming that the NAFTA allows full cumulation, the United States could use inputs from Australia, with which it shares a bilateral FTA, and use these inputs for the production of commodities traded with Mexico, even though Mexico does not have an FTA or PTA with Australia.

The absorption or roll-up rule gives exporters the opportunity to include inputs that have met specific TR and been used in the production of the final commodity to receive origin status.

In the CTC method, ROO often include alternatives, additions, and exceptions as well as provisions. These offer alternative ways to claim origin, offer additional options, or disallow common usages. Provisions describe certain operations that must be met, such as packaging, cleaning, or assembling and labelling, or exclude duty drawbacks and ask for self-certification of origin by exporters – all of these increase the costs of trade.[24]

The arguments above show that in the negotiation process of an FTA, ROO offer the perfect opportunity for special interest groups to lobby for preferences. This could mean simple ROO in areas of their own benefit to facilitate trade but also for the inclusion of additional rules and regulations to add complexity and provide additional protection in areas of their own self-interest. In that sense, ROO may even provide the opportunity to regain protection lost previously with the lowering of MFN tariffs or the provisions of non-reciprocal preferential tariffs such as the Australian GSP. This then implies that ROO can be used easily as offsetting instruments to MFN tariffs as, for example, when

[24] See Estevadeordal and Suominen (2003) for a wider discussion.

there is a simple additional RVC rule or the exception of a specific chapter that may be vital to the production of a specific commodity that can raise the costs of this final commodity dramatically. Krueger (1993) shows that ROO can serve as protectionist instruments and can indeed raise the costs of foreign exporters the more restrictive are the schemes. Therefore, import-competing sectors have an incentive to lobby for stricter ROO to increase the respective costs for foreign competitors and, at the same time, to increase their own relative competitiveness.

4.5 ROO in Australia's FTAs under consideration in this study

In 1966, Australia became the first country to implement a non-reciprocal preferential tariff scheme that offered preferential market access to developing countries. The non-reciprocal system has since then been revised into the Australian GSP. The Australian GSP applies to all dutiable goods on a 5 percentage preferential margin scheme when the content value of 50 per cent is achieved. Even though some countries have been gradually developing, the Australian government is reluctant to remove the preferential market access and instead uses the Australian GSP as an incentive to pursue bilateral trading agreements and RTAs.

Singapore, Thailand, and Chile are the best examples of the success of the Australian policy. All three countries were former beneficiaries of the Australian GSP and are now members of Australian FTAs. Singapore entered into negotiations with Australia in April 2001. The SAFTA was ratified and entered into force in February 2003. SAFTA's ROO followed the 1983 CER by determining origin according the value-added or

regional content requirements. SAFTA ROO give originating status for wholly obtained commodities, materials that are wholly manufactured within the member countries, and goods that are partly manufactured in Australia or Singapore according to a general 50 per cent domestic content requirement in the form of value-added cost to manufacture of the goods. Additionally, the SAFTA specifies commodities that require a 30 per cent RVC threshold and commodities in respect of which the last process of manufacture must be within the member countries of the SAFTA.

The SAFTA is the only Australian FTA under consideration in this study that measures origin according to the value-added or RVC requirements, as the CER was revised in 2006. Other Australian PTAs that apply value-added or RVC requirements are the PATCRA of 1977 (revised in 1991 as PATCRA II), the non-reciprocal SPARTECA, which was signed in 1981, the above-mentioned Australian GSP, and the PTA between Australia and Canada (CANATA) of 1960.

In 2003, the Australian and New Zealand governments decided to review the CER ROO scheme and asked the Australian Productivity Commission (PC) to undertake a study on the effectiveness of the RVC ROO scheme. The PC (2004) concluded and recommended that the RVC ROO scheme should not be changed. Nevertheless, while mostly ignoring these recommendations, between 2004 and 2006, the Australian and New Zealand governments decided to revise the CER ROO. The countries adopted the CTC methodology, which also includes combinations of RVC and TR. The revised ROO entered into force in January 2007. However, the Australian and New Zealand governments granted exporters a four-year adjustment period during which origin could

be claimed using either the 'old' RVC methodology or the 'new', revised CTC approach. Since January 2011, the CTC is the only valid ROO scheme for CER.[25]

With that, the CER followed the TAFTA and the AUS-FTA, both of which entered into force in January 2005 after negotiations began in May 2002 and March 2003, respectively. Negotiations for the Chile/AUS-FTA commenced in August 2007 with the agreement becoming official in March 2009.

The ROO schedules of all these agreements are based on the CTC, with combinations of varying RVC and TR, as well as provisions, exceptions, additions, and alternatives.

The ASEAN-Australia-New Zealand Free Trade Agreement (AANZFTA) entered into force in January 2010 (negotiations began in March 2005) and became the latest and largest FTA Australia joined. ROO were one of the key elements of negotiations in the AANZFTA. On the one hand, most of the FTAs of the members of ASEAN are based on the RVC methodology. On the other hand, Australia and New Zealand mostly moved away from the RVC towards the CTC approach. Deciding upon one specific methodology, either RVC or CTC, would have disadvantaged one of the trading groups. Therefore, the final agreed ROO schedule of the AANZFTA is unique as it allows traders to claim origin using either the CTC or the RVC methodology. Accordingly, the AANZFTA provides the greatest possible flexibility for traders to trade under the preferential agreement.

4.5.1 Examples

For example, the AUS-FTA ROO for super-heated water boilers (HS 840220) offers two alternative ways to meet originating status by allowing either "(a) a change to

[25] For a detailed discussion of the CER and CER ROO, see Scollay, Findlay, and Kaufmann (2011).

subheading 8402.20 from any other heading; or (b) a change to subheading 8402.20 from any other subheading, provided that there is a regional value content of not less than 35 percent based on the build-up method or 45 percent based on the build-down method".[26] Additionally, the second option also offers two different ways of calculating the RVC based on the build-up and build-down methods, as described in the previous subsection.

The TAFTA ROO for HS commodity 481159 (paper and paperboard, coated, impregnated or covered with plastics) offers a good example for the existence of exception rules as it requires a change to the "subheading 481159 from any other heading except from heading 4804,"[27] which is uncoated kraft paper and paperboard, in rolls or sheets, other than that of heading 4802 or 4803.

4.6 Measuring the restrictiveness of ROO

As outlined in the previous section, ROO are often complex, heterogeneous legal regulations that are difficult to measure quantitatively. Krueger (1993) and Krishna and Krueger (1995) show theoretically the hidden protectionist implication of ROO in FTAs or PTAs. Based on the observation rule at the HS 6-digit level of disaggregation, Estevadeordal (1999, 2000) was first in proposing a discrete, endogenously chosen ROO index to measure the restrictiveness of product-specific ROO. Estevadeordal (1999, 2000) used two main principles for his proposed ROO index.

[26] AUS-FTA ROO tariff line schedule, Appendix 1 to Instructions and Guidelines (Australia-United States Free Trade Agreement), Australian Customs and Border Protection Service, March 2010.
[27] TAFTA ROO tariff line schedule, Appendix 2 (Chapter 37 to Chapter 83) to Instructions and Guidelines (Thailand-Australia Free Trade Agreement), Australian Customs and Border Protection Service, July 2009.

The first principle summarises the characteristics of the character of the CTC nature of ROO. It states that a required change in the HS chapter (ΔC) is more restrictive than a required change in the HS heading (ΔH), which again is more restrictive than a required change in the HS subheading (ΔS). In some instances, a particular ROO requires a change in the HS item (ΔI), which would be least restrictive. This is because it only excludes its own item and allows the commodity to be derived from any other HS item, subheading, heading, or chapter.

Current literature most commonly accepts the first principle.[28] Harris (2007) provides an interesting alternative 'universe' concept of ROO. The argument is that the fewer potential alternatives ROO offer a product to be derived from, the smaller the universe of alternatives. For example, a ROO that requires a ΔS restriction and excludes all commodities and inputs from that particular HS subheading is more restrictive than a ROO that requires only a ΔI. Therefore, the universe of meeting the ROO requiring ΔI is larger than that of a ROO set that requires a ΔS.

The first principle of the CTC order of restrictiveness can then be summarised as follows:

$$\Delta C > \Delta H > \Delta S > \Delta I$$

The second principle covers RVC and TR and states that if these are attached to CTC requirements, then this will add to the general restrictiveness of ROO. For example, a set of ROO that requires a ΔC and an RVC of 50 per cent is more restrictive than a ROO that only requires a ΔC. Similarly, a ROO requiring only a ΔC is less restrictive than a ROO that requires a ΔC and additionally a TR.

[28] See Estevadeordal (1999, 2000), Estevadeordal and Suominen (2004, 2005), Anson et al (2005), Cadot et al (2006), and Portugal-Perez (2006, 2009, 2011).

Even though the literature does not dispute the usefulness of the second principle put forward by Estevadeordal (1999, 2000), it outlines and adjusts for its shortcomings. Anson et al (2005) modifies the Estevadeordal (1999, 2000) restrictiveness index by including some of the major shortcomings of the initial index, namely by incorporating exceptions and additions to ROO based on the CTC methodology. For example, when a ΔC requirement is accompanied by an exception rule (er), let us say for another HS chapter, then this is clearly more restrictive and reduces the universe of alternative production methods than that of a ROO that only requires a ΔC. At the same time, a ΔC requirement that is accompanied by an additional alternative within the excluded HS chapter, its own chapter, for example in the form of an additional ΔS, becomes less restrictive than a ROO requirements that only allows a ΔC, as it increases the universe.

Anson et al (2005) fail to further differentiate the variations of exceptions and additions within the ROO scheme. If the specific CTC exempts one or two HS chapters, then clearly the restrictiveness of the required ROO increases, as the universe of opportunities shrinks. Furthermore, Anson et al (2005) treat alternative options to meet origin requirements as equally restrictive.

Harris (2007) not only addresses the issues of variations of exceptions and alternatives. He also argues that by treating alternative options to meet origin requirements as equally restrictive, the main fact is ignored that an alternative rule offers an additional option to meet the required origin requirements in the first place and therefore cannot be as restrictive as rules that are based on pure, unique requirements. For example, a ROO that requires either a ΔC or a ΔS must be less restrictive than a rule under which the only option for meeting origin requirements is a ΔC. At the same time, a ROO that asks for a ΔC and excludes additional HS chapters must be more restrictive than a ROO that only requires a ΔC.

Harris (2007) justifies this by pointing out that the alternative options may be related to fundamentally different bureaucratic costs. This can be seen easily by looking at different firm heterogeneity between asymmetric countries, especially between developed countries and developing countries and LDCs.

On this basis, and also by adjusting for pure RVC and TR, Harris (2007) proposes a new modified restrictiveness index. Table 4.3 summarises the Harris (2007) restrictiveness index.

Accordingly, different values are assigned and added or subtracted for a CTC, for exceptions, for additions, for RVC, for TR, and for alternative options.

Following the Estevadeordal (1999, 2000) index, Harris (2007) bases his proposed product-specific index of a CTC on the ordered restrictiveness that a ΔC requires a significantly higher form of transformation than is the case in a ΔH. One could also use the following alternative explanation: that a required ΔH offers a larger alternative set of inputs than a ΔC requirement.

Therefore, the assigned restrictiveness points for a required ΔC are eight points, higher than the six restrictiveness points assigned for a required ΔH. A required ΔS is four restrictiveness points, higher than a required ΔI with its two restrictiveness points.

Additional exceptions to the ROO increase the general restrictiveness, as they reduce the universe of opportunities for deriving originating status; exception points are added to the CTC restrictiveness points. For example, when, additionally to a specific CTC ROO requirement an HS item is exempted (see erI in Table 4.3), then an additional four restrictiveness points are added. When more than one item is exempted, five additional restrictiveness points are added to the specific CTC ROO.

Table 4.3: Restrictiveness points of the Harris (2007) restrictiveness index

CTC points:		**Exception points:**		**Addition points:**	
Requirement	Restrictiveness points	Exceptions	Restrictiveness points	Additions	Restrictiveness points
ΔI	+2	erI	+4	addI	-5
ΔS	+4	>erI and ≤erS	+5	>addI and ≤addS	-6
ΔH	+6	>erS and ≤erH	+6	>addS and ≤addH	-7
ΔC	+8	>erH and ≤erC	+7	>addH and <addC	-8
		>erC	+8		
RVC test points:		**Technical requirement points:**		**Alternative rule points:**	
Requirement	Restrictiveness points	Restrictiveness points	+4	Restrictiveness points	-3
>0% and ≤40%	+5				
>40% and ≤50%	+6				
>50% and ≤60%	+7				
>60%	+8				
Net Cost	+1				

Source: Harris (2007).

The same methodology of additional restrictiveness points is given for the exclusion of HS subheading(s) (erS), where an exclusion of HS subheadings allocates higher additional restrictiveness points than the exclusion of an HS item, considering the fewer possibilities for deriving origin according to the first principle of the Estevadeordal (1999, 2000) restrictiveness methodology of ROO.

Therefore, an exception of more than one HS subheading (exclusion of an HS heading) adds six restrictiveness points, an exclusion of more than one HS heading (or exclusion

of an HS chapter) adds seven restrictiveness points, and the exclusion of more than one HS chapter adds seven restrictiveness points to the specific CTC ROO.

Additional alternative options added to the CTC-specific ROO increase the universe of opportunities and therefore reduce the restrictiveness. Accordingly, additional alternative options have the opposite effect to that of exception rules. For example, if additionally to the product-specific ROO, originality can be derived from an additional HS item, five restrictiveness points are deducted. Six points are deducted when more than one HS item (or one additional HS subheading) is added to the CTC ROO.

When the ROO states that, additionally to the CTC, origin can be derived from more than one additional HS subheading (or one additional HS heading), seven restrictiveness points are deducted. The restrictiveness is reduced by eight points if more than one additional HS heading or at least one additional HS chapter are offered for the derivation of origin to the CTC.

Similarly, alternative rules reduce the overall restrictiveness from the ROO by three restrictiveness points. A TR increases the restrictiveness by four restrictiveness points as it also increases the difficulty of meeting origin requirements.

RVC requirements, whether standing alone, as is the case in the SAFTA, or being attached to CTC ROO are also considered in Table 4.3. The restrictiveness points for RVC follow the first principle of Estevadeordal (1999, 2000) by increasing restrictiveness according to the degree of RVC. Hence, the higher the required content, the higher the restrictiveness points. According to Harris (2007), the restrictiveness increases by five restrictiveness points when an RVC of up to 40 per cent is required. Between 40 per cent and 50 per cent, the restrictiveness increases by six points, and so on.

In Australia's FTAs, the RVC rule varies between 35, 40, 45, 50, 55, and 60 per cent. As these clearly express different degrees of restrictiveness, this study modifies the RVC restrictiveness points of Harris (2007) outlined in Table 4.4. Nevertheless, the study follows the first principle of Estevadeordal (1999, 2000) and the approach of Harris (2007) by deriving the value of the restrictiveness for RVC rules according to the average frequency of alternative rules, with the first one being a unique CTC and the second alternative a unique RVC. Furthermore, Table 4.4 distinguishes between the build-down and the build-up methodologies. The reason for this is that most of Australia's FTAs offer a flexible calculation of the level of RVC by providing the opportunity for claiming origin according to the build-down or the build-up methodology. The reasoning behind the set-up of the restrictiveness points and making the build-down methodology less restrictive than the build-up method is that both methodologies are offered simultaneously with different degrees of RVC.

Table 4.4: Adjusted RVC value test points

Build-up method	**Build-down method**	**Value test points**
>30% and ≤35%	>40% and ≤45%	+3
>35% and ≤40%	>45% and ≤50%	+4
>40% and ≤45%	>50% and ≤55%	+5
>45% and ≤50%	>55% and ≤60%	+6
>50% and ≤55%	>60%	+7
>55% and ≤60%		+8
>60%		+9

Source: Author's derivations.

For example, origin can be claimed by either establishing origin according to a 30 per cent build-up methodology or a 40 per cent build-down procedure. This implies that even though differing in the degree of RVC, both methodologies are similarly restrictive.

Table 4.4 takes this into consideration by providing restrictiveness points for both methodologies, with the adjusted restrictiveness points ranging from three to nine points. In practice, for example, an RVC of 45 per cent according to the build-down method (55 per cent according to the build-up methodology) adds an additional five restrictiveness points.

4.6.1 How is the restrictiveness index applied in Australia's FTAs?

According to the TAFTA's ROO schedule, HS subheading 640212, which includes "Sports footwear: ski-boots, crosscountry ski footwear and snowboard boots," requires a "change to subheading 640212 from any other heading, provided there is a regional value content of not less than 55 percent." This means that the commodity does not only require a change in the HS subheading from any other HS heading, which in this case excludes the entire HS heading 6402, but also an RVC of at least 55 per cent, calculated with the build-down method. Assigning restrictiveness points for a change in the HS heading (six) and the additional required 55 per cent of RVC according to the build-down method (six) gives the HS subheading an overall degree of restrictiveness of 12.

The ROO for HS subheading 640212 is less restrictive than the ROO for HS subheading 640620 – "Outer soles and heels, of rubber or Plastics." HS subheading 640620 requires a "Change to subheading 640620 from any other chapter, provided there is a regional value content of not less than 55 percent." As a change in the HS chapter is more

stringent, the value of restrictiveness points (eight) is also higher than that for a required change in the HS heading (six). Therefore, by including the additional requirement of an RVC of 55 per cent, the restrictiveness degree for HS subheading 640212 is 14 points.

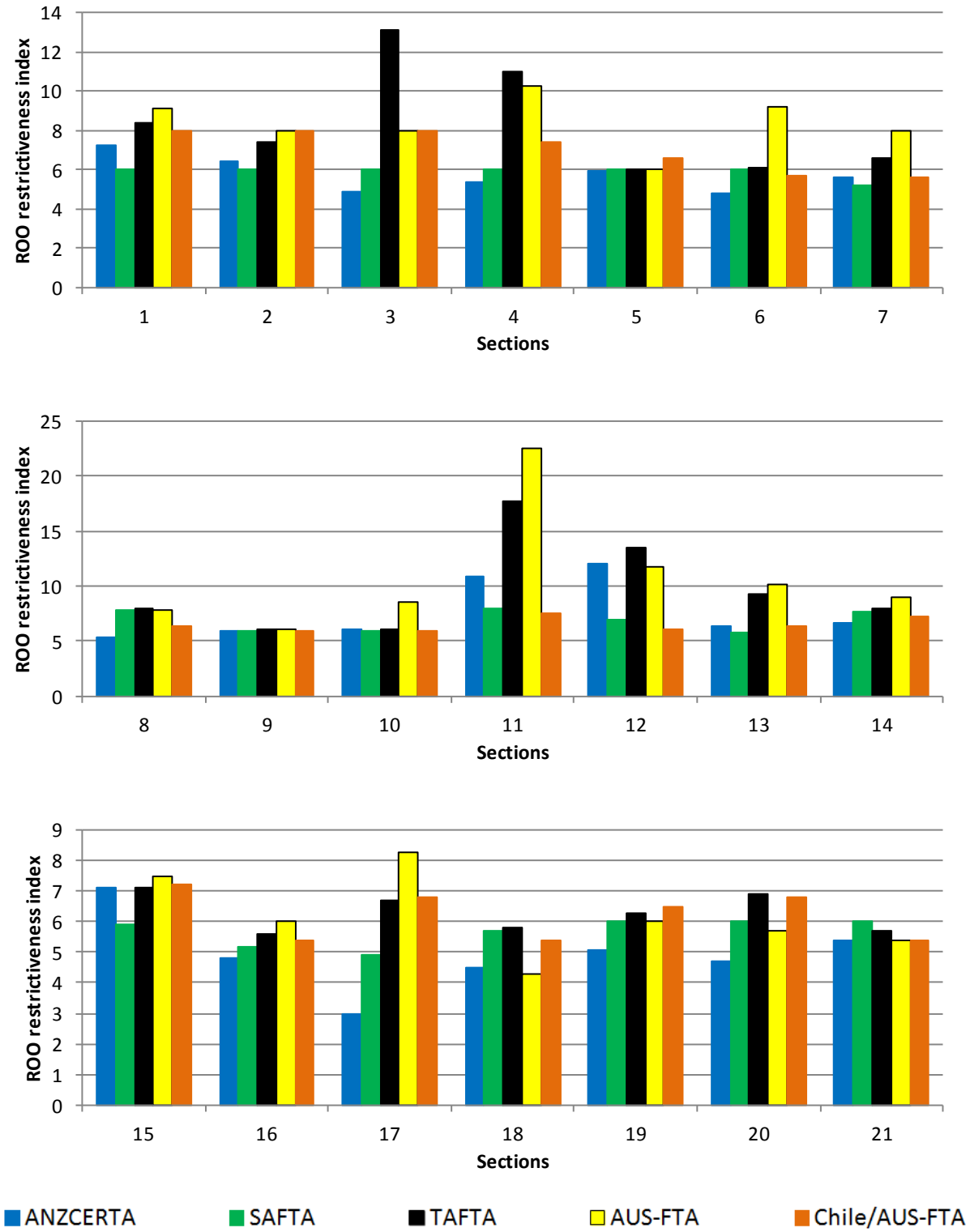
4.7 Overview of the restrictiveness of ROO in Australia's RTAs and PTAs

Figure 4.3 compares the restrictiveness of ROO as measured according to HS section 6 over the different HS sections as defined in Table 3.6 across Australia's bilateral trading arrangements under consideration in this study.

At a first glance, with some exceptions, the restrictiveness seems relatively similar across the HS sections and the agreements; the restrictiveness ranges mostly between five and six restrictiveness points. A closer look, however, shows some important exceptions. The ROO regimes of the TAFTA and the AUS-FTA seem to be relatively more strongly regulated than in other agreements. For example, HS Section 3 shows a much stricter results for the TAFTA ROO compared to the other agreements. The same is found to be the case in HS Section 4 and especially in HS Section 11 and also HS Section 12, where the TAFTA and the AUS-FTA show relatively more restrictive ROO. The AUS-FTA shows stricter measures in HS Sections 6, 7, 14, and 17.

Other observations are that the SAFTA reports the most consistent degree of ROO restrictiveness. The main reason is the RVC-based ROO scheme, which only applies minor variations in a very limited number of tariff lines. Of the product-specific ROO, the CER shows the lowest average degree of restrictiveness. A few exceptions are HS

Figure 4.3: Comparison of restrictiveness of ROO of Australia's FTAs by section, 2009



Source: Author's derivations.

Sections 11, 12, and 15, where the restrictiveness is relatively higher. The Chile/AUS-FTA reports higher restrictiveness in HS Sections 1, 2, and 3, as well as in HS 15.

Figure 4.3 shows that different schemes of ROO that have been negotiated between the different FTA trading partners have different degrees of restrictiveness. More details on the distribution of the type of the product-specific ROO are provided in the Appendix to this chapter. The immediate question that arises is why countries seek to negotiate different ROO schemes. If avoiding TD is the main reason for ROO, should it not be the case that one and the same set of ROO is negotiated for all agreements?

In an empirical study on the NAFTA's ROO, Cadot, Estevadeordal, and Suwa-Eisenmann (2006) find that ROO are used as substitutes for MFN tariff rates and as such serve a protectionist purpose. That ROO can be used as protectionist instruments lies in their nature. The more difficult it is to meet the ROO scheme due to the complexity of the regulation, the less likely it is that the exporter (or importer) is able to take advantage of the preferential tariff margins. Therefore, even though an FTA with preferential market access has been created between two countries, the domestic competitor keeps its relative protection in the form of MFN tariff rates. This implies that stricter ROO should be found in areas of highest market access. The analysis of the HS sections mentioned above with the strictest degrees of ROO restrictiveness confirms the prediction. For example, in 2009, HS Section 11 (AUS-FTA) had an average MFN tariff rate of 8.8 per cent and the average MFN tariff rate of HS Section 7 (AUS-FTA) was more than 5 per cent. Furthermore, HS Sections 12, 15, and 17 also recorded MFN tariff rates above 3 per cent.

There are also, however, other potential reasons that a country would negotiate for stricter ROO. For example, a company would lobby for stricter ROO if it fears potential import penetration and consequently an increase in competition from competing

companies of the trading partner. From the point of view of a domestic supplier that enjoys the benefits of relatively higher tariff protection in the form of MFN tariff rates and that faces the potential erosion of this protection due to the trade agreement, stricter ROO can serve as a substitute for MFN tariff protection.

The opposite is true for companies that aim to sell their produce in the preferred trading partner's market. These companies have an interest to lobby for less strict ROO and for countries to negotiate those under the banner of trade facilitation.

Anson et al (2000), Estevadeordal (1999, 2000), Cadot et al (2006), Carrere and de Melo (2006), and Portugal-Perez (2006, 2009, 2011) investigate whether these factors play a role in the determination of ROO. The next chapter takes a closer look at these studies and estimates econometrically the determinants for ROO in Australia's bilateral FTAs.

4.8 Conclusions

With a focus on ROO, this chapter has furthered the discussions on investigating potential factors that affect the utilisation of FTAs. The discriminatory nature and also the economic justification for ROO in the form of avoiding TD were discussed in detail before the chapter took a closer look at different ROO schemes, including their advantages and disadvantages. The chapter also provided a detailed overview of the different ROO schemes in Australia's FTAs. It was found that the SAFTA is the only current trade agreement that applies the RVC methodology. To measure ROO empirically, the restrictiveness index methodology was discussed. Furthermore, the chapter developed a restrictiveness index for Australia's bilateral FTAs under

consideration in this study. The results of the restrictiveness index provided evidence that ROO could be used as protectionist instruments. The analysis also linked stricter ROO to higher MFN tariff lines, indicating that ROO are used as substitutes for MFN tariff rates. Other potential reasons for higher and/or stricter ROO were identified in the form of avoiding trade penetration or just in general to protect relative competitiveness. At the same time, exporters are also found to be interested in less strict ROO when an interest exists to trade with the preferred trading partner.

To further the analysis and to identify factors that establish ROO and in essence affect the utilisation of FTAs, the next chapter focuses on estimating the determinants of ROO econometrically.

Chapter 5

The determinants of ROO

5.1 Introduction

The importance of ROO in PTAs was discussed in the previous chapter. It was outlined that ROO determine the origin of a commodity and as such prevent TD and at the same time assure that the member countries of the FTA benefit from preferential trade. These benefits are twofold. Firstly, they benefit from the specific provision that the FTA offers for commodities produced in their country according to the definition of the unique ROO set and agreed upon by both parties to the agreement. Secondly, the trading partners benefit from the trade agreement as ROO exclude third parties from the benefits offered under the specific arrangement. The economic justification for preventing TD with the help of ROO was shown and discussed in a three-country model. However, the extent to which TD is the main reason for the existence of ROO in FTAs and PTAs is unclear.

Several empirical and theoretical studies have focussed upon this topic and have investigated both the extent to which TD defines ROO and what other factors besides TD determine the set-up of specific ROO. TD concerns are considered by many studies as the main reason for the determination of ROO; see Anson et al (2000), Estevadeordal (1999, 2000), Cadot et al (2006), and Carrere and de Melo (2006). Potential fiscal

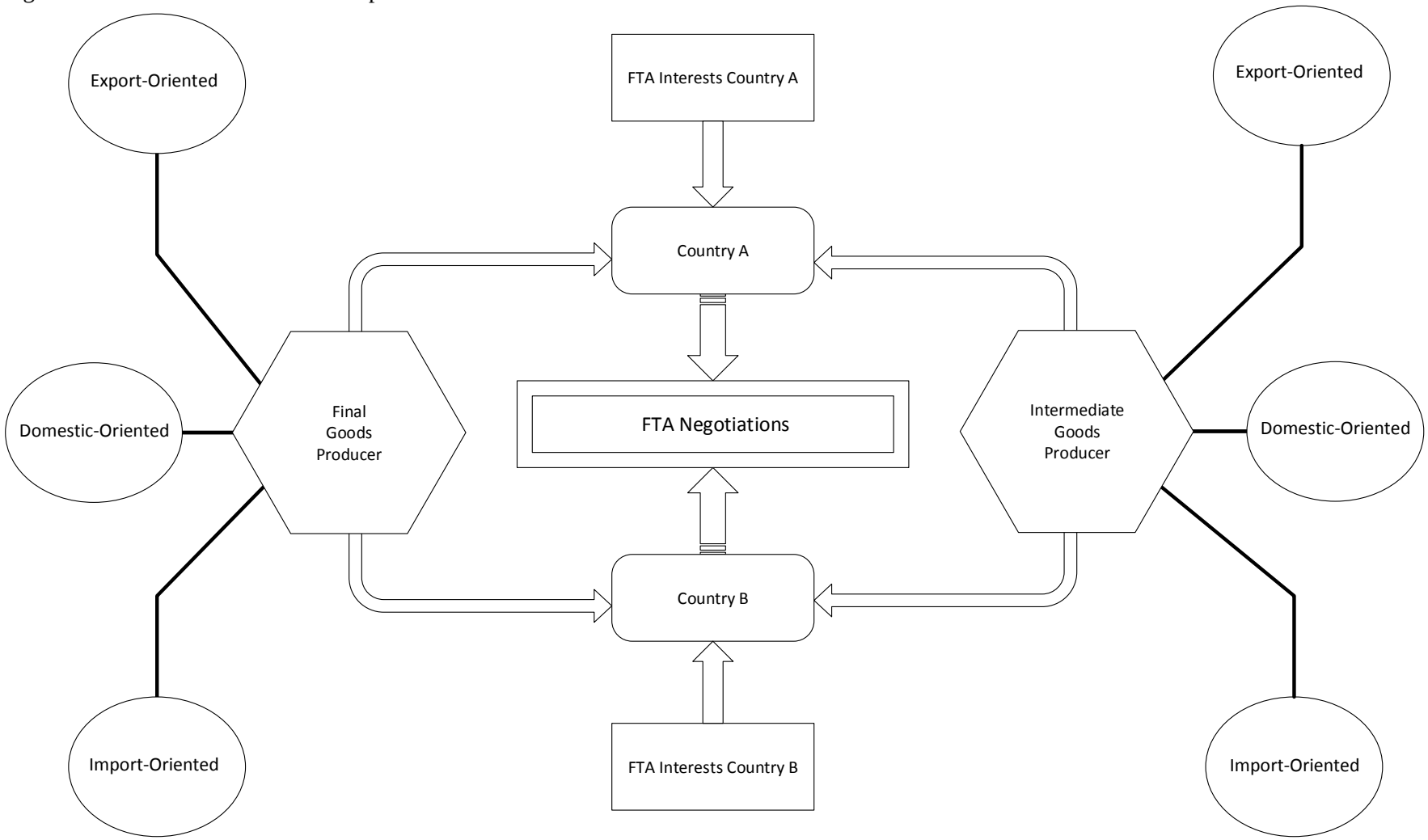
implications of TD are, however, a valid reason for ROO (Harris, 2007). In three different papers, Portugal-Perez (2006, 2009, 2011) discusses TD and PE factors as determinants of ROO. Applying PE theory and the PE model of Helpman and Grosman (1994), the author finds evidence that PE factors play an important part in the process of the development of the ROO schemes.

With this information in mind, while testing the hypothesis of TD concerns, the interest of this chapter is to investigate the potential determining factors of ROO in Australia's FTAs in more detail. The analysis builds on both the Portugal-Perez (2006, 2009, 2011) methodology of investigating the PE factors and TD forces by incorporating the adjusted Harris (2007) restrictiveness index developed for five Australian FTAs in the previous chapter. The main results of this research confirm Estevadeordal's (2000) results and show that Australian exporting and import-competing industries successfully achieve stricter ROO to protect their relative competitiveness. Furthermore, the results also show that trading partners use the agreements to achieve trade facilitation when negotiating ROO.

To arrive at the results, the analysis in this chapter takes several issues into account, and these are summarised in Figure 5.1.

When FTAs are being negotiated, key aspects are market access in the form of preferential tariff rates and the ROO regime. The specific provisions of these are negotiated with the input of both the FTA interests of the trading partners (in Figure 5.1, countries A and B) as well as the interests of the private sector (see 'Final Goods Producer' and 'Intermediate Goods Producer' in Figure 5.1). A part of this, and something that is often underestimated, is the facilitation of the existing bilateral trade relationship through the trade agreement while avoiding trade diversion effects.

Figure 5.1: Determinants of ROO and preferential market access



Source*: Author's derivations.*

In short, neither the governments nor the private sectors want to lose current benefits that exist in the pre-FTA relationship but instead want to strengthen the relationship and extend the benefits. This has made trade facilitation a key part of all goods and services trading arrangements that address the issue in specific chapters of various FTAs and PTAs and Australia's FTAs are no exception. For example, trade facilitation is addressed in chapters such as the 'Technical Barriers to Trade' chapter in the AUS-FTA or in the 'Customs Administration/Procedures' chapter present in all of Australia's FTAs and PTAs.

Furthermore, in the Australian FTA negotiations, lawmakers were faced with facilitating existing bilateral trade and market access formerly gained with the Australian GSP and the market access it offers developing countries and LDCs while limiting the potential trade-diversionary effects. Three of Australia's FTAs in this study fall specifically into this category, where the Australian trading partner is a 'former' member of the non-reciprocal Australian GSP. For these countries (Singapore, Thailand, and Chile) and their private sectors, one of the major concerns was to preserve the gains achieved previously. The same is true for the Australian domestic producers, largely benefitting from relatively cheaper intermediate goods from Australian GSP member countries. At the same time, Australian producers and import-competing industries were also faced with eroding the protective MFN tariff rates they currently enjoyed.

Given these considerations, Figure 5.1 differentiates not only 'Intermediate Goods Producer' and 'Final Goods Producer' but also makes a further differentiation into 'Export-Oriented', 'Import-Oriented', and 'Domestic–Oriented' firms, with their specific interests in ROO and market access. The differentiation into 'Final Goods Producer' and 'Intermediate Goods Producer' is undertaken as ROO and PTAs are

negotiated according to the HS tariff classification system, implying that the product-specific ROO differ between final and intermediate goods.

Among the specific producers, there are three different interest groups.

The first group is exporters in the respective trading partners seeking continuous market access to the trading partner's market in the form of low or zero preferential tariff rates. Depending on their respective capacity, these exporters seek either simple or rather complex ROO that will offer them the greatest export opportunities. If the exporters hold an advantage in the form of high capacity, complex ROO can be used to further their advantage over export competition with relatively lower capacity.

The second interest group are 'Import–Oriented' firms – these are exporters of final commodities (and 'Intermediate Goods Producers' in the value–added, intermediate supply chain), that have an interest in accessing intermediate goods that can be supplied more cheaply from the rest of the world than from their domestic market. This group is likely to favour less restrictive ROO for intermediate goods, as the trading partner may be able to provide these intermediate goods at a more efficient level. Before the FTA, this group lobbied in favour of relatively low MFN tariffs to provide them with the opportunity to source from the least-cost suppliers worldwide.

The third group is 'Domestic–Oriented' firms or import-competing sectors that, in the absence of an FTA or PTA, favour relatively high MFN tariff rates as these secure their relative competitiveness. Faced with an FTA or PTA, this interest group is faced with the potential loss of its respective relative protection, and thereby partially losing its relative competitiveness. Therefore, this group is a candidate to favour relatively high preferential tariffs accompanied by relatively strict ROO. The main reason is that low preferential tariffs and less restrictive ROO could diminish the profits currently earned

by this group due to tariff protection. In the case that the preferential trading partner is not a competitor, the import-competing sectors may be unconcerned with preferential tariffs, but will continue to seek strong ROO. As these exporters are aware of the fact that an FTA or PTA has the consequence of bringing into play the WTO GATT Article XXIV (9), which requires the elimination of tariffs on substantially all trade, preferential tariffs in FTAs are most likely to be phased out in a 10-year period, which underlines the import-competing sectors' demand for strict ROO.

With Figure 5.1 in mind, the factors that affect ROO are the product type itself (intermediate goods and final goods), the actual pre-FTA applied MFN tariff rates, the existing trade relationship between the countries, and the relative competitiveness of firms within the future FTA region. To model these factors and how they can influence the set-up of ROO, Section 5.2 introduces a PE model that discusses the determinants of ROO in a bargaining process. Section 5.3 presents the empirical methodology and Section 5.4 the economic model estimated. Section 5.5 presents the results and Section 5.6 concludes.

5.2 Determination of ROO in a bargaining process

As part of the negotiating process of the determination of ROO, in a PE model, the usage of *ex post* trade data is less clear and carries an endogeneity bias.

The announcement of negotiations for a preferential trading area influences decision-making and changes the expectations of key stakeholders. Therefore, goods trade- related variables such as export and import patterns, preferential and applied tariff

rates and their scheduling, and the set-up and design of ROO are affected by the trade negotiations and their outcomes.

As this chapter aims to investigate the design and set-up of ROO, a post-FTA investigation of trade-related variables would be influenced and biased by the FTA and its preceding negotiations. This endogeneity bias of the FTA and the negotiations would therefore lead to unclear results in regards to the real determinants of ROO.

To avoid this endogeneity bias, this study limits its investigation to the determination of ROO existing prior to the announcement of FTA negotiations. Therefore, the variables are exogenous and are not influenced by a change in trade patterns as part of the adjustment to the FTA often experienced during the negotiations for an FTA or PTA. In more detail, the analysis of the explanatory variables is limited to the three-year average prior to the announcement of FTA negotiations.

With this in mind, this study builds on the methodology outlined by Portugal-Perez (2006, 2009 and 2011), and sets the negotiations and determination of ROO in two stages.

The first stage sees country k to set a desirable level of ROO $\left(\widetilde{\mathrm{R}}_{\mathrm{i}}^{\mathrm{k}}\right)$ for every good i according to the outcome of the industrial or sectorial lobbying and the specific national governments and has its theoretical foundations in the PE literature such as Hillman (1989) and Helpman and Grossman (1994). Country k ’s desired set-up of the restrictiveness level of the ROO regime is then a function of factors generating potential TD concerns, which are defined by TD_i^k and further influenced by internal political economic (PE) forces in country k, which are determined by a function PE_i^k.

Therefore, the resulting desired ROO restrictiveness level of country k can be defined as a function and combination of TD_i^k and PE_i^k:

$$\tilde{R}_i^k = g_k\left(TD_i^k, PE_i^k\right) \tag{5.1}$$

The second stage sees the final ROO regime and its level of restrictiveness established in an FTA during negotiations and is defined as $\mathrm{ROO}_\mathrm{i}^*$.

The outcome of the negotiated ROO_i^* for each tariff line following the Nash bargaining outcome game of Duttagupta and Panagariya (2001) with the reduced form expression takes the following form:

$$ROO_i^* = h\left(w^A, \tilde{R}_i^A, w^N \tilde{R}_i^N\right) \tag{5.2}$$

$$ROO_i^* = h\left(w^A, PE_i^A, TD_i^A, w^N, PE_i^N, TD_i^N\right) \tag{5.3}$$

where w^A and w^N are the Australian and trading partner N's Nash weight coefficients representing their bargaining power, following the discussion of Cadot, Estevadeordal, and Suwa-Eisenmann (2006), who base their results on Helpman and Grossman (1994). Their theoretical model assumes stronger bargaining power with the developed country using market access in the form of tariff preferences to the developing country as the constraint by relating preferences directly to the restrictiveness of ROO.

On the one hand, considering that GATT Article XXIV asks for the elimination of all tariffs on substantially all trade, preferential tariffs are likely to be phased out to zero over a given period of time. Therefore, from the theoretical perspective, this would

make it, , difficult to treat the preference margins, (the preferential tariffs) as the choice variable.

On the other hand, in the Australian context, at least for the FTAs with Chile, Singapore, and Thailand, it makes sense to use the preferential tariff margins as the choice variable under the rationale that the countries could lose the market access that they enjoyed previously under the Australian GSP scheme.

5.3 Empirical methodology

Applying linear approximation to (5.3), the result of the bargaining process can be summarised by:

$$ROO_i = \beta[TD_i] + \gamma[PE_i] + \varepsilon_i \tag{5.4}$$

where TD_i are the TD variables and PE_i are the PE variables. ε_i is the respective error term.

To apply the model to the data, the restrictiveness of the ROO, ROO_i, is approximated with the modified ordinal ROO restrictiveness index R_i, as discussed in the previous section. The explanatory variables are, as outlined above, grouped into two vectors, namely TD and PE.

5.3.1 TD variables

TD contains variables that control for potential TD as the main economic justification for the determination of ROO. Therefore, the parameters in TD are intended to capture

the degree of restrictiveness based on the grounds of TD. These variables could then be interpreted as those for which the degree of restrictiveness of ROO negotiated depends entirely on TD concerns.

The tariff differential ($td_i^{A,N}$) is included as one of the variables best suited to investigate the determination of ROO based on TD. The tariff differential is defined as the difference between the MFN tariff rates of the members of the FTA and is considered as the strongest trade deflective factor. In the context of an Australian FTA, $td_i^{A,N}$ is a primary indicator of the potential propensity to deflect trade towards Australia if the applied MFN tariffs in Australia are higher than in country N. This implies that a third country currently trading with Australia would have an incentive to divert trade via country N to Australia to avoid Australia's higher MFN tariffs.

To investigate whether trade negotiators take different product classifications into account when negotiating ROO, Portugal-Perez (2006) was the first to incorporate the Rauch Index in the endogenous ROO equation. By applying network and search theory to show the substantial difference in trade in differentiated products and homogeneous products, Rauch (1999) developed an index of product differentiation with three integer values (I_i^{RAUCH}). According to his definition, homogenous goods, which take the index value of 1, include all products (such as wheat, for example) that are traded on internationally organised market exchanges with well-defined prices. Reference-priced goods (value 2) are those (such as chemicals, for example) not traded on internationally organised market exchanges, but are instead reference priced, meaning a reference price is available in specialised publications. Differentiated goods, which take the value of 3, are simply those not satisfying either of the first two characteristics. Differentiated goods are less easy to deflect.

The inclusion of I_i^{RAUCH} is worthwhile as it will underline the fact that homogenous goods are easier to subject to TD or re-export due to their nature. Therefore, stricter ROO for homogenous goods may be justified.

For the purpose of a robustness check, a modified index that is based on the broad economic classification (BEC) is included as an alternative to the Rauch Index. The BEC distinguishes commodities according to intermediate goods, consumption goods, and capital goods. Accordingly, the BEC takes the value of 1 for homogenous and intermediate commodities and the value of 2 for consumption produce and capital goods. If the Rauch Index holds and stricter ROO are negotiated for homogenous goods, the BEC should show similar results for homogenous and intermediate goods.

5.3.2 PE variables

PE includes variables that serve as proxies to identify PE forces that are likely to influence of the degree of restrictiveness of ROO negotiated.

Four specific areas in which political forces could potentially come into play have been identified. These are market access in the form of preferential tariffs, potential future competition based on higher comparative advantage, potential future import penetration based on the existing trade relationship between the trading partners, and trade facilitation based on the existing trade relationship between the trading partners.

Preferential tariff rates are negotiated to provide the trading partners' export-oriented firms with preferential market access. Market access in the form of a preferential tariff margin is an interesting variable to investigate as preferential tariff rates imply a loss of relative protection for domestic-oriented firms and producers currently enjoying

relatively high MFN tariff rates. To control for the degree of market access, the MFN tariff rates ($t_i^{MFN,n}$) of the respective trading partner have been included as control variables. The MFN tariff rates have been chosen for two reasons. Firstly, in most of Australia's FTAs, the preferential tariff rate for imports into Australia is negotiated to zero when the agreement enters into force. Secondly, if it is not set to zero immediately, the preferential tariff rate will be phased out to zero in the medium term. As domestic-oriented firms or import-competing sectors have rational expectations, they will do whatever possible to lobby for any possible protection that could be a substitute for the expected loss of protection. ROO are such a possibility and therefore one would expect stricter ROO the higher the current relative tariff protection in the form of MFN tariff rates ($t_i^{MFN,n}$).

In the case of the SAFTA, the applied MFN tariff rates of Singapore are zero. Therefore, to estimate the effect of the degree of market access, Singapore's bound tariff rate is used. The bound tariff rate is the maximum external tariff rate that may be applied in accordance with the commitments under the WTO. Therefore, especially in the case of a relatively small hub like Singapore, the bound tariff rate provides the country and its domestic industries with additional leverage of protection. Therefore, for a trader with Singapore, an FTA or a PTA also provide a long-term guarantee of market access and gives traders clear expectations. This also implies that the real long-term loss of protection of import-competing industries though preferential tariff rates of an FTA or PTA is the bound tariff rate. Thus, the inclusion of the bound tariff rate in the case of the SAFTA investigates whether stricter ROO are negotiated in tariff lines that offer relatively larger market access and thus are used as a substitute for tariff protection.

Similar to preferential tariff margins, a potential increase in competition as a result of a PTA puts pressure on domestic-oriented or import-competing producers. In this paper,

competition is measured in the form of the revealed comparative advantage (RCA) and in the form of trade with the rest of the world.

In regards to the first measure, $RCAI_i^A$ and $RCAI_i^N$ are Australia's and trading partner N's RCA indexes for good i, respectively. The index of RCA was introduced by Balassa (1965). According to international trade theory, specialisation drives gains from trade. The higher the effective production and trade of a specific commodity, the more specialised a country is said to be. Therefore, according to the definition of the RCA index, if the $RCAI_i^j$ is larger than 1 for a given product, then this implies that the country has a revealed advantage in the trade of this particular commodity. Thus, the country is said to be more competitive in that particular sector. Therefore, if the $RCAI_i^j$ for a given product is below 1, the country is said to have a relative disadvantage in that particular commodity. From an FTA welfare perspective, Plummer, Cheong, and Hamanaka (2010) find that the greater is the difference between the $RCAI_i^j$ for a particular commodity of two countries, the greater is the welfare created with the help of an FTA between these countries. That is, countries with a lower $RCAI_i^j$ will be able to replace the domestically and relatively inefficiently produced commodity with the relatively more efficiently produced imported commodity. For example, let us assume that Australia's $RCAI_i^j$ of HS commodity 080450 ("Guavas, mangoes & mangosteens, fresh/dried") is 3.65, indicating a strong comparative advantage in the trade (and production) of this commodity. Let us further assume that Thailand's $RCAI_i^j$ is only 0.5, indicating a relative disadvantage. Therefore, one could argue that from a welfare perspective, a PTA between the two trading partners would allow Thailand to import the relatively more efficiently produced crop from Australia while displacing the relatively inefficiently produced domestic crop. That this would not sit well with the

Thai producers of "Guavas, mangoes & mangosteens, fresh/dried" is self-evident, especially when considering that these producers currently enjoy tariff protection in the form of a special MFN duty. This duty asks for 38.45 Thai baht (approximately US$1.20) per kilogram of imports. Following this analysis, this import-competing sector, which is found to have relatively revealed disadvantage, favours relatively high MFN tariffs. Analogically, in the case of an FTA, this import-competing sector would lobby for relatively high preferential tariffs and strict ROO to protect itself from the relatively more efficient imports. Portugal-Perez (2006) points out that the signs of the coefficients for the RCA index also capture the relative bargaining power and lobbying effectiveness of competitive exporters and the less competitive, import-competing sectors.

The second competition measure, the respective trading partner's trade data with the rest of the world ($ln(X_i^{A,ROW}), ln(X_i^{N,ROW})$), is included in the analysis as it allows us to control for potential future import penetration. Sectors in which a country exports relatively more to the rest of the world are also more likely to take advantage of the deeper market access created by the FTA. On the one hand, this could be beneficial and lead to trade and export creation by potentially re-routing or expanding trade of this particular commodity towards the new preferred trading partner. On the other hand, this could also increase competition for import-competing industries. Therefore, to avoid additional competition, import-competing industries would have an incentive to lobby for relatively stricter ROO in areas in which the trading partner exports relatively strongly to the rest of the world.

Trade facilitation is one of the key elements of bilateral trade relations. One would expect less strict ROO in areas of strong bilateral trade relationships that have been established prior to the FTA under MFN tariff rates. Therefore, the inclusion of the

bilateral trade variables between the specific trading partner and Australia $ln(X_i^{A,N})$ and $ln(X_i^{N,A})$ investigates if countries do successfully aim to facilitate trade. If this is the case, the degree of trade facilitation aimed at in the determination of ROO should be identifiable.

5.4 Model

The default implemented model is an adjusted version of the model proposed and the estimated model of Portugal-Perez (2006) and takes the following form:

$$R_i^k = \alpha_0 + \beta_1(td_i^{A,N}) + \beta_2(I_i^{RAUCH}) + \gamma_1(t_i^{MFN,A}) + \gamma_2(t_i^{MFN,N}) + \gamma_3 RCAI_i^A + \gamma_4 RCAI_i^N + \gamma_5 ln(X_i^{A,ROW}) + \gamma_6 ln(X_i^{N,ROW}) + \varepsilon_i \quad (5.5)$$

where R_i^k is the adjusted restrictiveness index for the respective FTA under consideration.

$td_i^{A,N}$ is defined as the tariff differential between the Australian MFN tariff and the MFN tariff of the trading partner N, in absolute terms.[29] The tariff differential is averaged out over the three-year period preceding the negotiations for the specific trade agreement.[30] This is done to avoid any potential endogeneity bias that would adversely affect the results.

I_i^{RAUCH} is the Rauch Index of product differentiation with three integer values. The index takes the value of 1 for homogenous goods such as agricultural commodities and

[29] The MFN tariff differential is formally defined as $td_i^{A,N} = (|t_i^{MFN,A} - t_i^{MFN,N}|)$.

[30] For example, in the case of the SAFTA, the MFN tariffs of 1997 to 2000 are averaged out.

intermediate goods such as metals and base metals and energy goods. The value of 2 is chosen for reference-priced commodities and the value of 3 for differentiated products, which include most processed consumption and capital goods.

$t_i^{MFN,A}$ is the applied MFN tariff rate of Australia and $t_i^{MFN,N}$ is the applied MFN tariff rate of the respective trading partner of the specific FTA. Both applied tariff rates are averaged out over a three-year period preceding the beginning of formal negotiations for the specific FTA.

$RCAI_i^A$ and $RCAI_i^N$ are Australia's and trading partner N's RCA indexes for good i, respectively.[31] The data used for the RCAI are averaged out over a three-year period prior to the start of formal negotiations between the trading partners.

$ln(X_i^{A,ROW})$ is the natural logarithm of Australia's total exports other than to country N (exports with the rest of the world). Likewise, $\ln(X_i^{N,ROW})$ is the natural logarithm of trading partner N's exports with the rest of the world other than with Australia. As before, the trade data are averaged out over the three-year period preceding the entry into formal negotiations for the specific FTA. ε_i is the respective error term.

Additionally, a modified version of (5.5) is estimated, which includes two additional variables and takes the following form:

$$\begin{aligned} R_i^k = \alpha_0 + \beta_1\left(td_i^{A,N}\right) + \beta_2\left(I_i^{RAUCH}\right) + \gamma_1\left(t_i^{MFN,A}\right) + \gamma_2\left(t_i^{MFN,N}\right) \\ + \gamma_3 RCAI_i^A + \gamma_4 RCAI_i^N + \gamma_5 ln\left(X_i^{A,ROW}\right) + \gamma_6 ln\left(X_i^{N,ROW}\right) \\ + \delta_1 ln\left(X_i^{A,N}\right) + \delta_2 ln\left(X_i^{N,A}\right) + \varepsilon_i \end{aligned} \tag{5.6}$$

[31] The RCA index is formally defined as $RCAI_i^j = \left(X_i^{j,ROW}/\sum_i X_i^{j,ROW}\right)/\left(\sum_j X_i^{j,W}/\sum_i \sum_j X_i^{j,W}\right)$, where $X_i^{j,ROW}$ is country j's exports of commodity i to the world.

where $ln(X_i^{A,N})$ and $ln(X_i^{N,A})$ are the bilateral exports between Australia and the FTA-specific trading partner. As before, to avoid endogeneity bias of the results, the data that are used for the bilateral trade are averaged out over the three-year period preceding the entry into formal negotiations for the specific FTAA.

For the purpose of a robustness check, a modified index that is based on the BEC is included as an alternative to the Rauch index. As stated above, the BEC distinguishes commodities according to intermediate goods, consumption goods, and capital goods. Accordingly, the BEC takes the value of 1 for homogenous and intermediate commodities and the value of 2 for consumption produce and capital goods. If the Rauch Index holds and stricter ROO are negotiated for homogenous goods, the BEC should show similar results for homogenous and intermediate goods.

5.5 Results

The results are presented in two steps, which also represent the estimation procedure applied. In the first step, the preferred or default equation (5.5) and its specifications according to the Rauch Index were estimated. Accordingly, Subsection 5.5.1 below discusses the expected signs of (5.5) and compares it to actual estimated results of the different preferential agreements. In the second step, (5.6) and its specifications according to the Rauch Index were estimated. The second step serves as a robustness check by estimating the adjusted equation (5.6). A detailed summary of all results is presented in Tables 5.2 to 5.7 and a full discussion of the results is presented in the Appendix to this chapter.

5.5.1 Step 1: Default/preferred equation

Table 5.1 provides an overview of the expected signs of the default or preferred (5.5) and the actual estimated signs of the five Australian PTAs of interest in this study. There are four different specifications of (5.5) estimated to adjust for homogenous, reference-priced, and differentiated goods based on the Rauch Index ($\mathrm{I}_{\mathrm{i}}^{\mathrm{RAUCH}} = 1, 2, 3$).

- Tariff differential

For the tariff differential ($\mathrm{td}_{\mathrm{i}}^{\mathrm{A,N}}$), a positive and significant coefficient is expected. A positive sign would indicate that more restrictive ROO are a result of negotiations on tariff lines that carry a greater potential and incentive for TD towards the country with the lower MFN tariff rate. If the coefficient is negative, then TD is most likely not a concern for the trading partners. This could be the case if trade costs between the preferred trading partners outweighs the benefit of the potential tariff differential. If this is the case, there would be no incentive to divert trade via the country with the lower MFN tariff rate, as the additional trade costs to do so would increase the overall price of the commodity.

The actual outcomes for the tariff differential variable ($td_i^{A,N}$) yield mixed results. For the less developed countries, the results follow the expected signs and as such underline evidence of concern for potential TD under the SAFTA, the TAFTA, and the Chile/AUS-FTA. The results confirm that the higher the tariff differential, the more restrictive the ROO. In more detail, the results for the agreements with less advanced countries and Australia all show consistently positive results at the 1 per cent significance level. This indicates that the restrictiveness of ROO is driven partially by the potential threat of TD. For Singapore, Thailand, and Chile, the countries' regional locations and their trade with neighbouring countries make potential TD a possible

Table 5.1: Determinants of ROO under Australia's bilateral FTAs

	Expected sign	CER	SAFTA	TAFTA	AUS-FTA	Chile/AUS-FTA
$td_i^{A,N}$	+	– (***)	+ (***)	+ (***)	– (***)	+ (***)
I_i^{RAUCH}		– (***)	– (***)	– (***)	– (***)	– (***)
$I_i^{RAUCH} = 1$	+	+ (***)	+ (***)	+ (***)	+ (***)	+ (***)
$I_i^{RAUCH} = 2$	+	+ (**)	+ (***)	– (***)	+ (***)	+ (***)
$I_i^{RAUCH} = 3$	–	– (***)	– (***)	– (***)	– (***)	– (***)
$t_i^{MFN,A}$	+	+ (***)	+ (***)	+ (***)	+ (***)	+ (***)
$t_i^{MFN,N}$	+	+ (***)	+ (***)	– (***)	+ (***)	+ ( )
$RCAI_i^A$	+	+ (***)	+ (**/***)	+ (***)	+ (/***)	+ (***)
$RCAI_i^N$	+	+ (/ */**)	+ ( )	+ (***)	– (***)	+ ( )
$ln(X_i^{A,ROW})$	–	– (***)	– (***)	– (***)	– (***)	– (/*/**)
$ln(X_i^{N,ROW})$	–	+/– ( )	– (***)	– (/**)	– (***)	– (/*)
$ln(X_i^{A,N})$	–	– (***)	– (***)	– (***)	– (***)	– (***)
$ln(X_i^{N,A})$	–	– (***)	– (***)	– (***)	– (***)	– (***)
$I_i^{BEC} = 1$	+	+ (***)	– (**)	+ (***)	+ (***)	+ (***)
$I_i^{BEC} = 2$	–	– (***)	– (***)	– (***)	– (***)	– (***)

Notes: The table indicates the expected signs and the actual signs of the results. The degree of level of significance is provided in parentheses (* 10 per cent, ** 5 per cent, *** 1 per cent). In some cases, more than one significance level is provided as a result of different specifications. For detailed results, please refer to Tables 5.2 through to 5.6. The yellow shading indicates where the actual sign differs from the expected sign. The green shading indicates where the results are found to be not significant for at least one specification. The yellow/green shaded cells indicate mixed results with insignificant estimates.

concern. Furthermore, Singapore's current zero-MFN tariff regime makes the country a potential transshipment hub, additionally to its existing trading hub status.

Interestingly, the opposite is the case for the results of the tariff differential for the agreements between Australia with its developed trading partners New Zealand and the United States. For both agreements, the variable is negative and significant and therefore shows no evidence of TD concerns. For the agreements between Australia and New Zealand and Australia and the United States (the CER and the AUS-FTA, respectively), the results are negative at the 1 per cent significance level. This indicates that there is no evidence that TD based on the difference between the MFN tariffs is of concern for the trading partners. For the AUS-FTA, the distance and therefore the trade costs could make the difference, implying higher trade costs that go beyond any potential tariff margin that would justify TD. Similarly, trade costs could also explain the positive results for the CER as well as the fact that New Zealand has negotiated PTAs and FTAs with trading partners similar to Australia (e.g., Singapore and Thailand). Either way, transshipment via New Zealand or Australia would likely be more expansive than the potential price difference achieved due to the preferential tariff margin. In this case, there would be no incentive to divert trade via the country with the lower MFN tariff rate, as the trade costs to do so would increase the overall price of the commodity.

- Rauch Index

For the Rauch Index, a positive result is expected for homogenous goods and reference-priced goods ($\mathrm{I}_{\mathrm{i}}^{\mathrm{RAUCH}} = 1, \mathrm{I}_{\mathrm{i}}^{\mathrm{RAUCH}} = 2$) and a negative result for differentiated commodities ($\mathrm{I}_{\mathrm{i}}^{\mathrm{RAUCH}} = 3$). The reason for this expectation is that homogenous goods and reference-priced goods are more likely to be trade diverted due their nature than is the case with differentiated commodities.

Even though the results of the tariff differentiation for the CER and the AUS-FTA showed that there was no concern for TD, the results for the Rauch Index tell a different story. For all agreements under investigation in this study, homogenous goods ($I_i^{RAUCH} = 1$) are found to be significant and positive. This implies that homogenous goods are associated with relatively stricter ROO. This further shows that in all agreements, the nature of homogenous goods is taken into account as these products are more easily subject to TD or re-export.

Referenced-priced goods ($I_i^{RAUCH} = 2$) are, with the exception of the TAFTA, also found to be a concern for potential TD. This outcome can be drawn as the results are also found to be positive and significant at least at the 5 per cent level. These results also hint that reference-priced goods not traded on internationally organised markets raise the potential for TD and are therefore faced with relatively stricter ROO. For Thailand, the opposite is found to be the case.

For differentiated commodities ($I_i^{RAUCH} = 3$), no evidence is found that these goods face relatively stricter ROO. All results are found to be negative at the 1 per cent level of significance. These results also reflect the nature of differentiated goods as these are less easy to deflect.

- MFN tariff rates

The coefficients for the MFN tariff rates, which are used as proxies for the degree of market access, are expected to have a positive sign. A positive coefficient would indicate that stricter ROO have been negotiated in tariff lines that offer higher market access to the respective trading partner – stricter ROO are being applied in areas with the largest preferential tariff margins. A positive sign would further imply that import-competing industries succeed in negotiating a substitute protective tool, namely

by substituting relative tariff protection with stricter ROO – relatively stricter ROO are used as a substitute for MFN tariff protection.

For all the agreements, the coefficient for Australia's MFN tariff rates is found to be positive and significant at the 1 per cent significance level. This shows that stricter ROO are indeed being applied in areas with the largest preferential tariff margins. Further, it is an indication that Australian import-competing sectors manage to lobby for stricter ROO in areas in which they are losing relative tariff protection and it shows evidence of stringent ROO being applied as substitutes for tariff protection.

The same conclusion can be drawn about the respective trading partner's MFN tariff rates in the CER, the SAFTA, and the AUS-FTA, as the results are also positive and strongly significant. A positive but insignificant result is reported for the Chile/AUS-FTA and a negative and significant result for the TAFTA. This also implies that in the case of the TAFTA that there is no evidence that ROO are applied as a substitute for tariff protection by Thailand.

- RCA index

For the competitiveness proxies, RCAI , if importing competing firms succeed by having a stronger lobbying effectiveness in imposing stricter ROO over the exporter's interests but also over the interests of the respective trading partner, a positive sign would be expected. Therefore, a positive coefficient would indicate that import-competing sectors succeed in substituting stricter ROO for MFN tariff rates as a protective tool. Similarly, a negative sign would indicate that exporters succeed in lobbying for relatively faster market access due to relatively simpler ROO.

As for the Australian RCA index ($RCAI_i^A$), the estimations show continuous positive coefficients for all trade agreements. With the exception of the AUS-FTA, the results also indicate significance at least at the 5 per cent level. Accordingly, Australian import-competing producers have a stronger lobbying effectiveness in imposing stricter ROO over the exporter's interests but also over the interests of the respective trading partner. The positive coefficients also indicate that import-competing sectors succeed in substituting stricter ROO for MFN tariff rates as a protective tool.

The outcome of the RCA index of Australia's respective trading partners ($RCAI_i^N$) is inconsistent. While it is strongly significant and positive for the TAFTA, the results for the AUS-FTA are also significant but negative. In the CER, in specifications (2), (3), and (4), the results are slightly positive at the 5 and 10 per cent significance levels. The coefficients for the SAFTA are only significant in specification (5) and show a positive outcome, but they are insignificant for all other specifications of the modelling. Slightly positive but insignificant results are estimated for Chile's RCA index variable of the Chile/AUS-FTA.

- Trade with the rest of the world

A positive sign for the second competition measure, the respective trading partner's trade data with the rest of the world ($\ln(X_i^{A,ROW}), \ln(X_i^{N,ROW})$) to control for potential future import penetration would indicate that relatively stricter ROO are negotiated in tariff lines for which there are relatively large exports of the future trading partner to the rest of the world. A positive coefficient would imply that the import-competing industries prevail in negotiating stricter ROO in areas of future potential import competition. If the coefficient is found to be negative, export-oriented industries would

prevail throughout the negotiation process and negotiate relatively easy market access for commodities they are currently exporting to the rest of the world.

The coefficients for Australia's trade with the rest of the world ($ln(X_i^{A,ROW})$) are negative and significant at the 1 per cent significance level for all agreements. This result indicates that in regards to trade volume, Australian exporters prevail in lobbying for relatively less stringent ROO in tariff lines that Australia exports relatively significantly to the rest of the world.

As for the trading partner's trade with the rest of the world ($ln(X_i^{N,ROW})$), in most cases negative results are also estimated. It is only for the CER that the only significant result, which is estimated in specification (5), is positive, indicating that to avoid additional competition, Australian import-competing industries prevail in lobbying for relatively stricter ROO in areas in which New Zealand exports relatively strongly to the rest of the world.

5.5.2 Step 2: Robustness check

The following presents the results for the second part of Table 5.1 in which bilateral trade and a modified index based on the BEC are included as part of a robustness check.

- Bilateral trade

A negative sign for the coefficients of the bilateral trade variable would imply that on average less restrictive ROO are negotiated for commodities in respect of which there is relatively strong trade between the two trading partners.

The coefficients that estimate the bilateral trade between the trading partners ($ln(X_i^{A,N})$ and $ln(X_i^{N,A})$) are found to be negative for all agreements. Furthermore, all results are significant at the 1 per cent level and indicate that the inclusion of the coefficients for trade facilitation is valid. Therefore, the results show that trade facilitation carries into the negotiation of ROO in areas in which the bilateral trade is relatively higher, and relatively less strict ROO are negotiated.

- Modified BEC index

For homogenous and intermediate goods in the modified index based on the BEC index (BEC=1), similar to the Rauch Index, a positive result is expected, implying homogenous and intermediate goods are more likely to be trade diverted due to their nature than is the case with differentiated commodities. Therefore, for BEC=2, which covers consumption products and capital goods, a negative sign is expected.

With the exception of the result for the SAFTA, where the result for BEC=1 shows a negative sign, all results for BEC=1 and BEC=2 are according to the expectations and accordingly follow the results from the Rauch Index. Accordingly, homogenous and intermediate goods are associated with relatively stricter ROO, underlining the previous results of the Rauch Index ($I_i^{RAUCH} = 1$) that the nature of homogenous goods is taken into account in the set-up of ROO, considering that these are more easily subject to TD or re-export.

At the same time, the results for BEC=2 support the previous results of the Rauch Index for differentiated commodities ($I_i^{RAUCH} = 3$). No evidence is found that these goods face relatively stricter ROO. All results are found to be negative at the 1 per cent level of significance. These results also reflect the nature of differentiated goods, as these are less easy to deflect.

Table 5.2: Determinants of ROO under the CER

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$td_i^{A,N}$	-4.2940*** [0.4955]	-4.6791*** [0.4925]	-4.6160*** [0.4959]	-4.3122*** [0.4967]	-4.3026*** [0.4958]	-4.7451*** [0.4932]	-4.5130*** [0.4932]
I_i^{RAUCH}	-0.2150*** [0.0252]				-0.1949 *** [0.0255]		
$I_i^{RAUCH} = 1$		0.4052*** [0.0550]					
$I_i^{RAUCH} = 2$			0.0780** [0.0334]				
$I_i^{RAUCH} = 3$				-0.2261 *** [0.0332]			
$t_i^{MFN,A}$	1.6668*** [0.3987]	1.6966 *** [0.3987]	1.6191*** [0.3985]	1.6321*** [0.3986]	1.8490*** [0.3999]	1.5710*** [0.3994]	1.0675*** [0.4028]
$t_i^{MFN,N}$	4.4107*** [0.4222]	3.9979*** [0.4167]	3.9290*** [0.4202]	4.3236*** [0.4232]	4.7055*** [0.4247]	2.1497*** [0.4287]	4.2155*** [0.4181]
$RCAI_i^A$	1.5404*** [0.3615]	1.5933*** [0.3615]	1.9298*** [0.3582]	1.7140*** [0.3599]	1.4037*** [0.3622]	1.9767*** [0.3589]	1.8048*** [0.3587]
$RCAI_i^N$	0.1997 [0.1331]	0.2340* [0.1329]	0.2727** [0.1327]	0.2233* [0.1330]	0.1957 [0.1338]	0.1305 [0.1332]	0.2375* [0.1328]
$ln(X_i^{A,ROW})$	-0.5106*** [0.1113]	-0.5471*** [0.1111]	-0.5774*** [0.1110]	-0.5304*** [0.1112]	-0.3006*** [0.1157]	-0.6239*** [0.1111]	-0.5037*** [0.1113]
$ln(X_i^{N,ROW})$	0.0777 [0.0839]	0.0167 [0.0832]	-0.0056 [0.0834]	0.0588 [0.0839]	0.4096*** [0.0965]	-0.1372 [0.0833]	-0.0019 [0.0830]
$ln(X_i^{A,N})$					-0.43778*** [0.09414]		
$ln(X_i^{N,A})$					-0.37807*** [0.08744]		
$I_i^{BEC} = 1$						0.6024*** [0.0379]	
$I_i^{BEC} = 2$							-0.4265*** [0.0433]
Observations	5543	5543	5543	5543	5543	5543	5543
chi2(8)	412.34	393.98	345.02	385.72	462.95	593.13	436.87
Prob > chi2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Log Likel.	-8523.85	-8533.04	-8557.52	-8537.16	-8498.55	-8433.46	-8511.59

Source: Author's estimation.

Table 5.3: Determinants of ROO of the SAFTA

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$td_i^{A,N}$	1.9721*** [0.3045]	1.9231*** [0.3043]	1.8194*** [0.3025]	1.9152*** [0.3036]	1.8847*** [0.3113]	1.8521*** [0.3034]	1.9381*** [0.3052]
I_i^{RAUCH}	-0.1658*** [0.0339]				-0.0825** [0.0353]		
$I_i^{RAUCH} = 1$		0.2345*** [0.0760]					
$I_i^{RAUCH} = 2$			0.1313*** [0.0452]				
$I_i^{RAUCH} = 3$				-0.2053*** [0.0445]			
$t_i^{MFN,A}$	2.2191*** [0.4773]	2.0013*** [0.4751]	2.2190*** [0.4793]	2.2930*** [0.4790]	2.4293*** [0.4867]	2.1597*** [0.4779]	1.5743*** [0.4806]
$t_i^{MFN,N}$	3.4211*** [0.4015]	3.0575*** [0.3954]	3.1248*** [0.4095]	3.4821*** [0.4119]	3.2549*** [0.4027]	3.5219*** [0.4239]	3.4386*** [0.4116]
$RCAI_i^A$	1.1139** [0.4761]	1.2697*** [0.4747]	1.3755*** [0.4682]	1.1879** [0.4728]	1.0858** [0.4789]	1.4817*** [0.4687]	1.1432** [0 .4753]
$RCAI_i^N$	0.3696 [0.1461]	0.2214 [0.1458]	0.2808 [0.1459]	0.3776 [0.1461]	3.6420** [0.1511]	0.1125 [0.1457]	0.5885 [0.1475]
$ln(X_i^{A,ROW})$	-0.9410*** [0.2143]	-1.0435*** [0.2130]	-0.9869*** [0.2141]	-0.9281*** [0.2147]	0.0270 [0.2373]	-1.0763*** [0.2171]	-0.9074*** [0.2199]
$ln(X_i^{N,ROW})$	-2.2826*** [0.2296]	-2.2911*** [0.2304]	-2.3985*** [0.2285]	-2.3358*** [0.2288]	-1.1932*** [0.2442]	-2.3441*** [0.2281]	-2.3328*** [0.2310]
$ln(X_i^{A,N})$					-1.2208*** [0.1498]		
$ln(X_i^{N,A})$					-1.6092*** [0.1505]		
$I_i^{BEC} = 1$						-0.1073** [0.0491]	
$I_i^{BEC} = 2$							-0.6703*** [0.0632]
Observations	5543	5543	5543	5543	5543	5543	5543
chi2(7)	443.22	428.68	427.64	440.64	692.96	423.53	535.41
Prob > chi2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Log Likel.	-2500.68	-2507.94	-2508.47	-2501.97	-2375.80	-2510.51	-2454.58

Source: Author's estimation.

Table 5.4: Determinants of ROO of the TAFTA

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$td_i^{A,N}$	2.7084*** [0.2534]	2.7416*** [0.2538]	2.7018*** [0.2534]	2.6934*** [0.2533]	2.6629*** [0.0025]	2.6702*** [0.2533]	2.3797*** [0.2545]
I_i^{RAUCH}	-0.2406*** [0.0243]				-0.2173*** [0.0245]		
$I_i^{RAUCH} = 1$		0.7159*** [0.0541]					
$I_i^{RAUCH} = 2$			-0.0925*** [0.0331]				
$I_i^{RAUCH} = 3$				-0.1681*** [0.0323]			
$t_i^{MFN,A}$	9.7791*** [0.2865]	9.7913*** [0.2846]	9.1017*** [0.2806]	9.4526*** [0.2844]	9.9233*** [0.2906]	8.7941*** [0.2822]	8.9272*** [0.2806]
$t_i^{MFN,N}$	-1.7903*** [0.2151]	-2.0050*** [0.2154]	-1.9552*** [0.2162]	-1.7921*** [0.2156]	-1.7864*** [0.2156]	-2.2175*** [0.2167]	-1.6925*** [0.2154]
$RCAI_i^A$	1.2246*** [0.3513]	1.1552*** [0.3504]	1.7441*** [0.3482]	1.4967*** [0.3501]	1.5151*** [0.3528]	1.6850*** [0.3479]	1.4693*** [0.3484]
$RCAI_i^N$	1.4066*** [0.3689]	1.3623*** [0.3689]	1.5895*** [0.3683]	1.5097*** [0.3686]	1.3792*** [0.3772]	1.3167*** [0.3691]	1.2799*** [0.3692]
$ln(X_i^{A,ROW})$	-0.8911*** [0.1210]	-0.9578*** [0.1206]	-1.0426*** [0.1209]	-0.9394*** [0.1211]	-0.5747*** [0.1241]	-1.1052*** [0.1207]	-0.8951*** [0.1208]
$ln(X_i^{N,ROW})$	-0.0716 [0.0951]	-0.1137 [0.0944]	-0.2318** [0.0946]	-0.1328 [0.0951]	0.1441 [0.0995]	-0.2127** [0.0941]	-0.1047 [0.0944]
$ln(X_i^{A,N})$					-0.8126*** [0.0748]		
$ln(X_i^{N,A})$					-0.1621*** [0.0784]		
$I_i^{BEC} = 1$						0.4161*** [0.0367]	
$I_i^{BEC} = 2$							-0.6112*** [0.0439]
Observations	5543	5543	5543	5543	5543	5543	5543
chi2(8)	1417.70	1495.48	1327.88	1347.10	1553.83	1448.71	1515.47
Prob > chi2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Log Likel.	-10756.59	-10717.70	-10801.51	-10791.89	-10688.53	-10741.09	-10707.71

Source: Author's estimation.

Table 5.5: Determinants of ROO of the Australia AUS-FTA

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$td_i^{A,N}$	-3.8404*** [0.3378]	-3.9956*** [0.3375]	-3.8152*** [0.3376]	-3.7723*** [0.3378]	-3.5930*** [0.3398]	-4.3394*** [0.3422]	-3.6256*** [0.3377]
I_i^{RAUCH}	-0.3393*** [0.0243]				-0.2798*** [0.0252]		
$I_i^{RAUCH} = 1$		0.2341*** [0.0534]					
$I_i^{RAUCH} = 2$			0.4377*** [0.0327]				
$I_i^{RAUCH} = 3$				-.5099*** [0.0322]			
$t_i^{MFN,A}$	10.5698*** [0.2946]	9.7687*** [0.0029]	10.3042*** [0.2909]	10.7310*** [0.2950]	10.6995*** [0.2965]	9.2760*** [0.2919]	9.2815*** [0.2871]
$t_i^{MFN,N}$	4.4255*** [0.3356]	4.6512*** [0.0033]	4.4676*** [0.3351]	4.3646*** [0.3356]	4.1470*** [0.3379]	4.9553*** [0.3394]	4.2568*** [0.3353]
$RCAI_i^A$	0.4482 [0.3488]	0.9825*** [0.0035]	0.9699*** [0.3452]	0.5085 [0.3476]	0.5689* [0.3534]	1.1527*** [0.3446]	0.8425** [0.3454]
$RCAI_i^N$	-8.5238*** [0.1435]	-8.1047*** [0.1434]	-9.0255*** [0.1436]	-8.9212*** [0.1436]	-7.4143*** [0.1456]	-5.5473*** [0.1447]	-7.2076*** [0.1436]
$ln(X_i^{A,ROW})$	-0.4996*** [0.1151]	-0.6712*** [0.1143]	-0.5411*** [0.1148]	-0.45776*** [0.1153]	-0.2198* [0.1192]	-0.8457*** [0.1148]	-0.5590*** [0.1145]
$ln(X_i^{N,ROW})$	-1.6274*** [0.2956]	-1.9102*** [0.2947]	-1.6316*** [0.2957]	-1.5272*** [0.2959]	-0.9068*** [0.3075]	-2.0031*** [0.2948]	-1.6543*** [0.2953]
$ln(X_i^{A,N})$					-0.4331*** [0.0704]		
$ln(X_i^{N,A})$					-0.4523*** [0.0823]		
$I_i^{BEC} = 1$						0.5069*** [0.0361]	
$I_i^{BEC} = 2$							-0.7366*** [0.0433]
Observations	5543	5543	5543	5543	5543	5543	5543
chi2(8)	1728.55	1552.70	1713.39	1784.80	1811.09	1731.09	1824.61
Prob > chi2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Log Likel.	-11396.03	-11483.96	-11403.61	-11367.91	-11354.76	-11394.76	-11348.00

Source: Author's estimation.

Table 5.6: Determinants of ROO under the Chile/AUS-FTA

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$td_i^{A,N}$	2.5589*** [0.5259]	2.6558*** [0.5254]	2.6641*** [0.5254]	2.5755*** [0.5258]	2.3509*** [0.5284]	0.3774*** [0.5464]	2.0659*** [0.5283]
I_i^{RAUCH}	-0.2587 *** [0.0253]				-0.2478*** [0.0254]		
$I_i^{RAUCH} = 1$		0.3576*** [0.0559]					
$I_i^{RAUCH} = 2$			0.1976*** [0.0334]				
$I_i^{RAUCH} = 3$				-0.3191*** [0.0331]			
$t_i^{MFN,A}$	5.1436 *** [0.3582]	4.4259*** [0.3472]	4.6112*** [0.3531]	5.1339*** [0.3595]	5.1037*** [0.3584]	2.9702*** [0.3532]	3.7610*** [0.3461]
$t_i^{MFN,N}$	0.7131 [0.2857]	1.2649 [0.2858]	2.9966 [0.2848]	1.6437 [0.2852]	0.8553 [0.2858]	3.0713 [0.2852]	1.2166 [0.2853]
$RCAI_i^A$	1.2644*** [0.4152]	1.5395*** [0.4147]	1.8976*** [0.4092]	1.4815*** [0.4125]	1.3475*** [0.4156]	1.9034*** [0.4101]	1.6981*** [0.4100]
$RCAI_i^N$	0.1409 [0.2844]	0.3158 [0.2833]	0.2843 [0.2837]	0.1498 [0.2845]	0.1387 [0.2897]	0.2569 [0.2850]	0.1778 [0.2842]
$ln(X_i^{A,ROW})$	-0.0899 [0.1259]	-0.1961* [0.1252]	-0.2569** [0.1242]	-0.1385 [0.1252]	-0.0553 [0.0126]	-0.4045*** [0.1245]	-0.1545 [0.1247]
$ln(X_i^{N,ROW})$	-0.1056 [0.0774]	-0.1352* [0.0773]	-0.1366* [0.0772]	-0.1096 [0.0774]	-0.0521 [0.0785]	-0.3486*** [0.0784]	-0.1141 [0.0775]
$ln(X_i^{A,N})$					-0.5312*** [0.1228]		
$ln(X_i^{N,A})$					-0.1273*** [0.1628]		
$I_i^{BEC} = 1$						0.6073*** [0.0382]	
$I_i^{BEC} = 2$							-0.6571*** [0.0457]
Observations	5543	5543	5543	5543	5543	5543	5543
chi2(8)	300.99	236.92	231.03	289.07	225.76	449.57	406.43
Prob > chi2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Log Likel.	-8098.10	-8130.13	-8133.08	-8104.06	-8135.71	-8023.81	-8045.38

Source: Author's estimation.

5.6 Conclusions

ROO are an important part of every trade agreement and can be an effective trade policy tool to avoid TD. However, the literature does suggest that the standard economic justification of TD explains only part of the set-up of ROO. The best evidence that other PE factors influence the set-up of ROO that go beyond the economic justification of TD can be found in the overall complexity of ROO itself.

The complex set of rules that make up product-specific ROO raises the question of whether these rules are set randomly or whether special interests prevail. If the latter is the case, ROO can adversely affect the benefits to be achieved in FTAs and thereby reduce the usage of preferences, resulting in lower utilisation rates. This also raises the possibility that ROO adversely affect trade flows.

In this chapter, the hypothesis that PE factors are part of the determination of ROO has been investigated. The best way to explore this hypothesis would be to apply firm-level data. This data would offer insights into firms' costs involved in applying for preferential treatment under a specific trading arrangement's ROO. Due to the absence of such data, the focus in this chapter was on *ex post* trade data observations of the five Australian bilateral FTAs under investigation in this study.

The modified ROO restrictiveness index developed in Chapter 4 was applied to proxy for the restrictiveness of ROO. A PE framework was applied by making use of an empirical PE model to estimate the determinants of the ROO restrictiveness index. In this PE model, a set of both TD factors and PE factors was proposed to investigate the determinants of the restrictiveness index.

The PE factors are based on the hypothesis that special interest groups such as import-competing industries and export-oriented sectors have interests in ROO at varying

levels as these can serve as trade policy tools to their benefit. Therefore, these industries and sectors would lobby for their interests during the lengthy negotiations for the PTAs. This may also explain the complexity of the outcome of the set of ROO.

Four specific areas in which political forces could likely come into play were identified. These are market access in the form of preferential tariffs, potential future competition based on higher comparative advantage, potential future import penetration based on the existing trade relationship between the trading partners, and trade facilitation based on the existing trade relationship between the trading partners.

The applied PE model, which does not capture all the factors that determine the complex set of ROO, does nevertheless carry some important results that confirm earlier findings of Estevadeordal (1999, 2000) and Portugal-Perez (2006, 2009, 2011).

Firstly, the results support previous findings that the determination of the restrictiveness of ROO as defined by the restrictiveness index goes beyond the economic justification for ROO in the form of TD and finds evidence of the influence of PE factors.

Secondly, TD concerns are nevertheless acknowledged. The results of the Rauch Index and the alternative BEC index confirm this particularly. Both indexes investigate TD concerns according to the nature of the specific product and show that stricter ROO are negotiated for products that carry a higher threat of potential TD, for example, trade in homogenous goods. The results for tariff differentials are found to be of concern for all Australian trade agreements with less developed countries. A reason for this is found to be the regional location of these countries and their heavy trade with their respective neighbours. The large trade costs that TD towards the United States and New Zealand would imply are found as the main reason that TD based on the tariff differential is not a concern under the CER and the AUS-FTA.

Thirdly, import-competing firms and export-oriented industries succeed in lobbying for ROO to protect their competitiveness and to regain protection lost from lower MFN and preferential tariffs. The coefficients for Australia's MFN tariff rates are consistently positive for all agreements considered. This indicates that Australian import-competing sectors prevail in lobbying for more stringent ROO the higher the relative market access offered under the respective trade agreement. Also consistently positive and significant is the coefficient for Australia's RCA index, which also hints that import-competing sectors succeed in what seems to be a substitution of stricter ROO for MFN tariff rates as a protective tool. At the same time, Australian exporters prevail in lobbying in negotiations for relatively less strict ROO when the trade volume is considered, as the coefficients are negative and significant for all agreements considered.

Fourthly, the results confirm trade facilitation concerns. In areas of bilateral trade, less strict ROO are negotiated, which indicates that the countries do use ROO to further facilitate already existing bilateral trade and trade interests.

Even though these results confirm previous findings (e.g., Estevadeordal (1999, 2000) and Portugal-Perez (2006, 2009, 2011)), they raise additional questions. For example, do ROO indeed serve as a substitute tool for tariff protection? Does the selection of ROO adversely affect trade flow? Do ROO adversely affect the utilisation rates in Australia's FTAs? These are just some of the questions that the next chapter aims to investigate.

Chapter 6

Evaluating the impact of ROO on the utilisation rates and the benefits of Australia's FTAs

6.1 Introduction

The previous chapters have discussed the utilisation rate of Australia's FTAs and RTAs over the time frame of 2000 to 2009, the preferential tariff margins offered and the ROO schemes applied in these trade agreements and what determines these schemes.

In more detail, the third chapter analysed and discussed the utilisation rates of Australia's bilateral FTAs and the RTAs at the disaggregated level. However, no clear answer as to what causes high or low utilisation rates was identified. It was suggested that agreement specific ROO schemes are likely factors that adversely affect the utilisation of preferences.

Therefore, the fourth chapter discussed the different ROO schemes applied in Australia's FTAs in detail and established and developed a ROO restrictiveness index (ROO-i).

In chapter five the restrictiveness index was taken to the test. An econometric model on the determinants of ROO was developed and its results showed that:

(i) the main economic justification of ROO in form of TD concerns are confirmed in the set-up of ROO;

(ii) other non-TD elements such as PE factors play a vital role in ROO;

(iii) import-competing firms and export-oriented industries succeed in lobbying for ROO to protect their competitiveness and to regain protection lost from lower MFN and preferential tariffs; and

(iv) trade facilitation concerns are taken into account in areas of mutual bilateral interests.

This chapter aims to combine the discussion of utilisation rates, ROO and preferential tariff margins by analysing, with a focus on the year 2009, the impact of ROO and of preferential tariff margins on the utilisation rate of Australia's bilateral trade agreements as presented in chapter four. Furthermore, this chapter aims to investigate the impact of ROO and of preferential tariff margins on trade and trade development of these agreements.

The reasoning for this investigation is based on the theory behind the impact of FTAs by Panagariya (1999) and the binding effects of ROO by Krishna and Krueger (1995). Both are discussed in detail in the following sections. It is suggested that if ROO are restrictive and preferential tariff margins are an incentive, then ROO also likewise affect the development of both utilisation rates and trade volume.

This chapter also builds on previous work undertaken by Carrere and de Melo (2006) and Cadot, Estevadeordal and Suwa-Eisenmann (2006). Both studies have focused on

NAFTA and empirically investigate the questions at hand, namely whether and how ROO and preferential tariffs impact utilisation rates and trade volumes.

A statistical analysis is undertaken and shows that there is evidence that ROO lower the utilisation rates and that higher margins in preferential tariffs have a positive effect. In more detail, it is found that if one holds the restrictiveness of ROO constant, an increase in the preferential tariff margin leads to an increase in the utilisation rate. Holding tariff preferences constant and increasing the restrictiveness leads to the opposite effect and seems to be the main driver of reduced utilisation. This suggests that ROO increase the costs to trade and reduce the benefits of preferential trading arrangements.

The next section focuses on the theoretical aspects of the impact of FTAs and the binding effects of ROO. Sections 6.3 and 6.4 undertake a statistical and empirical analysis of ROO and preferential tariff rates on the utilisation rates of Australia's bilateral FTAs, respectively. Section 6.5 presents the results of the econometric modelling and 6.6 concludes.

6.2 The impact of FTAs and binding effects of ROO

The following two sub-sections review the impact of FTAs and the binding effects of ROO following the discussions of Panagariya (1999) and Krishna and Krueger (1995).

6.2.1 The impact of FTAs

Panagariya (1999) theoretically analyses the effects of an FTA on trade and revenue developments and provide a graphical explanation which is represented in Figure 6.1.

The figure shows the import market and relationship of a small open economy (for example Australia) and its demand (D) with its relatively smaller open FTA partner (for example Thailand) for the supply of a commodity x. Accordingly, $S + \tau$ indicate the supply curve of that specific commodity prior to the FTA where τ is the specific tariff rate levied on top of the world market price p^w. Therefore, the price for the imported commodity x under the non-existence of an FTA is $p^w + \tau$.

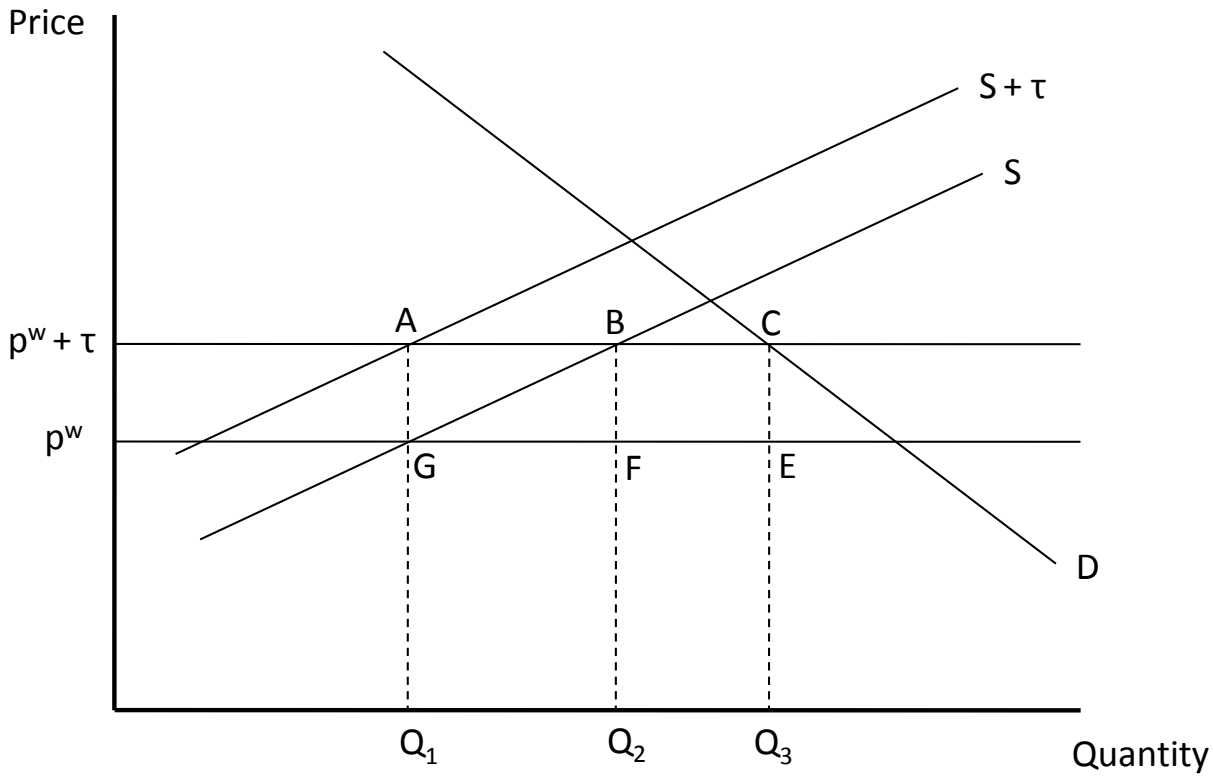
After the FTA entered into force, the commodity can be imported free of tariff rate τ which leads to a downward shift of the trading partner's supply curve to S. Hence, after the FTA has entered into force the commodity enters the market under world market price p^w. It is assumed here that all imports from the now FTA-trading partner are able to meet the ROO and enter the market under the preferential, in this case free trade price.

Therefore, the FTA has several consequences regarding the trade relationship between the trading partners as well as for tariff revenues.

On the one hand, because the future FA partner is considered relatively small, the relative changes to its import prices before and after the FTA are assumed to have no impact on the overall prices for x on the market. Therefore, the quantity demanded Q_3 according to the demand curve D is assumed to be unaffected by the FTA.

On the other hand, because of the relative price difference, the distribution of imports changes. Prior to the FTA, the quantity Q_1 is supplied by the future FTA partner, leaving the supply of the remaining quantity demanded, the difference between Q_1 and Q_3, for other import trading partners. After the FTA entered into force, due to the relative price difference and the shift in the supply curve as outlined above, the quantity Q_2 is now supplied by the FTA trading partner.

Figure 6.1: The impact of an FTA



Source: Panagariya (1999).

This is a purely trade diversion effect, considering that the country now imports relatively more from the relatively less efficient commodity (increased imports from Q_1 to Q_2) and less from the relatively more efficient trading partners (a declined from quantity Q_1Q_3 to Q_2Q_3).

Even though the import prices from the FTA trading partner have changed from $p^w + \tau$ to p^w, the country still receives the price $p^w + \tau$ for its commodity. This is because the change of the quantity of imports did not amend the prices. However, the tariff revenue derived from the imports of commodity x has changed. Before the FTA entered into force, the importing country collected tariff revenue of the area $p^w + \tau\ C\ E\ p^w$. The amount fell to the area $B\ C\ E\ F$ as the remaining area $p^w + \tau\ B\ F\ p^w$ was transferred

from tariff revenues to producer surplus. Panagariya (1999) refers to this transfer of tariff revenue to producer surplus as the revenue transfer effect.

If the underlying assumption of the FTA trading partner meeting all the ROO are relaxed, the FTA would imply a different result. If the ROO are set-up to be very restrictive with the effect that ROO cannot be met by the FTA trading then the supply curve would not shift. This would also imply that there would not be any changes in the quantities supplied and there would also be no revenue transfer effect. However, if the required ROO would be relatively least restrictive, for example in form of a required change in the item or a RVC of 5 per cent which could be achieved by simply repairing, repackaging or relabeling the commodity, then TD would take place.[32] This is because the other trading partner would take advantage of the relative simple ROO scheme and divert their commodities towards the FTA trading partners and then, after repackaging, repairing or relabelling, transship the commodity under the FTA to the importing country. Under the assumption that the benefits of repackaging, repairing or relabelling and transshipment outweigh the costs of the tariffs[33], all tariff revenue would be lost. Accordingly, the price for the commodity would be in between p^w and $p^w + \tau$ due to the TD which would lead to the fact that part of the revenue lost being transferred to the consumers. Panagariya (1999) points out that from a welfare perspective, in combination with the tariff revenues lost by the importing country, TD creates an efficiency loss as the additional transport costs for the transshipment of the commodity

[32] The Canada Israel FTA ROO Regulations outline a "minor processing" provisions which allows certain commodities to be considered as originated if a commodity is cleaned from "rust, grease, paint or any other coating"; if preservatives are applied (including metal coatings); if excess materials are cut off; if a commodity is repacked or repacked for transportation or sale; if a commodity is repackaging for retail sale or relabelled into "one or more official languages of a party to the Agreement"; or in the case of reparations, "repairs or alterations, washing, laundering or sterilizing". For more details see Canada Department of Justice, CIFTA ROO Regulations SOR/97-63 under http://laws-lois.justice.gc.ca/eng/regulations/SOR-97-63/FullText.html

[33] This is the case if the transportation costs and the costs of repackaging, repairing or relabeling are below the costs of paying the tariff.

x and the repackaging costs to meet the ROO outweigh the relative gains made by importing the commodity at the tariff reduced price.

6.2.2 Binding effects of ROO and their impact on trade costs

Krishna and Krueger (1995) demonstrate the effect of binding ROO in form of an RVC requirement on the production costs. It is assumed that a final goods producer in country A exports the final good to country B while importing an intermediate good from another country other than B.

Under non-FTA circumstances, the final goods producer would produce at the cost minimizing combination of its inputs and export the commodity to country B. However, if country A and B sign an FTA (AB-FTA) with binding ROO in form of content requirement (RVC), then this could adversely affect the production costs of the final goods producer. This is the case under the assumptions that the producer wants to take advantage of the preferences granted under the AB-FTA and that the RVC requirements ask for a higher domestic input than the cost minimizing ratio.

Figure 6.2 demonstrates the situation for the final goods producer theoretically. Accordingly, a final goods producer from country A uses a cost minimizing combination of capital (K) and labour (L) to produce a commodity which is to be exported to country B. For the production, the capital input is imported from another country other than the exporting destination.

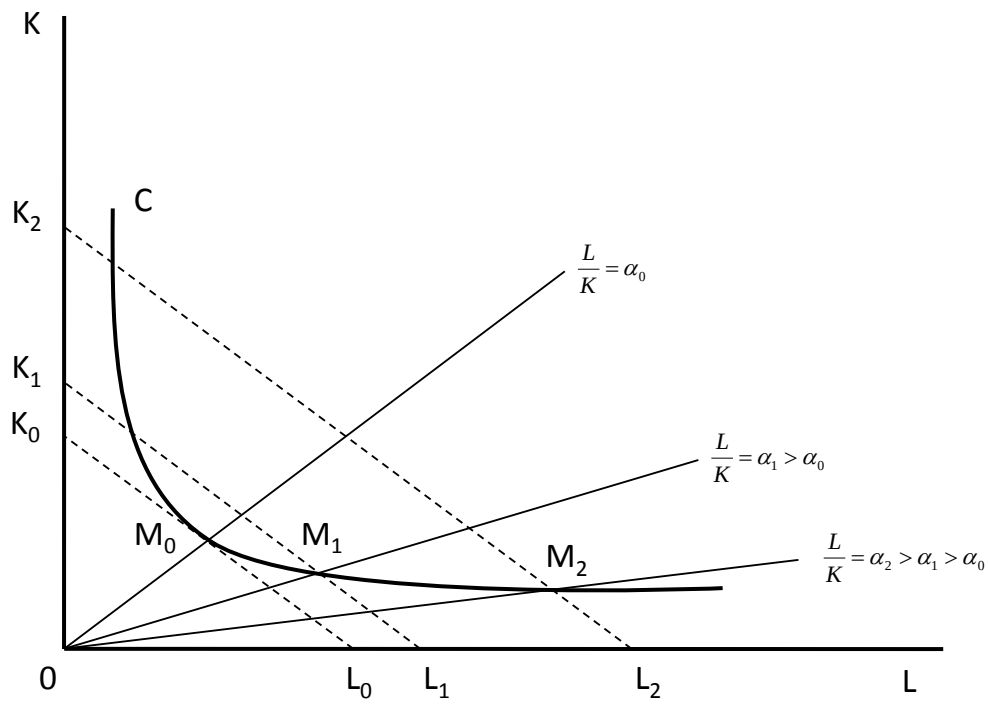
In the absence of an FTA with the export destination, the cost minimizing combination, according to the firm's isoquant curve (C) is found at point M_0 with capital and labour

ratio of $L/K = \alpha_0$ (with inputs K_0 and L_0) and total unit production costs of the area $0K_0L_0$.

Under an AB-FTA with a RVC of α_1 which is larger than the cost minimizing α_0, the production combination of the two inputs would move towards point M_1. Under this combination, the production costs would increase to the area $0L_1K_1$ which is larger than the initial costs.

That ROO can be used not only as a trade policy tool to prevent TD is presented with an even stricter ROO RVC requirement of α_2. Accordingly under α_2, the only way to meet the ROO is under the production of the intermediate goods combination of point M_2.

Figure 6.2: Binding effects of ROO and their impact on trade costs



Source: Derived from Krishna and Krueger (1995).

This raises the overall unit production costs significantly to $0L_2K_2$. If the additional costs of production to meet the ROO and to benefit from the tariff preferences outweigh the actual preferences, then the final goods producer would instead produce under the original cost minimizing combination M_0 and would export the final commodity under the MFN tariff scheme. Therefore, the ROO and the additional production costs would be a disincentive of the usage of the FTA and would lead to a lower utilisation rate, or, if all firms from country A are faced with the same problem, an utilisation rate of zero.

An applied example for this can be drawn from the SAFTA where the RVC ROO scheme requires a value content of in between 40 and 50 per cent.

The same problem that is demonstrated in Figure 6.2 for a RVC ROO also applies for ROO that require a CTC, a technical requirement or a combination. The stricter the ROO, the higher the costs of meeting the ROO which would lead to a lower overall usage of the specific FTA.

6.3 Statistical analysis: The impact of ROO and preferential tariffs

The theoretical discussion of the binding effects of ROO and the impact of FTAs leads to two main conclusions with a focus on utilisation rates.

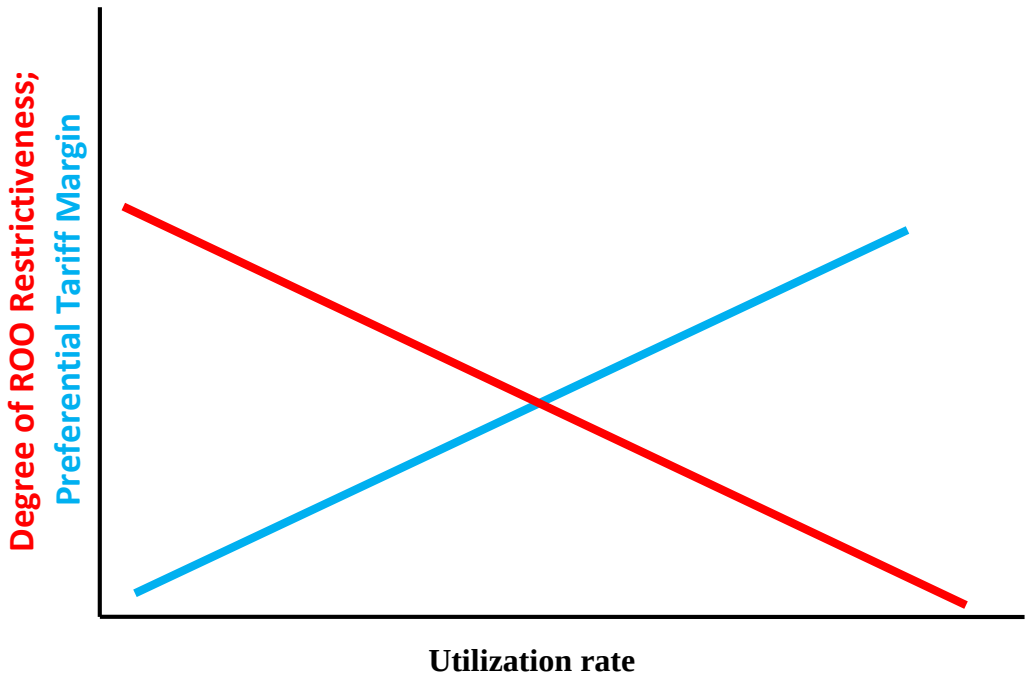
- As ROO imply immediate compliance costs, the higher the complexity in form of technical details to meet the ROO and as such the more restrictive the ROO (the degree of restrictiveness), the lower is the expected utilisation rate.
- Preferential tariffs are the incentive to make use of FTAs and the higher the preferential margins, the higher should be the expected utilisation rate.

This relationship between utilisation rates, the degree of restrictiveness of ROO and the preferential tariff margins is summarized with the help of Figure 6.3.

Accordingly the red line shows the negative association between the binding effect or degree of restrictiveness and the utilisation rate. The blue line shows that an increase in the preferential tariff margin also increases the utilisation rate.

To test the theory and the expectations, this section of the chapter looks at the relationship of preferential tariffs, ROO-i and the utilisation rate for 2009 observations of four of Australia's bilateral FTAs. The Chile/AUS-FTA was not further statistically investigated due to the limited number of observations.

Figure 6.3: Assumed impacts of ROO restrictiveness and preferential tariff margins on the utilisation rate



Source: Author's derivation.

Contrary to the expectations, the graphs do not show clear evidence of the theoretical relationship outlined and represented in Figure 6.4. Instead the analysis either shows partial support or the opposite of the expected outcome. Figure 6.4 shows the relationship between ROO-i and preferential tariffs and the utilisation rate for the 2009 observations of the AUS-FTA. The observations indicate a clear positive relationship between preferential tariff margins and the utilisation rate as indicated by the blue line as on average an increase in preferential tariffs increases the utilisation rate. However, the observations for the degree of restrictiveness and their impact on the utilisation rate are less clear. On average, we see a rather flat outcome indicating that the degree of restrictiveness does not adversely affect the utilisation rate. Similar results were drawn for the other agreements. Their results are presented in the Appendix to this chapter.

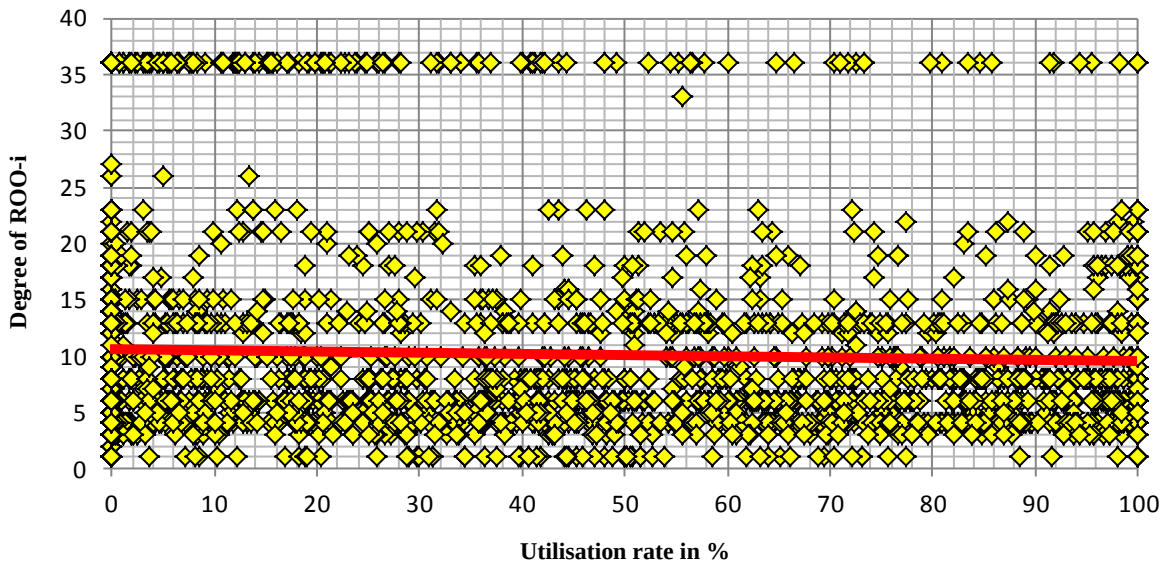
With this interesting and unexpected observation in mind it was decided to further the statistical analysis by controlling for the degree of restrictiveness and preferential tariff margins as well as the trade volume. The results of the detailed statistical analysis are presented in Tables 6.1 to 6.7.

Table 6.1 presents the utilisation rates after controlling for the preferential tariff margins with a focus on the development of the utilisation rates when preferences are increased. No clear conclusions can be drawn besides that almost all agreements show a fall in utilisation rates when the preferential tariff margin increases from $\tau \geq 5$ per cent to $\tau \geq 7$ per cent. This further contradicts the assumption that an increase in the margin of preference also increases the utilisation rates due to the increasing incentive of benefits.

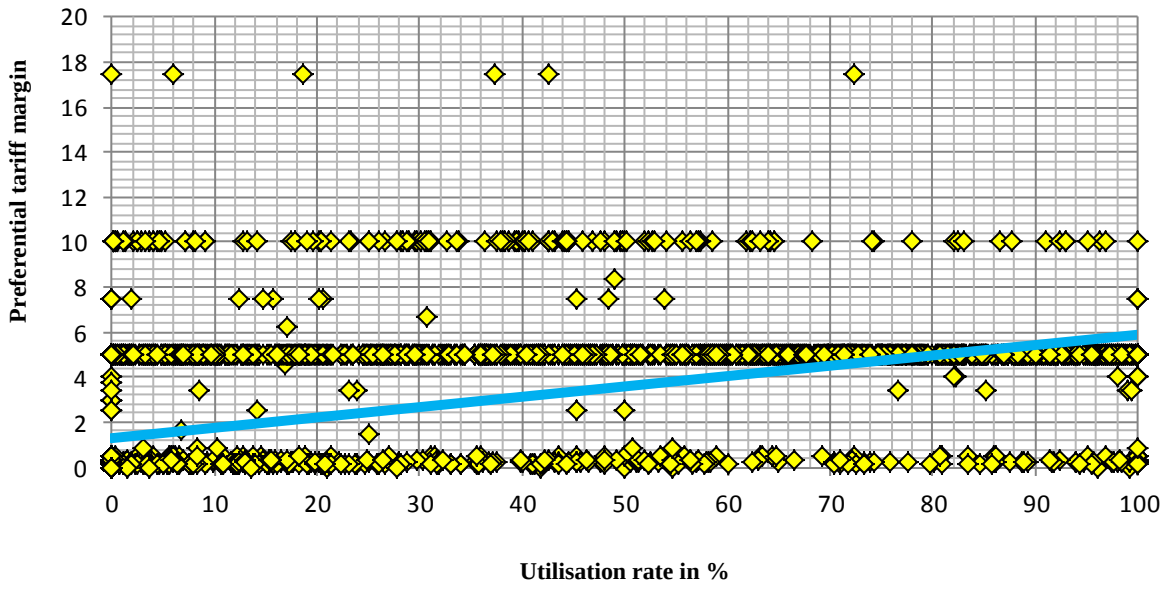
Additionally to grouping the preferential tariff margins into three groups, Table 6.2 also presents the average ROO-i. The results of Table 6.2 are mixed.

Figure 6.4: Actual empirical impact of ROO restrictiveness and preferential tariff margins on the utilisation rates, 2009

a.) AUS-FTA – Restrictiveness index and utilisation rates



b.) AUS-FTA – Preferential tariff margins and utilisation rates



Source: Author's calculations.

Table 6.1: Utilisation rates and preferential tariff margins

	total		$\tau \geq 2$		$\tau \geq 5$		$\tau \geq 7$		$\tau \geq 10$	
CER	50.6	(2610)	71.0	(1654)	71.1	(1642)	70.4	(453)	71.1	(397)
SAFTA	2.1	(2037)	5.9	(1281)	6.4	(1275)	3.3	(267)	3.6	(236)
TAFTA	41.0	(2012)	45.8	(970)	45.8	(961)	40.2	(45)	40.7	(42)
AUS-FTA	23.1	(3821)	49.9	(1687)	50.0	(1662)	36.8	(159)	37.1	(142)

Source: Author's calculations.

Table 6.2: Utilisation rates, preferential tariff margins and ROO restrictiveness

	total			$\tau \leq 2$			$2 < \tau \leq 5$			$\tau \leq 7$		
	ROO-i	u		ROO-i	u		ROO-i	u		ROO-i	u	
CER	5.7	50.6	(2610)	5.4	0.9	(957)	5.6	71.2	(1200)	6.6	70.4	(453)
SAFTA	5.9	2.1	(2037)	6.0	0.1	(756)	5.9	6.6	(1014)	5.6	3.3	(267)
TAFTA	8.9	41.0	(2012)	10.7	17.1	(969)	9.7	44.6	(1323)	6.7	40.2	(45)
AUS-FTA	10.2	23.1	(3821)	12.6	6.9	(1979)	12.0	45.2	(2023)	6.4	36.8	(159)

Source: Author's calculations.

On the one hand, it is shown that an increase in preferential tariff margin from $\tau \leq 2$ per cent to '$2 < \tau \leq 5$' per cent increases the utilisation rate for all agreements significantly. On the other hand, this relationship does not hold when tariff margins are further increased ($\tau \leq 7$ per cent).

At the same time, besides for the CER, the ROO-i falls with an increase in preferential tariff margin which again contradicts the expectation that ROO lower utilisation rates.

Tables 6.3 to 6.5 investigate the relationship between the utilisation rate, preferences and ROO-i when the latter is held constant. While controlling for the ROO-i some

evidence can be found that an increase in the preferential tariffs, while holding the degree of restrictiveness constant, leads to an increase in the utilisation rate.

Similar to previous results, this is especially the case when the margin of preference increases from $\tau \geq 2$ per cent to $\tau \geq 5$ per cent. However, as discussed before, the opposite effect is recorded when the tariff margin further increases to $\tau \geq 7$ per cent. It is noteworthy that at the same time the actual number of observations declines noticeably throughout all agreements which might be the reason for the decline in the utilisation rate.

Table 6.3: Utilisation rates and preferential tariff margins at a given ROO-i (1-4)

	total			$\tau \geq 2$			$\tau \geq 5$			$\tau \geq 7$			$\tau \geq 10$		
	τ	u		τ	u		τ	u		τ	u		τ	u	
CER	3.9	43.3	(1018)	6.2	67.4	(645)	6.3	67.6	(637)	9.8	59.3	(165)	10.0	59.6	(153)
SAFTA	8.1	1.7	(150)	8.1	1.7	(150)	9.9	2.5	(95)	10.0	2.5	(94)	10.0	2.2	(92)
TAFTA	3.1	24.4	(503)	5.2	37.3	(295)	5.2	37.7	(292)	10.0	41.4	(14)	10.0	41.4	(14)
AUS-FTA	3.5	30.6	(709)	5.7	48.9	(441)	5.7	49.1	(438)	9.9	32.7	(61)	10.0	31.8	(58)

Source: Author's calculations.

Table 6.4: Utilisation rates and preferential tariff margins at a given ROO-i (5-8)

	total			$\tau \geq 2$			$\tau \geq 5$			$\tau \geq 7$			$\tau \geq 10$		
	τ	u		τ	u		τ	u		τ	u		τ	u	
CER	4.9	48.7	(1327)	7.5	73.9	(872)	7.5	73.9	(869)	14.2	76.9	(234)	15.4	79.1	(197)
SAFTA	3.6	4.2	(1712)	5.9	6.8	(1039)	5.9	6.8	(1033)	14.2	5.2	(103)	14.7	5.6	(95)
TAFTA	3.1	30.3	(756)	5.2	48.9	(444)	5.2	48.7	(439)	9.8	40.1	(18)	10.0	39.2	(17)
AUS-FTA	2.6	24.4	(1621)	5.4	50.6	(780)	5.5	50.6	(772)	10.1	41.5	(70)	10.6	42.1	(59)

Source: Author's calculations.

Table 6.5: Utilisation rates and preferential tariff margins at a given ROO-i (9-19)

	total			$\tau \geq 2$			$\tau \geq 5$			$\tau \geq 7$			$\tau \geq 10$		
ROO	τ	u		τ	u		τ	u		τ	u		τ	u	
CER	7.0	59.3	(159)	8.1	68.9	(137)	8.2	69.4	(136)	13.0	76.2	(54)	13.8	75.6	(47)
SAFTA	8.8	2.2	(102)	9.7	2.4	(93)	9.7	2.4	(93)	11.2	1.7	(70)	12.8	2.5	(49)
TAFTA	2.1	37.9	(634)	5.3	50.2	(218)	5.3	50.5	(217)	9.5	40.3	(14)	10.0	42.2	(11)
AUS-FTA	2.5	28.7	(985)	5.2	49.6	(456)	5.3	49.8	(443)	10.0	33.4	(27)	10.3	36.9	(24)

Source: Author's calculations.

In Chapter three, trade volume was raised as another potential reason for low or high utilisation rates. This is because the higher the turnover and volume, the higher the incentive to invest in meeting the ROO and benefitting from preferential tariffs. By controlling for the trade value, one would expect that the higher the value of HS 6-digit trade, the higher the utilisation rate.

Therefore, Table 6.6 and 6.7 additionally control for the trade value. Table 6.6 looks at increasing trade value while in Table 6.7 the value is grouped in cohorts. In general, with some exceptions, both tables confirm that an increase in the value of the commodity traded leads to an increase in the utilisation rate.

The statistical analysis shows that ROO and preferential tariff margins are not enough to explain the development of utilisation rates. Trade volume and trade value are also found to play a significant role. This also underlines the likelihood that firms with strong market power do not only have the stronger capacity and with are easier able to meet ROO than smaller firms, they also have a much stronger bargaining power to negotiate less restrictive ROO. Evidence for that can be seen in Tables 6.6 and 6.7 as all agreements show lower average ROO-i for high trade value commodities than for lower value commodities.

The lead questions of whether ROO and preferential tariff margins affect the utilisation rate remain. This is what the next section aims to investigate with the help of econometric modelling.

Table 6.6: Utilisation rates, preferential tariff margins and ROO-i at increasing trade volumes

	Total				$x \geq 100{,}000$				$x \geq 500{,}000$			
	ROO-i	τ	u		ROO-i	τ	u		ROO-i	τ	u	
CER	5.7	4.6	50.6	(2610)	5.5	4.6	56.8	(1203)	5.3	4.4	62.0	(677)
SAFTA	5.9	4.2	2.1	(2037)	5.7	4.0	6.6	(847)	5.6	3.9	8.4	(437)
TAFTA	8.9	2.7	41.0	(2012)	8.1	3.2	40.3	(969)	7.8	3.3	44.6	(570)
AUS-FTA	10.2	2.5	23.1	(3821)	8.9	3.1	30.4	(2411)	7.9	3.5	32.9	(1636)
	$x \geq 1{,}000{,}000$				$x \geq 2{,}000{,}000$				$x \geq 5{,}000{,}000$			
	ROO-i	τ	u		ROO-i	τ	u		ROO-i	τ	u	
CER	5.2	4.3	63.3	(521)	5.3	4.2	63.0	(356)	5.4	3.8	62.8	(195)
SAFTA	5.6	3.8	9.1	(309)	5.7	3.6	10.4	(199)	5.8	3.2	13.2	(100)
TAFTA	7.6	3.3	44.7	(410)	7.1	3.4	46.9	(282)	7.0	3.4	47.6	(153)
AUS-FTA	7.4	3.6	33.6	(1287)	7.2	3.8	33.7	(982)	6.9	4.0	32.3	(586)

Source: Author's calculations.

Table 6.7: Utilisation rates, preferential tariff margins and ROO-i at different trade volume

	Total				$x \leq 100{,}000$				$100{,}000 < x \leq 500{,}000$			
	ROO-i	τ	u		ROO-i	τ	u		ROO-i	τ	u	
CER	5.7	4.6	50.6	(2610)	5.9	4.8	50.2	(1407)	5.7	4.8	50.2	(526)
SAFTA	5.9	4.2	2.1	(2037)	6.1	4.1	4.7	(1190)	5.8	4.1	4.7	(410)
TAFTA	8.9	2.7	41.0	(2012)	9.9	2.9	34.1	(1029)	8.4	2.9	34.1	(399)
AUS-FTA	10.2	2.5	23.1	(3821)	13.1	2.3	25.1	(1410)	10.9	2.3	25.1	(775)
	$500{,}000 < x \leq 1{,}000{,}000$				$1{,}000{,}000 < x \leq 2{,}000{,}000$				$2{,}000{,}000 < x \leq 5{,}000{,}000$			
	ROO-i	τ	u		ROO-i	τ	u		ROO-i	τ	u	
CER	5.5	4.9	57.7	(156)	4.9	4.6	63.8	(165)	5.3	4.2	63.0	(356)
SAFTA	5.5	3.9	6.6	(128)	5.5	4.3	6.8	(110)	5.7	3.6	10.4	(199)
TAFTA	8.3	3.4	44.4	(160)	8.8	3.2	41.7	(142)	7.1	3.4	46.9	(282)
AUS-FTA	9.6	3.0	30.4	(349)	8.1	3.1	33.3	(305)	7.2	3.8	33.7	(982)

Source: Author's calculations.

6.4 Empirical Analysis: The impact of ROO and preferential tariff margins on utilisation rates and trade

As outlined previously Krishna and Krueger (1999) theoretically find that more stringed ROO lead to an increase in costs for the exporter. These can be a result of an adjustment of production methods or as outlined by the authors due to a forced increase in domestic intermediated if the exporter wants to meet the ROO. If these costs exceed the benefits in form of preferential market access offered to the exporting firm, then it will not take advantage of the preferential trading agreement and instead trade under the MFN regime.

In the same manner, if an increase of the restrictiveness of ROO truly increases trade costs and lead to a decline in the utilisation rate, then this would imply that relatively stricter ROO would have an adverse effect on the benefits of FTAs as outlined by Panagariya (1999) in the previous section. Accordingly, an increase in preferential tariffs leads to an increase in trade flow from the preferred trading partner due to the relative price difference. This would also imply that ROO have the opposite effect as the higher the relative restrictiveness, the lower the usage of the specific FTA.

Carrere and de Melo (2006) explore whether different ROO carry the same costs. The authors develop a model with the aim to investigate the impact of ROO and preferential tariff margins on the utilisation rate and to estimate costs of the different types of ROO. With an application for NAFTA, Carrere and de Melo (2006) find that ROO reduce the utilisation rate and that preferential tariff margins have the opposite effect.

Cadot, Estevadeordal and Suwa-Eisenmann (2006) investigate the determinants of Mexican NAFTA exports to the United States. The authors estimate an empirical market access equation which finds its theoretical foundations in a similar set-up as

Carrere and de Melo (2006). Cadot, Estevadeordal and Suwa-Eisenmann (2006) find that ROO adversely affect the trade development and find the opposite to be the case for preferential tariffs.

6.4.1 Modelling the impact of ROO and preferential tariff margins on utilisation rates

The analysis makes use of the model developed by Carrere and de Melo (2006) while adjusting it for the Australian context of its bilateral FTAs. Accordingly, there are n^j firms from country j[34] on the market that export to Australia. These firms can either send their commodities under the Australian MFN regime ($X_n^{MFN,j}$) or export under the specific preferential FTA regime ($X_n^{k,j}$). The decision to export under the MFN or the preferential regime is captured by (μ_n).

According to the economic theory, this decision depends on the FTA specific preferential tariff margin (τ_i^k)[35] and the compliance costs ($c_i^{R_k}$) associated with the explicit ROO regime of the specific bilateral FTA (k). This result comes from the assumption that the firms' costs associated with ROO itself can be differentiated into administration costs($\varphi_i^{R_k}$), costs as result of the distortion effect of the ROO ($\omega_i^{R_k}$) due to the misallocation of resources, and specific firm level characteristics ($\vartheta_i^{R_k}$) .

[34] The countries under investigation are Australia's bilateral FTA trading partners.

[35] τ_i^k is the preferential margin defined as the normalized difference between Australia's MFN tariff and the Australian preferential tariff rate of the preferential trading arrangement k.

$$\tau_i^k = \frac{t_i^{MFN} - t_i^k}{1 + t_i^k}$$

Where t_i^{MFN} is the Australian MFN tariff of commodity i and t_i^k is the Australian preferential tariff rate of the preferential trading arrangement k of commodity i.

Additionally, and often underestimated is that a firm has to make an initial decision of whether or not to apply for preferential treatment. This decision making cost (π) takes the time and resources into account to estimate the potential compliance costs ($c_i^{R_k}$) to conclude whether or not to go ahead with the process of meeting the ROO.

Therefore, the costs of the firm associated with ROO can be defined as

$$C_i^{R_k} = \pi + c_i^{R_k} \tag{6.1}$$

where the compliance costs ($c_i^{R_k}$) are a function of the firm level specific administration costs ($\varphi_i^{R_k}$), distortion effect costs of the ROO ($\omega_i^{R_k}$) and other costs associated with firm level specific characteristics ($\vartheta_i^{R_k}$) as outlined below.

$$c_i^{R_k} = f\left(\varphi_i^{R_k}, \omega_i^{R_k}, \vartheta_i^{R_k}\right) \tag{6.2}$$

In practice, data on the firm level specific cost structures associated with ROO are either not available or not easily accessible. Therefore, Anson et al. (2003), Carrere and de Melo (2004, 2006) and Cadot and de Melo (2005) suggest the usage of revealed preferences in the absence of firm level data. By doing so, the authors use the argument that the utilisation rate of preferences indicates whether or not benefits from tariff preferences outweigh the cost associated with ROO.

Accordingly, a firm will decide to go through the process of applying for preferential treatment and therefore meeting the product specific ROO ($\mu_n = 1$) if the tariff margins are equal or greater than the costs associated with ROO. This is because every time a firm is confronted with a decision of whether or not to apply for ROO, the decision making process itself inherits the cost (π). Therefore, if the benefits are just the overall

costs associated with ROO, a firm has an incentive and will apply for preferential treatment as they will just cover and recover ($C_i^{R_k}$) that includes the initial cost (π).

Similarly, a firm will decide to trade its commodities under the Australia MFN regime if the preferences (τ_i^k) are smaller than the costs associated with applying for ROO.

The decision can be summarized as follows

$$\mu_n = 0 \Leftrightarrow X_n^j = X_n^{MFN,j} \text{ if } \tau_i^k < C_i^{R_k} \tag{6.3}$$

$$\mu_n = 1 \Leftrightarrow X_n^j = X_n^{k,j} \text{ if } \tau_i^k \geq C_i^{R_k} \tag{6.4}$$

The preferences (τ_i^k) are observed at the HS 6-digit commodity level disaggregation. The decision of claiming preferential treatment (μ_n) is made at the firm level but can also be observed at the HS 6-digit commodity level disaggregation with the use of the utilisation rate ($u_i^{k,j}$).

The utilisation rate is defined as the sum of trade entering Australia under the preferential treatment ($\sum_{n=1,\ldots,l} X_n^{k,j}$) divided by the total sum of trade and takes the value between 0 and 1.

$$u_i^{k,j} = \frac{\sum_{n=1,\ldots,l} X_n^{k,j}}{\sum_{n=1,\ldots,l} X_n^{k,j} + \sum_{n=l+1,\ldots,m} X_n^{MFN,j}} \text{ with } \begin{cases} u_i^{k,j} = 0 \text{ if } l = 0 \\ u_i^{k,j} = 1 \text{ if } l = m \\ 0 < u_i^{k,j} < 1 \text{ if } 0 < l < m \end{cases} \tag{6.5}$$

The assumption of linearity of the utilisation rate at the commodity level i gives the following specification

$$u_i^{k,j} = \alpha\left(\tau_i^k - C_i^{R_k}\right) + \sigma_i \tag{6.6}$$

where ($C_i^{R_k}$) represents the ROO related unit costs at commodity level i. As there is no information of the distribution of these costs at the commodity level available, one could assume that

$$C_i^{R_k} = \pi + \varphi_i^{R_k} + \omega_i^{R_k} + \vartheta_i^{R_k} + \epsilon_i \tag{6.7}$$

Data for the firm level specific cost structures associated with ROO are not available, however according to the theory and the discussion above all costs are associated with ROO.

Instead of substituting the costs with dummy variables to capture the impact of costs of different sets of ROO as done by Carrere and de Melo (2006)[36], the modified Harris (2007) restrictiveness index (R_i^k) outlined in detail in the previous chapter is applied.

$$C_i^{R_k} = R_i^k + \epsilon_i \tag{6.8}$$

(6.6) and (6.8) lead to the following reduced form equation

$$u_i^{k,j} = \alpha\left(\tau_i^k - R_i^k\right) + (\epsilon_i + \alpha\sigma_i) \tag{6.9}$$

[36] The authors specifically differentiate change in tariff classification, domestic/regional value content and technical requirements.

which in return leads to the subsequent regression to be estimated

$$u_i^{k,j} = \alpha_0 + \alpha_1 \tau_i^k + \alpha_2 R_i^k + \varepsilon_i \tag{6.10}$$

where ε_i is the error term.

The estimation takes place at the HS 6-digit level of disaggregation. In their modelling set-up, Carrere and de Melo (2006) make the assumption that both preferential tariff margins and ROO are exogenous. At the same time, the authors acknowledge that this assumption does not hold in reality as during the negotiations for ROO, it is known that the long-term tariff differential between preferential tariff rates and applied MFN tariff rates will be the latter as preferential tariff rates will be reduced to zero.

To avoid the endogenous bias and the possibility of multicollinearity of the variables the determinants of the ROO as outlined in the previous chapter are applied as instruments.

6.4.2 Applied model on the impact of ROO and preferential tariff margins on trade

The theoretical foundation of an analysis and the development of an applied model is based on the previous section. As the previous section outlined, ROO carry several costs that, if these are higher than the preferential benefits from preferential market access, reduce the usage of the bilateral FTAs. This implies that if ROO truly increase trade costs and lead to a decline in the utilisation rate, the positive effects due to the preferential benefits of FTAs as outlined by Panagariya (1999) would be offset.

Cadot, Estevadeordal and Suwa-Eisenmann (2006) propose an empirical model that investigates the determinants of Mexican NAFTA exports to the United States. The

finds its theoretical foundations that ROO increase trade costs and that the more complex and stringent ROO are, the more they lessen the positive effects of preferential market access of the bilateral FTAs on trade.

In the Australian context, as outlined above, there are n^j firms from country j on the market that export to Australia (X_n^j). These firms can decide to either send their commodities under the Australian MFN regime $(X_n^{MFN,j})$ or export under the specific preferential FTA regime $(X_n^{k,j})$. Theoretically, Panagariya (1999) showed that the relative price differences due to FTA preferences leads to an increase in trade from the preferred trading partner $(X_n^{k,j})$. However, stringent ROO as outlined by Krishna and Krueger (1999) leads to an increase in relative costs and may lead to a reduction of the application of preferences and therefore proportionally more trade under the Australian MFN regime $(X_n^{MFN,j})$.

As in the above utilisation model, the preferential tariff benefits are measured with the FTA specific preferential tariff margin (τ_i^k). The relative stringency of ROO is captured with the help of the modified Harris (2007) ROO-i (R_i^k).

The empirical model at the HS 6-digit level of disaggregation then takes the following form

$$ln\left(X_i^{N,A}\right) = \alpha_0 + \alpha_1 ln\left(X_i^{N,ROW}\right) + \alpha_2 ln\left(\tau_i^k\right) + \alpha_3\left(R_i^k\right) + \varepsilon_i \qquad (6.11)$$

where $ln\left(X_i^{N,A}\right)$ is the natural logarithm of the total bilateral exports of Australia's trading N partner to Australia in 2009 and $ln\left(X_i^{N,ROW}\right)$ is the natural logarithm of the trading partner's exports with the rest of the world in 2009. $ln\left(\tau_i^k\right)$ is the natural

logarithm of the preferential tariff margin of the specific preferential trading arrangement k.

The inclusion of the exports to the rest of the world is justified under the assumption that the exporting firm maximizes its profits by exporting to Australia and the rest of the world. Following Cadot, Estevadeordal and Suwa-Eisenmann (2006), let (x) be the value added of the firms exports to Australia and (y) be the value added from the firm's exports to the rest of the world. Further we introduce (p) as the relative net price in Australia. Further following the assumption that the firm has a fixed pool of resources (RES) available from which it produces with technology under constant elasticities of transformation; see Powell and Gruen (1962).

Defining (α) as the inverse of that elasticity, then the firm's production can be explained with the following equation

$$RES = x^{\alpha} + y^{\alpha} \tag{6.12}$$

where the amount of (RES) is determined in the first stage of a two stage optimization problem.

In the second stage

$$\max_{x,y} \; x + py \quad with\, respect\, to \quad RES = x^{\alpha} + y^{\alpha} \tag{6.13}$$

The first order condition leads then to

$$\ln(y) = \frac{1}{\alpha - 1} ln(p) + ln(x) \tag{6.14}$$

which is a functional form close to the empirical model.

In the application of this model, to avoid any endogenous bias and the possibility of multicollinearity of the variables (R_i^k) is instrumented by the determinants of the ROO as outlined in the previous chapter.

6.5 Results

Three main hypotheses were tested with the empirical models, namely (1) do ROO increase trade costs and as such lower the application of preferential treatment in form of utilisation rates and if so (2) do ROO reduce the benefits created by the preferential trading arrangements. (3) Do preferential tariff margins serve as an incentive to apply for preferential treatment and increase the benefits and the utilisation of preferential agreements.

Tables 6.8 and 6.9 present the results for the models explaining the determinants of the utilisation rates and the exports of preferred trading partners to Australia in 2009. ROO-IV is the linear predicted value of the restrictiveness index using the determinants of the ROO applied in the previous chapter as instruments. In the first step, the standard specification (column (1) of tables 5.1 – 5.2) is applied.

For the entire sample, with the exception of constant variable in SAFTA, all coefficients are found to be strongly significant at the 1 per cent level. For both models, the determination of the utilisation rates and the trade/market access model the empirical results have the expected signs. The results confirm that ROO adversely affect the utilisation rate and reduce the benefits generated by FTAs. Similarly, as theoretically suggested the results show that the preferential tariff margins lead to higher utilisation

rates as they are incentives to use the preferential agreements and positively influence and underline the benefits of the FTAs.

Of all the agreements, the strongest negative effect on utilisation rates and trade is found for the SAFTA. This observation coincides with the specifically low utilisation rates of only 2.1 per cent in 2009. With this the results also underline the statistical findings that hinted that the ROO scheme of RVC has a much more negative effect than that of a CTC, even though this is not indicated by the ROO-i. According to the applied ROO-i, the SAFTA should be among the least restrictive agreements and in consequence should show some of the highest preferential benefits. As this is not the case, the RVC restrictiveness points assigned according to the ROO-i are likely underrated.

The results of the market access model support the hypothesis that ROO are used as a political tool for substitution of tariff protection. With this the results also confirm earlier findings from Cadot, Estevadeordal and Suwa-Eisenmann (2006) who also find ROO to be applied as substitutes for MFN tariffs.

In summary it is found that preferential tariffs are an incentive for the application of preferences and positively influence the utilisation rate and lead to higher benefits of trade agreements. The results also hint that there is evidence that ROO increase trade costs. If the trade costs are higher than the benefits achieved from preferences, then the exporter will not apply for preferential treatment but instead trade the commodity under the applied MFN tariff regime. If the exporter decides to do that, then this implies that the benefits offered by the preferential trading arrangement in form of higher market access (i.e. preferential tariffs) are not taken advantage of.

Table 6.8: Determinants of utilisation rates and the impact of ROO and preferential tariff margins

	CER	**SAFTA**	**TAFTA**	**AUS-FTA**	**Chile/AUS-FTA**
PTM	4.9647*** (0.1910)	0.3924*** (0.0936)	4.4669*** (0.3277)	6.1300*** (0.1714)	3.7598*** (0.6396)
ROOIV	-2.3261*** (0 .4204)	-22.6317** (0.9685)	-10.7341*** (0.8062)	-1.6738*** (0.1608)	-9.1106*** (0.3461)
Constant	0.3296*** (0.0232)	0.5391 (0.8715)	31.2266*** (1.6476)	0.1667*** (0.0092)	17.1441*** (4.6285)
Observations	2610	2037	2012	3821	319
F-Test	578.49	127.81	248.83	873.28	24.59
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000
Adjusted Rsq	0.3157	0.1191	0.2037	0.3225	0.1303

Source: Author's estimations.

Table 6.9: Determinants of Australian FTA imports and the impact of ROO and preferential tariff margins

	CER	SAFTA	TAFTA	AUS-FTA	Chile/AUS-FTA
X-Row	0.0476*** (0.0037)	0.0635*** (0.0123)	0.0522*** (0.0066)	0.0729*** (0.0097)	0.0706*** (0.0170)
PTM	5.6516*** (0.1363)	0.2544*** (0.0553)	0.5393*** (0.0732)	1.2375*** (0.0446)	0.3911*** (0.1429)
ROOIV	-13.5592*** (0.2779)	-17.8089*** (0.1471)	-7.5204*** (0.5784)	-3.8479*** (0.1321)	-6.1655*** (0.2271)
Constant	5.0219*** (0.1549)	2.4028*** (0.1821)	3.4199*** (0.1493)	2.1545*** (0.1580)	3.4573*** (0.3824)
Observations	2610	2037	2012	3821	319
F-Test	162.36	86.54	142.40	544.30	19.66
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000
Adjusted Rsq	0.1685	0.1156	0.1602	0.3078	0.0762

Source: Author's estimations.

6.6 Conclusions

Panagariya (1999) shows theoretically that FTAs benefit the preferred trading partners by providing them with larger market access. One of the main drivers of the preferential market access is the relative price advantage compared to non-FTA competitors as a result of preferential tariff margins. However, in reality, the utilisation of preferences as outlined in Chapter 3 and in the first section of this chapter is relatively low. In the case of SAFTA, the utilisation rate is at only 2.1 per cent and in some sub categories lower even though above average preferences in form of preferential tariff rates are offered. Krishna and Krueger (1999) provide a potential explanation with ROO. The authors explain in a theoretical analysis that the stricter the ROO are the more costly preferential trade for preferred traders becomes. If the additional costs to claim preferences exceed preferential benefits, then the exporter will trade the commodity under the applied MFN tariff scheme and will not take advantage of the preferential regime.

The statistical analysis in this chapter finds challenging result but that when controlling for ROO, an increase in the preferential tariff margin leads in some cases to an increase in the usage of the preferential regime. Additionally, the higher the trade volume per tariff line, the higher the utilisation rate. All these results indicate that ROO carry additional trade costs which reduce the benefits of preferential trading arrangements.

Therefore, the empirical analysis investigated the impact of ROO on the usage of Australia's bilateral FTAs and on trade. The empirical results strongly support the hypothesis that ROO adversely affect the benefits created by FTAs in terms of preferential market access. The results further suggest that this is because ROO increase trade costs and with this partially offset the benefits of preferential tariff margins

leading to lesser usage of FTA and negatively affecting trade. Therefore the results are in line with previous findings of literature on NAFTA's ROO; for example Estevadeordal (2000), Carrere and de Melo (2006), Cadot, Estevadeordal and Suwa-Eisenmann (2006).

The results also raise the question of why ROO are set-up in a manner that unfavourably impacts FTAs considering that on paper and in theory FTAs are negotiated to promote trade between the preferred trading partners. The answer to this question lies in the PE discussed in the previous chapter. The empirical evidence supports the theory that ROO are used as a political tool for protection, for instance as tariff offsetting instruments. With this, exporters that currently protected by relatively high MFN tariff rates that would lose this tariff protection have the opportunity to lobby for stricter ROO to achieve a status where they can keep relative high protection from potential competition.

Chapter 7

Conclusions

This thesis focused on investigating the determinants of the utilisation rates of Australia's bilateral trading arrangements. The study first investigated the utilisation rates of five Australian bilateral FTAs and one RTA in detail. In a second step, for the five Australian FTAs, the thesis then looked at the interrelationship of the market access offered by these trade agreements in form of preferential tariff rates and the agreement specific design of the ROO. In a third step the thesis determined the impact of the agreement specific ROO and the market access offered on the utilisation rates of Australia's FTAs.

After reviewing relevant literature in chapter 2 on the utilisation of FTAs/PTAs and on the design of ROO and preferential tariff margins as determinants of utilisation rates, the thesis turned its attention to empirical evidence from Australia's FTAs/PTAs.

In Chapter 3 the thesis investigated the utilisation rate of Australia PTAs over the time frame of 2000-09. This work required some care in both the definition of the utilisation rate and the type of the analyses. Different definitions were discussed in some detail in the presentation of this part of the empirical work. The examination of the utilisation rates was undertaken at the aggregated level and at the sectoral level and further controlled for zero-MFN tariff lines. The analysis found uneven utilisation rates, with high utilisation rates for the CER and low utilisation rates for SAFTA. Furthermore, the

disaggregated investigation revealed a stark difference among sectoral utilisation rates. This led the investigation towards a review of ROO and their relationship with preferential tariff margins. Economic theory suggests that low preferential tariff margins and cost-increasing factors such as complex ROO are candidates to explain the non-utilisation of trade agreements.

The results of Chapter 3 also suggest that Australia's continuing multilateral trade liberalisation contributed to the decline in utilisation rates. The analysis showed an increasing number of zero-MFN tariff lines which reduced the utilisation rate of the available preferential tariffs. For some traders, this reduction of MFN tariff rates to lower levels made the claim for preferential treatment not worth troubling over. At the same time, the disaggregated sectoral investigation of the utilisation rates also revealed evidence that relatively high preferential tariff margins are not utilised by traders. This directed the focus of the investigation towards complex ROO or low trade volumes as both may be decisive factors of claiming for preferences for traders.

Of these factors, ROO is seen as the most possible explanation of varying utilisation rates. Therefore, the thesis turned its investigation towards ROO. In Chapter 4 the thesis focused on ROO and pursued three main steps:

1. The chapter clarified the discriminatory nature of FTAs and RTAs due to ROO and the economic justification of ROO in form of avoiding TD. This was discussed in detail by exploring different ROO designs applied, especially with a focus on product specific ROO and RVC schemes. It was found that both methods carry advantages and disadvantages.
2. The chapter turned towards Australia's bilateral trade agreements and provided a detailed overview of the different ROO schemes applied. It was found that both

the product specific ROO and the RVC schemes are used and that the SAFTA is the only agreement that applies the RVC methodology and all other agreements applied product specific ROO. Even though product specific ROO seem to be the preferred ROO scheme of Australia's FTAs, all ROO schemes differ significantly. This led to the question of the design of ROO as the variation of the ROO schemes indicated that the economic justification in form of avoiding TD is not the only determination as otherwise one would expect one harmonized ROO scheme for all trade agreements.

3. The chapter turned towards the design of ROO and the potential determinants of that design. A restrictiveness index for Australia's bilateral FTAs was developed. The index results for various sectors showed that more restrictive ROO are set-up in sectors with higher MFN tariff lines, indicating that stricter ROO are negotiated in areas with larger market access under the specific Australian FTAs. Again, these results indicated that ROO are not only in place for TD reasons. Instead the hypothesis arose that PE factors play a significant role in the design of ROO as ROO can be used as protectionist instruments and as a substitute for MFN tariff protection lost due to FTAs. The general complexity and the variation of ROO supported this hypothesis and led to the question of whether these rules are set at random or whether special PE interests prevail.

To further the analysis and to answer this question and in essence identify factors that affect the utilisation of FTAs, Chapter 5 focused on estimating the determinants of ROO. The modified ROO restrictiveness index developed in chapter 4 was the variable to be explained. Two sets of explanatory variables were applied. The first set focused on PE factors. Four specific areas where political forces could likely come into play were

identified. These are market access in form of preferential tariffs, potential future competition based on higher comparative advantage or disadvantage, potential future import penetration and trade facilitation based on the existing trade relationship between the trading partners. These factors are based on the hypothesis that special interest groups such import competing industries and export oriented sectors have interests in ROO at varying levels as these can serve as trade policy tools to their benefits. Therefore, these industries would lobby for their interests during the lengthy negotiations for the preferential trading agreements. This may also explain the complexity of the outcome of the set of ROO. The second set of variables is based on TD factors and investigates in how far ROO are designed to avoid the transshipment of goods. Two variables were applied. First, the Rauch index (and alternative BEC index) were chosen as they allow to test TD concerns according to the nature of the specific products. For example, economic theory suggests that homogenous goods are easier to transship than heterogeneous goods. Second, tariff differentials were used as they provide a clear incentive of transshipment.

The empirical model carried some important results:

1. Previous findings that showed that the determination of the restrictiveness of ROO goes beyond the economic justification of ROO in form of TD were supported. Evidence of the influence of PE factors was provided through the econometric model.
2. TD concerns are acknowledged. Especially the results of the Rauch index and the alternative BEC index confirmed this. Both indexes show that stricter ROO are negotiated for products that carry a higher threat of potential TD, for example trade in homogenous goods.

3. Tariff differentials are found to be of concern for all Australian trade agreement with less developed countries. A reason for this is likely the regional location of these countries and their heavy trade with their respective neighbours. The large trade costs that TD towards the United States and New Zealand would imply are found as the main reason why TD based on the tariff differential is not a concern under the CER and the AUS-FTA.
4. Import-competing firms and export-oriented industries succeed in lobbying for ROO that are meeting their specific interest to protect their competitiveness and to regain protection lost from lower MFN and preferential tariffs. Australia's MFN tariff rates are consistently positively related to stricter ROO for all agreements. This indicates that Australian import competing sectors prevail in lobbying for more stringent ROO the higher the relative market access offered under the respective trade agreement. Also consistently positive and significant is Australia's revealed comparative advantage index which also hints that import competing sectors succeed in what seems to be a substitution of stricter ROO for MFN tariff rates as a protective tool. At the same time, Australian exporters prevail in lobbying in negotiations of relatively less strict ROO when the trade volume is considered as these are negatively related to an increasing restrictiveness of ROO for all agreements.
5. The results confirm the interests of trading partners to further existing trade relations. The estimation showed that less strict ROO are negotiated in areas of strong existing bilateral trade. This shows that countries use ROO to further facilitate already existing bilateral trade and trade interests by applying simple ROO.

Even though the results confirmed previous findings they also added more questions: Are strict ROO negotiated in FTAs and RTAs to serve as a substitute for MFN tariff protection? Does the selection of ROO adversely affect the trade flow? Do ROO adversely affect the utilisation rates in Australia's FTAs? These are among the questions that chapter 6 investigated by bringing the thesis back to the question of the determinants of the utilisation rates of Australia's FTAs.

The analysis of Chapter 6 was threefold: (1) it discussed theoretically the benefits of FTAs and the binding effects of ROO; (2) it statistically investigated the impacts of ROO restrictiveness and preferential tariff margins on the utilisation rate for the Australian trade agreements; and (3) it applied the instrumental variable methodology and empirically estimated the determinants of the utilisation rates in form of the restrictiveness indicator and preferential tariff margins.

The empirical results show that preferential tariff margins of FTAs are the main drivers of utilisation rates of Australia's FTAs. The statistical analysis found that an increase in the preferential tariff margin led to an increase in the usage of the preferential regime, when controlling for ROO. However, when controlling for preferential tariff margins, an increase in the restrictiveness of ROO led to a decline in the utilisation rates. The statistical analysis further found that the higher the trade volume per tariff line, the higher the utilisation rate. All these results indicate that ROO carry additional costs to the traders which reduce the benefits of utilising Australia's FTAs. If the additional costs to claim preferences exceed preferential benefits, then the exporter will trade the commodity under the applied MFN tariff scheme and will not take advantage of the preferential regime. The instrumental variable analysis confirmed the statistical results and showed that ROO adversely affect the benefits created by FTAs in terms of preferential market access. The results further suggested that this is because ROO

increase trade costs and with this partially offset the benefits of preferential tariff margins leading to lessen the usage of FTA and negatively affecting trade.

The results also raise the question of why ROO are set-up in a manner that unfavourably impacts FTAs considering that on paper and in theory FTAs are negotiated to promote trade between the preferred trading partner.

This leads to the PE issues discussed in the previous chapter. The empirical evidence supports the theory that ROO are used as a political tool for protection, for instance as instruments which offset tariff reductions. With this, importers that currently protected by relatively high MFN tariff rates that would lose this tariff protection have the opportunity to lobby for stricter ROO to achieve a status where they can keep relative high protection from potential competition.

This thesis is significant for a number of reasons. It is the first comprehensive work undertaken on the determinants of the utilisation rates of Australia's FTAs. With its detailed discussion of the utilisation rates of Australia's FTAs and its approach of investigating influencing factors that influence the usage of Australian preferential agreements, this thesis adds significantly to the literature. By applying the instrumental variable methodology it demonstrates how to avoid identification problems between preferential tariff rates and ROO. The restrictiveness index on ROO for Australia's FTAs also is unique as it addresses major shortcomings of previous work, takes recent developments of the economic theory on ROO and restrictiveness into account and furthers the methodology specifically for Australian FTAs.

There are several topics that the research in this dissertation did not touch. The research in this thesis focused on Australia's FTAs only, however the results of Australia's FTAs could be compared to other hub countries such as New Zealand or Singapore to

investigate whether the results hold true. Additionally, since 2009, Australia has entered into several other trade agreements. The ASEAN-Australia-New Zealand FTA (AANZFTA) offers traders both, the RVC and the product specific ROO scheme to claim for origin. Therefore, countries with which Australia also has a bilateral trade agreement, for example Thailand and Singapore, now have the opportunity to also claim origin under the AANZFTA. It would be interesting to see if Thai and Singaporean exporters chose different regimes to trade with Australia. The results of such an analysis could be used to simulate the impacts of different ROO regimes on the trade development.

Furthermore, the overall results of the thesis by themselves open a discussion on the effectiveness of ROO and their impact on economic welfare. This is a topic that the thesis did not focus on but the results of the negative relationship of trade development and ROO indicates. This analysis could be furthered by using the results of this thesis in a computable general equilibrium model set up in which also different ROO regimes could be tested and their impact on economic welfare assessed.

Appendix

Appendix to Chapter 3

A. Disaggregated Analysis by Agreement

Tables A3.1 to A3.6 provide an overview of the development of the raw utilisation rates for the six Australian PTAs under consideration in this study over the time frame of 2000 to 2009. A grey shaded line in the table indicates the point of time the specific agreement entered into force.

a.) CER

The following provides an overview of some of the major findings of Table A3.1 which shows the sectoral disaggregated development of the utilisation rates for the CER between Australia and New Zealand over the time frame of 2000 to 2009.

The development of the utilisation rates can be grouped into three main categories:

(1) Sectors which show continuous high utilisation rates throughout the period of interest

- Plastics and Rubber (HS39-40), Leather Articles (HS41-43), Articles of Wood (HS44-46) and Textiles (HS50-63) have utilisation rates that range in between 89 per cent and 100 per cent throughout 2000 to 2009

- The applied MFN tariff rate for Leather Articles (HS41-43) and Plastics and Rubber (HS39-40) was above 6 per cent throughout the period, for Articles of Wood (HS44-46) it was above 4 per cent
- The applied preferential tariff rate for the commodities traded was above 11 per cent for Textiles (HS50-63) in 2009

(2) Sectors that show a slight/minor decline in the utilisation rate throughout the time frame of 2000 to 2009

- The utilisation rate for Prepared Foodstuff and Beverages (HS16-24), Articles of Stone and Glass (HS68-70), Base Metals (HS72-83) and Miscellaneous Manufactured Articles (HS94-96) ranged between 95 and 99 per cent in 2000 and showed a minor decline in utilisation of less than 20 per cent throughout the time frame to 2009
- The applied preferential tariff margins of commodities traded under these sectors with declining utilisation rates were on average below 3 per cent - Prepared Foodstuff and Beverages (HS16-24) showed an average MFN applied tariff rate of about 3 per cent and that of Base Metals (HS72-83), Articles of Stone and Glass (HS68-70) and Miscellaneous Manufactured Articles (HS94-96) was ca. 4 per cent

(3) Sectors that show a strong decline in the utilisation rate over 2000 to 2009

- Mineral Products (HS25-27), Optical and Surgical Instruments etc. (HS90-92), and Works of Art (HS97) showed all significant drops in the utilisation rates to almost zero in 2009
- In that year, all of these sectors have average applied MFN tariff rates of 1.5 per cent or less – for Mineral Products (HS25-27) and Works of Art (HS97) the applied MFN tariff rate was less than 0.4 per cent

The observations indicate that a relatively high preferential tariff rate is an incentive for traders into Australia to utilise the CER and that relatively low preferences lead to the opposite. This relationship is especially clear for commodities with very high preferences such as for Textiles (HS50-63) where the utilisation rate remained high throughout the observation period. Additionally to preferential tariff rates, a relatively high trade volume is also found to lead to an increase in the utilisation rates. For example, Live Animals and Animal Products (HS01-05) accounted for about 9 per cent of total trade into Australia under the CER. Even though the sector has a low preferential tariff rate of below 0.1 per cent, the utilisation rate is above 30 per cent.

b.) SPARTECA

The following provides an overview of some of the major findings of Table A3.2 which summarizes the disaggregated development of the utilisation rates for Australian imports under SPARTECA by Pacific Forum Island countries.

The development of the utilisation rates can be grouped into three main categories:

(1) Sectors which show continuous high utilisation rates throughout the period of interest

- Textiles (HS50-63) and Footwear etc. (HS64-67) show utilisation rates ranging in between 90 per cent and almost 100 per cent throughout 2000 to 2009
- For Textiles (HS50-63) and Footwear etc. (HS64-67) the applied MFN tariff rate was above 8 per cent

(2) Prepared Foodstuff and Beverages (HS16-24) shows a minor decline in the utilisation rate throughout the time frame of 2000 to 2009

- The sector showed a decline from about 96 per cent in 2000 to about 74 per cent in 2009 while over the same time frame the
- The applied tariff rate declined slightly from about 3 per cent to 2 per cent

(3) Sectors that show a strong decline in the utilisation rate over 2000 to 2009

- Vegetables (HS06-14), Animal or Vegetable Fats (HS15) and Chemical Products (HS28-38) had relatively high utilisation rates at the beginning of the observation time frame with more than 80 per cent, however the utilisation rate dropped to less than 12 per cent in 2009 – in most cases below 5 per cent
- The applied MFN tariff rate for all these sectors declined from about average 2 per cent to less than 1 per cent

The observations show that higher preferences, such as in the case of Textiles (HS50-63), lead to relatively high utilisation rates. On average, it seems that Pacific Island traders utilise SPARTECA preferences if these are above 2 per cent. At the same time, low trade volumes may also lead to relatively low utilisation rates.

c.) SAFTA

The following provides an overview of some of the major findings of Table A3.3 - the disaggregated development of the utilisation rates for Australian imports under SAFTA.

The development of the utilisation rates for all different sectors indicates a relatively strong decline since the agreement entered into force. Some of the strongest declines are observed for:

- Live Animals and Animal Products (HS01-05), Vegetables (HS06-14), Animal or Vegetable Fats (HS15), Mineral Products (HS25-27), Leather Articles (HS41-43), Articles of Wood (HS44-46), Textiles (HS50-63), Footwear etc. (HS64-67), Arms and Ammunition (HS93) and Works of Art (HS97) all showed significant declines in the utilisation rate over the time frame of 2000 to 2009 - in some cases the rate declined from almost 100 per cent prior to SAFTA (under the Australian GSP) to less than 1 per cent
- The average applied tariff rates varies significant among these sectors and ranges from more than 12 per cent for Textiles (HS50-63) to zero for Works of Art (HS97)

On the one hand, SAFTA shows no clear relationship between preferential tariff margins and utilisation rates as the utilisation rates all fell since SAFTA entered into force. On the other hand, there are also indications that in some cases relative high preferences lead to relatively higher utilisation rates. For example, in 2009, commodities traded under Footwear etc. (HS64-67) showed a utilisation rate of 16 per cent that was well above the 2009 average of 2 per cent recorded for all commodities and that commodities traded in that sector had average preferential tariff margins of 8.6 per cent.

d.) TAFTA

The following provides an overview of some of the major findings of Table A3.4 which shows the sectoral disaggregated development of the utilisation rates for Australian imports from Thailand under TAFTA over the time frame of 2000 to 2009.

The development of the utilisation rates can be grouped into four main categories:

(1) Commodities that show continuously high utilisation rates throughout the period of interest

- The utilisation rate for Wood commodities (HS44-46) ranged in between 98 per cent in 2000 and 86 per cent in 2006/07 and recorded 91 per cent in 2009
- Over the same time frame, the average preferential tariff margin was above 3.5 per cent since TAFTA entered into force

(2) Sectors with increasing utilisation rates throughout the period of interest

- The utilisation rate for Pulp of Wood and Paper Articles etc. (HS47-49) increased by about 30 per cent since TAFTA entered into force and the rate increased even more significant for Vehicles (HS86-89) from only 23 per cent in 2004 to more than 95 per cent in 2009
- For Pulp of Wood and Paper Articles etc. (HS47-49) and Vehicles (HS86-89) the preferential tariff margin increased to about an average of 4 per cent

(3) Sectors that record a minor decline in the utilisation rate throughout the time frame of 2000 to 2009

- Chemicals (HS28-38), Plastics and Rubber (HS39-40), Footwear etc. (HS64-67), and Articles of Stone and Glass (HS68-70) showed a relatively stable utilisation rate or a minor decline
- The average applied preferential tariff margin ranged from about 2.5 per cent for Chemicals (HS28-38) to about 5 per cent for Plastics and Rubber (HS39-40); Articles of Stone and Glass (HS68-70) showed an average applied preferential tariff margin of 4 per cent under TAFTA, for

Footwear etc. (HS64-67) the preferential tariff margin under TAFTA was 1.3 per cent in 2009

(4) Sectors that show a strong decline in the utilisation rate over 2000 to 2009

- The utilisation rate for Live Animals and Animal Products (HS01-05), Prepared Foodstuff and Beverages (HS06-14) and Animal or Vegetable Fats (HS15) dropped significantly from more than 85 per cent prior to TAFTA to less than 3 per cent in 2009
- The utilisation rate for Arms and Ammunition (HS93) declined from 100 per cent in 2000 to zero in 2009
- Commodities that were traded under the above sectors recorded an average applied preferential tariff margin of less than 2 per cent – for Live Animals and Animal Products (HS01-05) and Arms and Ammunition (HS93) the rate was close to zero

The observations indicate that preferential tariff margins above 3.5 per cent are likely an incentive for continuous high or increasing utilisation rates. However, in some cases, sectors with relatively high preferential benefits also show a slight decline in the utilisation of preferences for these (e.g. Plastics and Rubber (HS39-40) or Articles of Stone and Glass (HS68-70)). Similarly to preferential tariff rates, in some cases, higher trade volumes lead to relatively higher utilisation rates (e.g. Vehicles (HS86-89)). However, in other cases, there is no indication that higher trade volumes increase the utilisation rates.

e.) AUS-FTA

This section provides an overview of some of the major findings of Table A3.5 that provides the sectoral disaggregated development of the utilisation rates for Australian imports from the Unites States under the AUS-FTA. As traders from the United States did not enjoy any preferential market access to Australia prior to the AUS-FTA, the time frame of interest is limited to 2005 (when the agreement entered into force) to 2009 (the last year that observation data is available).

The development of the utilisation rates can be grouped into two main categories:

(1) Sectors that show marginal increasing utilisation rates throughout the period of interest

- The increase of the utilisation rate ranges in between 5 per cent, for example for Prepared Foodstuff and Beverages (HS16-24), Articles of Wood (HS44-46) and Base Metals (HS72-83) to up to 10 per cent, for example for Articles of Stone and Glass (HS68-70) and Miscellaneous Manufactured Articles (HS94-96)
- The applied preferential tariff margin under the AUS-FTA ranged in between 3 and 4 per cent for all commodities traded under the above stated sectors

(2) Sectors that show a minor decline in the utilisation rate throughout the time frame of 2000 to 2009

- The utilisation rate for commodities traded under the sectors Vegetables (HS06-14), Leather Articles (HS41-43) and Pulp of Wood and Paper Articles etc. (HS47-49) recorded a minor decline of less than 5 per cent
- Plastics and Rubber (HS39-40) showed a more than 10 per cent drop in the utilisation rate

- For Plastics and Rubber (HS39-40) and Leather Articles (HS41-43) the preferential tariff margin was with about 6 per cent higher than that for Pulp of Wood and Paper Articles etc. (HS47-49); the latter recorded an average applied preferential tariff margin of ca. 3 per cent
- The preferential tariff margin for Vegetables (HS06-14) averaged at only 1 per cent

The observations of Table A3.5 offer no clear relationship between utilisation rates and preferential tariff margins. For some commodities, the preferential tariff margin is with about 3 to 4 per cent enough incentive to claim for the benefits offered under the AUS-FTA. In other cases, such as for commodities of Plastics and Rubber (HS39-40) and Leather Articles (HS41-43) the preferential tariff margin was with about 6 per cent higher, however, lead to a decline in the utilisation rate. At the same time, the trade volume also offers conflicting results. In 2009, for example, Articles of Wood (HS44-46) recorded with 88 per cent the highest utilisation rate but only contributed to about 0.3 per cent of total imports from the United States into Australia. In the same year, with about 35 per cent of total imports, Machinery and Mechanical Appliances (HS84-85) was the strongest importing sector from the United States into Australia. The sectors preferential tariff margin averaged 3.6 per cent that year, about the same as that for Articles of Wood (HS44-46) that had a slightly higher rate of 3.7. However, the utilisation rate of Machinery and Mechanical Appliances (HS84-85) was with 23 per cent much lower.

f.) Chile/AUS-FTA

This section provides an overview of some of the major findings of Table 3.6 that shows the disaggregated development of the utilisation rates for Australian imports from Chile under the Chile/AUS-FTA.

The development of the utilisation rates is mixed throughout the time frame of 2000 to 2009. It can be grouped into three main categories:

(1) Commodities that have continuously high utilisation rates throughout the period of interest

- The utilisation rate for Articles of Wood (HS44-46) fell from 92 per cent in 2000 to circa 65 per cent in 2008, however, the utilisation rate recovered in 2009 to 92 per cent, likely as a result of the Chile/AUS-FTA
- Over the same time frame, the preferential tariff margin of commodities traded under that sector averaged about 4 per cent

(2) Sectors that show an increasing utilisation rate when the FTA entered into force

- Prepared Foodstuff and Beverages (HS16-24), Articles of Leather etc. (HS41-43), Articles of Wood (HS44-46), Articles of Stone and Glass (HS68-70) , Jewellery and Precious Materials (HS71), Machinery and Mechanical Appliances (HS84-85) and Vehicles (HS86-89)
- The applied preferential tariff margin for these commodities ranged in between 3 to 8 per cent which is an increase from the previous benefits offered under the Australian GSP

(3) Sectors that show a strong decline in the utilisation rate throughout the time frame of 2000 to 2009

- Live Animals and Animal Products (HS01-05), Vegetables (HS06-14), Animal or Vegetable Fats (HS15), Plastics and Rubber (HS39-40), Textiles (HS50-63), Footwear etc. (HS64-67), Base Metals (HS72-83)
- Commodities traded under Live Animals and Animal Products (HS01-05), and Vegetables (HS06-14) showed an average applied preferential tariff margin of less than 1 per cent and that of Animal or Vegetable Fats (HS15) was just above 1 per cent
- The average preferential tariff was about 4 per cent for Base Metals (HS72-83) and averaged about 6 per cent for Plastics and Rubber (HS39-40) and Footwear etc. (HS64-67) and recorded more than 11 per cent for Textiles (HS50-63)

The observations for the utilisation rates for Australian imports from Chile also show a slight increase in other sectors since the FTA entered into force. Additionally, the low utilisation rates of other sectors are likely the result of relatively low or zero trade flow. This is also a probable explanation why the utilisation rate varies strongly for some sectors throughout this time frame.

Table A3.1: CER - Development of raw utilisation rates (2000-09)

Section	Chapter	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
1	**01-05**	90.4	93.1	94.0	93.9	93.8	78.9	37.1	34.3	35.5	33.6
2	**06-14**	92.6	93.2	92.6	95.8	95.8	69.3	22.0	24.1	23.7	20.7
3	**15**	95.7	98.9	97.1	95.5	96.0	93.2	64.9	55.7	61.7	59.8
4	**16-24**	95.3	96.7	99.3	98.7	98.1	95.5	82.0	81.2	81.2	76.7
5	**25-27**	43.0	65.1	46.4	43.7	3.9	3.2	0.6	0.0	0.0	0.0
6	**28-38**	92.0	93.0	92.0	89.7	91.9	86.4	60.5	56.6	54.3	51.1
7	**39-40**	98.8	98.8	99.3	99.1	99.4	99.1	98.5	97.7	97.2	96.2
8	**41-43**	99.6	99.4	99.8	97.6	99.2	98.5	96.4	94.7	95.5	94.3
9	**44-46**	100	100	100	100	99.9	99.8	99.7	99.7	99.7	99.6
10	**47-49**	96.0	95.1	96.3	97.6	89.0	80.7	45.3	53.5	50.1	56.2
11	**50-63**	95.1	97.7	98.6	98.9	98.8	96.7	89.0	89.5	89.9	90.4
12	**64-67**	99.5	99.1	98.4	99.0	96.6	92.4	72.4	68.2	49.6	44.9
13	**68-70**	99.1	97.5	97.5	97.7	95.7	87.5	75.7	74.5	78.2	79.4
14	**71**	94.9	96.5	98.7	96.7	92.3	76.6	15.3	16.9	10.7	13.8
15	**72-83**	98.4	98.5	97.7	97.0	96.0	95.8	83.3	82.6	87.6	87.8
16	**84-85**	93.8	86.2	92.0	91.0	93.6	90.2	79.1	80.9	77.7	73.0
17	**86-89**	89.5	93.3	90.5	91.6	94.4	90.3	71.3	71.3	79.3	72.1
18	**90-92**	78.4	69.8	67.7	62.7	69.9	58.4	1.8	2.3	1.8	1.0
19	**93**	86.4	91.7	92.8	90.2	78.6	73.5	85.9	80.7	85.8	82.5
20	**94-96**	97.7	96.3	89.9	98.0	98.1	95.5	89.4	85.7	88.3	85.7
21	**97**	75.6	74.4	60.9	60.9	43.9	41.8	0.0	0.0	0.0	0.0

Source: Author's calculations.

Table A3.2: SPARTECA - Development of raw utilisation rates (2000-09)

Section	Chapter	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
1	**01-05**	53.1	63.5	81.8	78.0	72.3	33.6	0.0	0.0	0.0	0.0
2	**06-14**	82.8	72.6	65.5	69.3	69.2	59.4	3.9	4.0	3.8	3.4
3	**15**	90.8	65.1	90.8	67.7	37.7	65.6	1.8	2.6	12.6	4.0
4	**16-24**	95.7	90.6	94.0	94.7	94.3	86.8	72.8	66.8	69.6	73.6
5	**25-27**	25.5	0.3	14.1	82.7	77.4	52.1	0.0	0.0	0.0	0.0
6	**28-38**	80.7	97.4	19.7	34.8	42.3	55.9	41.9	17.8	12.0	12.3
7	**39-40**	76.7	72.6	78.8	77.9	41.5	32.1	22.3	54.4	21.2	40.8
8	**41-43**	83.8	95.1	83.9	74.5	62.8	65.8	63.0	41.8	32.9	46.2
9	**44-46**	97.2	98.9	98.9	98.6	97.2	91.1	69.7	69.1	64.5	57.1
10	**47-49**	67.4	84.5	73.9	79.0	77.4	63.2	31.3	11.9	6.5	23.6
11	**50-63**	99.6	99.4	93.6	93.2	90.4	90.8	98.8	98.5	98.0	98.5
12	**64-67**	99.6	99.1	98.3	97.7	99.0	97.9	86.9	84.7	84.3	90.6
13	**68-70**	68.6	49.8	12.9	31.5	13.4	1.1	0.0	24.6	0.0	46.6
14	**71**	87.3	83.6	51.0	54.5	54.5	46.7	0.0	0.0	0.0	0.0
15	**72-83**	21.8	73.0	5.7	12.5	25.7	4.6	0.7	1.7	2.1	3.1
16	**84-85**	33.1	48.9	16.3	14.8	5.0	8.3	12.2	2.0	1.9	0.8
17	**86-89**	3.9	6.1	11.6	3.9	5.3	17.2	58.5	14.5	5.7	3.4
18	**90-92**	8.5	16.6	30.9	42.4	36.3	8.3	0.1	0.0	0.0	0.0
19	**93**	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0
20	**94-96**	99.2	99.9	99.3	94.7	98.4	90.8	60.5	66.6	40.4	35.2
21	**97**	34.1	36.9	30.3	38.6	36.2	29.2	0.0	0.0	0.0	0.0

Source: Author's calculations.

Table A3.3: SAFTA - Development of raw utilisation rates (2000-09)

Section	Chapter	2000	2001	2002		2003	2004	2005	2006	2007	2008	2009
1	**01-05**	68.4	47.0	63.3		63.1	28.8	24.8	0.0	0.0	0.0	0.0
2	**06-14**	56.5	56.3	60.9		35.7	10.3	6.1	0.0	0.0	0.0	0.0
3	**15**	78.9	83.8	87.3		75.9	43.7	39.7	1.4	3.1	2.3	2.8
4	**16-24**	38.0	47.5	42.4		53.7	32.3	22.9	18.8	28.6	25.4	22.9
5	**25-27**	46.7	68.5	84.0		22.0	0.7	1.7	1.3	1.1	0.7	0.8
6	**28-38**	50.7	49.6	59.8		24.4	35.6	13.6	2.3	2.7	2.0	3.0
7	**39-40**	52.1	47.2	56.4		48.1	54.7	47.9	28.5	29.2	40.9	33.2
8	**41-43**	38.3	45.2	74.5		61.4	17.3	27.5	13.4	2.8	8.4	10.0
9	**44-46**	73.2	80.3	69.8		58.2	46.7	27.2	22.5	18.4	45.2	10.4
10	**47-49**	59.0	57.6	58.8		39.6	27.3	16.4	6.6	8.7	8.0	11.7
11	**50-63**	38.6	42.7	50.7		47.5	47.2	21.5	0.5	1.7	1.1	1.7
12	**64-67**	41.2	55.1	77.0		44.8	15.1	15.5	1.0	1.6	8.5	15.6
13	**68-70**	57.0	72.8	53.1		40.9	26.7	9.3	0.7	1.4	2.3	1.6
14	**71**	4.4	12.9	2.7		1.8	1.6	0.4	0.1	0.0	0.0	0.0
15	**72-83**	47.8	50.0	45.3		44.1	54.8	43.0	23.6	22.7	44.4	26.8
16	**84-85**	22.4	20.1	23.2		21.1	15.0	4.8	0.4	0.6	0.9	0.5
17	**86-89**	51.6	29.1	4.0		13.0	23.7	5.1	0.2	0.8	0.0	10.0
18	**90-92**	35.2	42.4	38.8		24.0	17.6	14.9	0.0	0.2	0.4	0.0
19	**93**	94.8	97.7	99.8		0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	**94-96**	58.7	42.7	45.8		61.2	35.9	25.7	5.2	7.7	9.2	3.5
21	**97**	55.3	82.3	74.6		38.7	11.3	5.2	0.0	0.0	0.0	0.0

Note: The vertical line indicates the date when the agreement came into force.

Source: Author's calculations.

Table A3.4: TAFTA - Development of raw utilisation rates (2000-09)

Section	Chapter	2000	2001	2002	2003	2004		2005	2006	2007	2008	2009
1	**01-05**	80.3	84.9	81.0	78.2	73.7		35.0	0.0	0.0	0.0	0.0
2	**06-14**	93.4	91.7	91.9	93.5	86.5		60.0	4.4	3.7	3.7	2.9
3	**15**	19.4	28.1	66.6	75.0	96.0		53.4	64.8	0.1	0.3	2.0
4	**16-24**	90.4	91.6	90.4	89.9	88.0		70.7	44.9	51.6	50.1	58.4
5	**25-27**	18.3	2.4	9.9	35.4	6.4		4.3	0.0	0.0	0.0	0.0
6	**28-38**	66.4	72.5	74.6	79.9	75.3		71.9	63.1	65.4	67.6	65.1
7	**39-40**	79.2	79.6	80.7	72.9	72.3		67.8	41.2	44.2	66.2	67.0
8	**41-43**	80.6	86.4	87.5	82.9	64.0		55.4	53.6	72.8	61.7	50.6
9	**44-46**	97.5	97.1	97.2	95.5	95.3		93.1	86.4	86.2	87.7	91.3
10	**47-49**	74.1	72.6	71.6	53.0	49.8		65.1	72.8	83.6	87.3	89.8
11	**50-63**	84.4	85.1	83.5	77.8	72.6		65.9	43.0	41.9	53.1	59.5
12	**64-67**	55.7	52.6	65.6	77.2	85.0		69.7	24.3	48.3	66.4	64.8
13	**68-70**	94.8	93.1	96.1	90.9	87.2		86.0	76.7	79.9	78.2	72.7
14	71	80.3	81.9	74.1	21.5	22.2		26.6	13.8	13.6	9.6	6.8
15	**72-83**	80.9	74.3	72.3	62.6	65.3		74.3	53.6	62.8	67.6	45.8
16	**84-85**	47.0	52.7	46.6	46.9	46.3		45.5	31.3	31.2	28.5	12.7
17	**86-89**	18.9	23.9	30.9	24.5	23.2		95.4	95.7	94.5	91.4	95.8
18	**90-92**	67.6	59.5	65.5	63.4	51.0		40.7	23.7	23.1	23.1	37.5
19	**93**	99.4	100.0	100.0	95.2	50.7		72.5	0.0	0.0	0.0	0.0
20	**94-96**	60.6	60.9	78.1	80.1	84.0		83.1	69.0	78.2	76.7	76.1
21	**97**	59.1	53.5	63.1	79.3	79.2		24.7	0.0	0.0	0.0	0.0

Note: The vertical line indicates the date when the agreement came into force.

Source: Author's calculations.

Table A3.5: AUS-FTA - Development of raw utilisation rates (2000-09)

Section	Chapter	2000	2001	2002	2003	2004		2005	2006	2007	2008	2009
1	**01-05**	0.0	0.0	0.0	0.0	0.0		11.9	0.2	4.3	15.5	1.8
2	**06-14**	0.0	0.0	0.0	0.0	0.0		41.6	36.2	40.7	42.4	39.4
3	**15**	0.0	0.0	0.0	0.0	0.0		31.9	9.8	47.6	22.4	31.8
4	**16-24**	0.0	0.0	0.0	0.0	0.0		50.0	52.9	51.5	53.0	54.1
5	**25-27**	0.0	0.0	0.0	0.0	0.0		5.5	0.2	0.3	0.4	0.2
6	**28-38**	0.0	0.0	0.0	0.0	0.0		20.9	13.6	13.6	14.0	17.5
7	**39-40**	0.0	0.0	0.0	0.0	0.0		62.0	54.7	57.9	51.3	51.3
8	**41-43**	0.0	0.0	0.0	0.0	0.0		43.1	34.9	33.4	39.2	40.4
9	**44-46**	0.0	0.0	0.0	0.0	0.0		81.3	80.4	80.3	85.1	87.6
10	**47-49**	0.0	0.0	0.0	0.0	0.0		40.6	36.2	35.4	37.5	37.0
11	**50-63**	0.0	0.0	0.0	0.0	0.0		42.4	31.0	30.2	33.7	33.7
12	**64-67**	0.0	0.0	0.0	0.0	0.0		17.2	23.6	16.8	28.6	22.6
13	**68-70**	0.0	0.0	0.0	0.0	0.0		48.7	41.4	43.3	42.0	59.6
14	**71**	0.0	0.0	0.0	0.0	0.0		8.1	1.3	8.4	6.6	2.3
15	**72-83**	0.0	0.0	0.0	0.0	0.0		39.5	38.2	42.3	44.3	45.5
16	**84-85**	0.0	0.0	0.0	0.0	0.0		30.9	20.6	21.9	24.0	22.8
17	**86-89**	0.0	0.0	0.0	0.0	0.0		38.9	21.3	31.4	26.9	34.0
18	**90-92**	0.0	0.0	0.0	0.0	0.0		12.7	2.0	1.6	1.2	1.1
19	**93**	0.0	0.0	0.0	0.0	0.0		2.9	3.7	8.7	10.9	6.0
20	**94-96**	0.0	0.0	0.0	0.0	0.0		34.9	32.7	43.2	46.0	36.9
21	**97**	0.0	0.0	0.0	0.0	0.0		6.2	0.0	0.0	0.0	0.0

Note: The vertical line indicates the date when the agreement came into force.

Source: Author's calculations.

Table A3.6: Chile/AUS-FTA - Development of raw utilisation rates (2000-09)

Section	Chapter	2000	2001	2002	2003	2004	2005	2006	2007	2008		2009
1	**01-05**	39.1	88.3	57.8	75.7	90.1	45.3	0.0	0.0	0.0		0.0
2	**06-14**	97.4	97.0	95.7	93.5	90.1	78.3	2.1	1.4	0.6		5.8
3	**15**	38.5	43.4	91.4	81.1	100.0	34.0	0.0	0.0	0.0		0.8
4	**16-24**	81.4	96.9	94.0	96.2	75.6	44.4	1.5	3.4	2.3		27.9
5	**25-27**	0.8	3.6	0.8	0.2	1.4	0.6	0.0	0.0	0.0		0.0
6	**28-38**	60.3	42.2	75.6	74.7	77.4	78.8	0.0	0.0	0.0		12.0
7	**39-40**	95.3	99.9	99.7	95.8	49.7	33.9	0.0	0.0	0.0		4.6
8	**41-43**	22.6	2.5	2.3	47.1	97.2	11.4	0.0	0.0	0.0		16.8
9	**44-46**	92.1	98.1	96.6	99.0	97.2	91.3	69.1	69.4	65.4		92.2
10	**47-49**	62.8	15.2	10.8	0.5	0.7	0.7	0.0	0.0	0.0		10.7
11	**50-63**	71.3	55.6	25.4	54.1	60.0	30.7	0.0	0.0	0.0		0.0
12	**64-67**	100.0	83.3	50.7	37.8	15.3	0.0	0.0	0.0	0.0		0.0
13	**68-70**	93.9	85.0	88.0	62.7	90.6	5.0	1.5	0.0	1.4		67.9
14	**71**	0.0	88.3	0.0	30.6	46.5	45.9	0.0	0.0	0.0		21.6
15	**72-83**	17.2	99.9	95.0	99.3	82.8	30.9	2.2	0.4	0.1		0.3
16	**84-85**	62.9	95.4	18.9	74.4	22.6	21.2	0.4	0.3	0.2		35.8
17	**86-89**	0.0	29.2	41.1	100.0	0.0	39.1	0.0	0.0	0.0		50.7
18	**90-92**	14.4	69.5	23.3	50.1	16.9	5.4	0.0	2.0	0.0		0.3
19	**93**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
20	**94-96**	54.6	99.4	60.8	41.5	93.2	76.4	20.8	2.4	0.0		9.0
21	**97**	0.0	0.0	0.0	100.0	0.0	99.4	0.0	0.0	0.0		0.0

Note: The vertical line indicates the date when the agreement came into force.

Source: Author's calculations.

B. Disaggregated analysis of Australia's FTAs by Sector

HS01-05: Live Animals and Animal Products

The simple average MFN tariff rates for Live Animals and Animal Products (HS01-05) declined from 0.05 per cent in 2000 to 0.04 per cent in 2009. Main reason for this decline is the increase in zero-MFN tariff lines from 198 to 226 at the HS 6-digit level over the decade. This explains that even though results of the raw utilisation rates are mixed, the zero-MFN adjusted utilisation rates are between 95 and 100 per cent throughout the decade for all FTA trading partners. The relatively low average applied tariff rates for Australia's trading partners under consideration in this study underline these findings. In most cases, the average applied tariff rates remained below 0.02 per cent throughout the decade. This indicates a strong proportion of commodities traded under zero-MFN tariff lines.

HS06-14: Vegetable Products

The zero-adjusted utilisation rates for vegetable imports from New Zealand, the Forum Island Countries, Singapore and Thailand was almost 100 per cent throughout the decade. The zero-MFN adjusted utilisation rates for Chile and the United States show mixed results.

For New Zealand and the Pacific Forum Island countries the average applied tariff rates for vegetable products were below 0.1 per cent throughout the decade. Considering that the raw utilisation rates for both countries fell significantly since 2005 (for New Zealand the raw utilisation rate dropped from circa 90 per cent to circa 25 per cent, for

the Forum Island Countries this figure fell from 83 per cent in 2000 to about 70 per cent in 2004 to below 5 per cent since 2006) an increase in zero-MFN trade is revealed.

The average applied tariff rates for Singapore, Thailand, the United States and Chile provide some evidence of a positive impact of the FTAs which is not obviously revealed by the utilisation rates.

In the case of Singapore, the applied average tariff rates show a marginal impact of SAFTA. The average applied tariff rate declined from 0.15 per cent in 2002 to 0.11 per cent in 2003 and further declined to less than 0.04 per cent in 2009. However, SAFTA evidence can only be drawn for the early decline considering that in between 2000 and 2002, circa 57 to 61 per cent of imports entered Australia under preferential treatment and this figure fell to 36 per cent in 2003. A more likely cause for the decline is an increase in zero-MFN trade, especially since 2006, considering that the raw utilisation rate shows no demand for preferential treatment.

For imports from Thailand the average applied tariff rates declined from 0.11 per cent in 2004 to only 0.03 per cent in 2005. The average applied tariff rate further declined to less than 0.01 per cent in 2009. However, this development is unlikely a core result of TAFTA as the raw utilisation rate which was already on a declining trend, 93 per cent in 2000 to 87 per cent in 2004 and it declined further to only 60 per cent in 2005. Since 2006, this figure fell to less than 5 per cent. Therefore, it is more likely suggested that an increase in zero-MFN traded commodities is the cause for most of the decline in the average applied tariff rates, instead of an increase in TAFTA preferences.

Chile's raw utilisation rate also declined significantly throughout the decade from 97 per cent in 2000 to 90 per cent in 2004 to less than 0.6 per cent in 2008. However, the introduction of the Chile/AUS-FTA in 2009 led to an increased to 6 per cent in 2009.

The significant decline in preference utilisation in 2000-08 can be explained by an increase in zero-MFN trade as Chile's applied average tariff rate declined from 2.1 per cent in 2000 to 0.7 per cent in 2008. However, the drop to 0.24 per cent in 2009 hints evidence of increasing preferences of the Chile/AUS-FTA. The adjusted utilisation rate for Chile increased from circa 86 per cent in 2007-08 to 98 per cent in 2009, supporting these findings. However, it needs to be mentioned that the zero-MFN adjusted utilisation rate ranged above 97 per cent in between 2000-05 and declined to 73 per cent in 2006, the same time frame when the raw utilisation rate dropped. Therefore, the FTA with Australia led to a slight recovery of preference utilisation.

Strong evidence for a positive impact of preference utilisation is drawn from the trade development with the United States. Since 2005, circa 40 per cent of all imports from the United States entered Australia under AUS-FTA preferences. The zero-MFN adjusted utilisation increased from 66 per cent in 2004 to 97 per cent in 2005 when the AUS-FTA entered into force. The rate remained at about 98 per cent until 2009.

Support comes also from the development of the average applied tariff rates. The applied tariff rate recorded a significant drop from 1.5 per cent in 2004 to 0.6 per cent in 2005 and a further decline to below 0.01 per cent in 2009. This is likely a combined result of preference utilisation and increasing trade of zero-MFN tariff line commodities.

The above analysis provided evidence that linked to relatively strong preference erosion due to an increase in trade of zero-MFN commodities. However, even though the results of the utilisation rates indicated to an increase in zero-MFN tariff lines over the time frame of 2005-2006, an analysis of the MFN tariff lines of vegetable products (HS06-14) at the HS6-digit level does not show any evidence. Throughout the decade only 40 out of circa 270 tariff lines at the HS 6-digit level are dutiable – and the resulting

relatively low applied MFN tariff rate for vegetable products remained at circa 0.7 per cent. Nevertheless, as Australia's MFN tariffs are levied at the HS 8-digit and in some cases even at the HS 10-digit level, it is likely that the number of zero-MFN tariff lines at these levels increased which would in return explain the decline in raw utilisation rates at constant high levels of zero-MFN adjusted utilisation rate.

HS15: Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes

Besides 2004 when an average applied tariff rate of 0.1 per cent was recorded, no tariffs were levied on imports from the Forum Island countries.

A similar result is shown for New Zealand. In only 4 years of the time frame of 2000-09 tariffs were paid; however the tariff rate was with 0.025 per cent insignificant.

2003 was the only year imports from Thailand paid a relatively high tariff with 0.32 per cent. For the remaining years either no tariff or an applied average tariff rate of below 0.07 per cent were recorded. The FTA of 2005 seemed not to have an impact in regards to tariff preferences for HS15.

Singapore's average applied tariff rate was with 1.45 per cent at its low in 2001 after which it increased to 1.9 per cent in 2002. Interestingly, the introduction of SAFTA did not lower the average applied tariff rates for imports from Singapore. Contrary to the expectation of lower average applied tariffs, an increase in the average applied tariff rate was noted going beyond the simple average MFN tariff. In 2003, the average applied tariff rate increased to 2.63 per cent. It found its peak in 2006 with 3.2 per cent. Over the time frame of 2007-09 the rate declined from 2.7 per cent to 2.3 per cent.

This is still higher than the pre-SAFTA rates and higher than the average applied MFN tariff rates of circa 2 per cent (2007-09).

For this sector, the United States noted its peak of average applied tariff rates in 2003 with 1 per cent. In 2004, the rate declined to 0.35 per cent and to 0.24 per cent with the introduction of the AUS-FTA in 2005. Since then, the rate declined gradually to in between 0.1 and 0.3 per cent (2006-09).

Only two years of paid tariffs were recorded for Chile, namely 2001 with 0.24 per cent and 2009 with 0.1 per cent. For the other years no tariff was paid according to the records from the ABS.

The simple average MFN tariff rate increased from 1.7 per cent in 2000 to circa 2 per cent in 2009. Main reason for this small increase is the restructuring of the HS from HS1997 to HS2002 to HS2007 which saw a reduction in tariff lines from 49 to 46 at the HS 6-digit level.

HS16-24: Prepared foodstuffs; beverages, spirits and vinegar; tobacco and manufactured tobacco substitutes

The raw utilisation rates had a declining trend for most of Australia's FTA partners.

For New Zealand, the raw utilisation rate declined from above 95 per cent in 2000-05 to circa 82 per cent in 2006-08 and further to 77 per cent in 2009. The raw utilisation rate for the Pacific Forum Island countries found its peak in 2001-2003 with almost 95 per cent and then fell gradually and significant since 2004 to below 5 per cent in 2006-2008. However, for both countries the zero-MFN adjusted utilisation rates remained above 99 per cent with an average applied tariff rate of less than 0.06 per cent.

This indicates an increase in zero-MFN commodity trade. This is especially the case for the Forum Island Countries where a conclusion of preference erosion can be drawn.

Likely as a result of SAFTA and its enhanced preferences, the raw utilisation rate for Singapore's imports increased by 10 per cent over the period of 2002 to 2003 from 43 to 53 per cent, respectively. Evidence for a positive impact of SAFTA can also be drawn from the decline of the average applied tariff rate from 0.84 per cent to 0.53 per cent over the same time frame. However, since 2004, the raw utilisation rate declined significantly and was only 23 per cent in 2009. Because Singapore's zero-adjusted utilisation rate ranged in between 90-95 per cent throughout the decade, and the average applied tariff rate declined gradually to 0.23 per cent in 2009, an increasing trade of zero-MFN commodities is concluded, indicating eroding preferences.

The raw utilisation rate ranged between 88-90 per cent in 2000-04 and fell to 70 per cent in 2005 and further to 45 per cent in 2006. It gradually increased to 58 per cent in 2009. This increase is likely to be a delayed response of TAFTA preferences by Thai exporters. Evidence for this can also be drawn from the average applied tariff rate which declined from its peak in 2003-04 with 2.54 per cent to 1.56 per cent in 2005 when TAFTA entered into force. The average applied tariff rate further declined to below 0.1 per cent in 2009. The zero-adjusted utilisation rate for Thailand was above 96 per cent over the time frame 2000-04 and declined slightly to 93 per cent in 2005. This implies an increase in zero-MFN trade as fewer preferences were claimed that year, indicating an erosion of preferences. However, at the same time, a learning effect can also be noted since the utilisation rate gradually increased to pre-FTA levels in 2009 when it reached 98 per cent.

In 2005, 50 per cent of all imports entered Australia under AUS-FTA preferences. The raw utilisation rate continued to increase to about 54 per cent in 2009. The zero-MFN

adjusted utilisation rate increased from 40 per cent in 2004 to 80 per cent in 2005 and further to 95 per cent in 2009. At the same time, the AUS-FTA's preferential tariff rates led to a decline in the average applied tariffs of United States imports into Australia from 2.2 per cent in 2004 to only 0.75 per cent in 2005. The rate continued to drop to 0.25 per cent in 2009. In combination, the results of raw utilisation rate, zero-MFN adjusted utilisation rate and average applied tariffs point to a strong positive impact of AUS-FTA preferences.

With the introduction of the Chile/AUS-FTA, the raw utilisation rate increased from 1-3 per cent in 2006-09 to 28 per cent in 2009 showing evidence that the enhanced tariff preferences offered are being utilised. At the same time, the zero-MFN adjusted utilisation rate increased to 87 per cent in 2009 an increase of about 30 per cent from the utilisation rate recorded in 2007-08. However, some evidence of non-utilisation and preference erosion of Australian GSP preferences is observed between 2004-08. The zero-adjusted utilisation rate was above 96 per cent in 2000-03 and fell to about 80-85 per cent in 2004-06. At the same time more zero-MFN commodities were traded then before because the raw utilisation rate declined more significant than the adjusted utilisation rate. Further evidence for this can also be drawn from the average applied tariffs. When there was almost full utilisation in 2000, relatively low applied tariff rates of only 0.7 per cent were observed. In 2004, the average applied tariff rate peaked with circa 2.7 per cent. In 2008, the applied tariff rate was 0.75 per cent, a relatively low rate considering how few preferences were utilised. However, with the entry of the Chile/AUS FTA a drop to 0.53 per cent was noted.

The preference erosion that was noted in some FTAs is partially due to a shift in trade or due to change in tariff rates at the HS 8-digit or HS 10-digit level as the average applied MFN tariffs did not decline throughout the decade. Furthermore, the analysis

shows that the average MFN tariff increased from 2.4 per cent in 2000 to 2.65 per cent in 2009, mainly due to introductions of the upgraded HS versions HS2002 and HS2007 which increased the tariff lines of the subgroup HS16-24 from 205 to 257. At the same time, the number of dutiable tariff lines increased from 101 to 138.

HS25-27: Mineral products

For all counties the zero-MFN adjusted utilisation rate for mineral products was above 99 per cent throughout the decade,[37] however different developments of the raw utilisation rates occurred.

New Zealand's raw utilisation rate dropped significantly in 2004 from 44 per cent in 2003 to 3 per cent and fell further to less than 1 per cent in 2006-09 indicating that almost all imports came in under zero-MFN tariff lines over those years. New Zealand's average applied tariff rate peaked at 0.75 per cent in 2006. However, for most of the decade, the rate remained below 0.5 per cent and was as low as 0.11 per cent in 2007. The combination of low raw utilisation rates and relatively low average applied tariff rates indicate to a strong erosion of CER preferences for imports of mineral products. At the same time, the average applied MFN tariff rate for mineral products was low throughout the decade, ranging in between 0.3-0.4 per cent.[38]

[37] New Zealand's zero-MFN adjusted utilisation rate is likely to be close to 100 per cent throughout the decade. Even though there is a lower bound which is closer to the raw utilisation rate for some years (2000-01 and 2003-05), the lower bound is almost 100 per cent during the time frame of 2006-09. It would be surprising if exporters would only utilise preferences since then, considering that there was no change in tariff preferences throughout the decade.

[38] The introduction of the HS2002 and HS2007 led to changes in the number of tariff lines. The HS2002 increased the number of tariff lines from 180 to 251. The HS2007 reduced the tariff lines to 191. The number of dutiable tariff lines remained unchanged at 14 throughout the decade. This movement in tariff lines is the reason for the movement in the average MFN tariffs. The rates declined from circa 0.4 per cent in 2000-01 to circa 0.3 per cent in 2002-06 and increased to 0.36 per cent in 2007.

For the Pacific Forum Island countries the raw utilisation rate increased sharply in 2003 to more than 82 per cent and fell similarly sharply in 2004 to zero and remained at zero throughout the rest of the decade. The average applied tariff rate for the Pacific Forum Island countries increased slightly over the decade peaking at 0.12 per cent in 2008.

Singapore's raw utilisation rate increased to more than 84 per cent in 2002 and dropped significantly in the following years to below 2 per cent in 2004-09, likely as a result of low MFN applied tariff rates and zero-MFN commodity trade. Evidence for this comes from Singapore's average applied tariff rates which recorded a significant decline from 2.5 per cent in 2000 to only 0.48 per cent in 2002. The tariff rate remained below 0.5 per cent for the rest of the time frame under consideration in this study.

Thailand's raw utilisation rate increased to its peak of 35 per cent in 2003 but was almost zero in 2006-09. Thailand's average applied tariff rate peaked in 2007 with 0.17 per cent. However, for most of the decade, the tariff rate remained far below 0.1 per cent. There was no evidence of enhanced preference utilisation of TAFTA, most likely due to the overall low average applied MFN tariff rates and zero-MFN commodity trade.

There is some evidence of United States exporters taking advantage of AUS-FTA preferences, a surprising result considering the relatively large proportion of zero-MFN tariff lines and overall low MFN tariff rates. In 2005, when the AUS-FTA entered into force, the raw utilisation rate was 5.5 per cent and declined to less than 1 per cent from 2006-09. Some support of a positive impact of the FTA also comes from the analysis of the average applied tariff rates for United States imports. Over the years 2000 to 2004, the average applied tariff rate on imports from the United States increased from 0.02 per cent to 0.75 per cent. In 2005, the average applied tariff rate declined to 0.5 per cent and continued to decline to 0.28 per cent in 2006, likely a result of AUS-FTA tariff

preferences. However, since 2007, the average applied tariffs began to rise again and stood at 0.58 per cent in 2009.

Chile's raw utilisation rate was below 4 per cent throughout the decade and besides 2005, when an average applied tariff of 0.23 per cent was recorded, there were no tariffs paid.

HS28-38: Products of the chemical or allied industries

The raw utilisation rate for imports from New Zealand was above 90 per cent in 2000-04 and fell to 86 per cent in 2005. The raw utilisation rate dropped to 60 per cent in 2006 and continued to decline to only 51 per cent in 2009. The zero-adjusted utilisation rate, however, was above 96 per cent in 2000-05 and declined slightly to 91 per cent in 2009. New Zealand's average applied tariff rate increased from below 0.1 per cent in 2000-05 to 0.2 per cent in 2006. It fell to 0.09 per cent in 2008 and stood at 0.15 per cent in 2009. This development shows a strong relationship with the development of the utilisation rates.

The Pacific Forum Island countries' raw utilisation rate increased from 81 per cent to 97 per cent over 2000-01. The rate dropped to only 20 per cent in 2002 and increased since 2003 gradually to 42 per cent in 2005. The raw utilisation rate declined since then to only 12 per cent in 2009. The zero-adjusted utilisation rate was, however, above 97 per cent in 2000-05, declined to 85 per cent in 2006, increased to 99 per cent in 2007 and stood at 90 per cent in 2009. Between 2000 and 2004, the Pacific Forum Island countries' average applied tariff rate remained below 0.1 per cent. In 2005, the tariff rate increased and peaked at 0.65 per cent in 2006. It sharply declined in 2007 to 0.02 per cent and increased again in 2008-09 to circa 0.42 per cent.

Singapore found its raw utilisation rate at its peak in 2002 with 60 per cent. The raw utilisation rate declined since then to less than 5 per cent in 2006-09. The zero-adjusted utilisation rate ranged between 84 to 90 per cent in 2000-05 and began to decline over 2006 to 2008 to 68-72 per cent. In 2009, in between 73-77 per cent of imports from Singapore entered Australia either under SAFTA preferential market access or zero-MFN tariff lines. Singapore's average applied tariff rate for imports to Australia fell from 1.38 per cent in 2001 to 1.03 per cent in 2002. Contrary to the expectation of a falling tariff rate considering that SAFTA entered into force, it increased in 2003 to 1.1 per cent and then began to fall in 2004 to 0.53 per cent in 2006, likely a delayed learning effect of SAFTA preferences. However, the average applied tariff rate began to increase since 2007 and peaked in 2008 with 1.25 per cent. In 2009, the average applied tariff rate stood at 1.05 per cent signalling that Singaporean exporters are not taking advantage of SAFTA tariff preferences.

Thailand's raw utilisation rate increased gradually from 66 per cent in 2000 to 80 per cent in 2003. It fell to 75 per cent in 2004 and further to 72 per cent in 2005 when TAFTA entered into force. Even though this indicates that no additional preferences are being utilised, the zero-MFN adjusted utilisation rate increased slightly since 2005, likely a result of TAFTA preferences.[39] The raw utilisation rate remained below 68 per cent and recorded 65 per cent in 2009. Thailand's average applied tariff rate also provides evidence for a positive impact of TAFTA preferences. The tariff rate increased from 1.8 per cent in 2000-01 to 3.3 per cent in 2004. When TAFTA entered into force in 2005, the tariff rate declined significantly to 1 per cent indicating the positive impact

[39] The zero-adjusted utilisation rate ranged between 82 to 88 per cent throughout the decade. The rate increased slightly from 82 per cent in 2004 to 87 per cent in 2005, possibly due to TAFTA preferences and remained at circa 85 per cent in 2009.

of the FTA's preferential tariff margins. The tariff rate continued to decline to 0.3 per cent in 2009.

The raw utilisation rate for imports from the United States increased in 2005 to 21 per cent and remained at a lower rate of 14 per cent in 2006-08 until increasing to 17.5 per cent in 2009. The zero-adjusted utilisation rate increased from between 65-75 per cent in 2004 to between 83-87.5 per cent in 2005 also showing the impact of AUS-FTA preferences. The zero-adjusted utilisation rate remained steady between 82-92 per cent in the following years and was between 77-89 per cent in 2009. Although these results indicate that AUS-FTA preferences are being utilised, it also shows that at least 10 per cent of eligible imports are not. Evidence for strong preference utilisation comes also from the average applied tariff rate for Australian imports from the United States. These ranged between 1.2 and 1.3 per cent over the time frame of 2000-04 and dropped significantly to 0.4 per cent in 2005, when the AUS-FTA entered into force. The applied tariff rate dropped further to 0.2 per cent in 2006 and was circa 0.3 per cent over the time frame of 2007-09.

Chile's raw utilisation rate fell from 60 per cent in 2000 to 42 per cent in 2001 and recovered to between 75-78 per cent over the time frame 2002-05. The raw utilisation rate fell sharply to zero in 2006-08 and increased to 12 per cent in 2009, likely a result of the Chile/AUS-FTA. The zero-adjusted utilisation rate follows a similar pattern and increases to 98 per cent in 2005 but fell to 21 per cent in 2006. The zero-MFN adjusted utilisation rate recovered gradually to 50 per cent in 2008 and increased to 55 per cent in 2009. Throughout the decade, the average applied tariff rate for imports from Chile showed a mixed result: It was 2.2 per cent in 2000 and fell to 1.5 per cent in 2001 and then increased to circa 4 per cent in 2003. The average applied tariff rate declined to circa 1.3 per cent in 2008-09 showing no impact of the Chile/AUS FTA.

The average MFN tariff rate increased from 1.25 per cent to 1.4 per cent throughout the decade. This was due to the introduction of the new HS version HS2007. Here the number of tariff lines increased from 814 in 2000 of which 205 were dutiable to 872 in 2007 with 243 dutiable tariff lines.

HS39-40: Plastics and articles thereof; rubber and articles thereof

New Zealand's raw utilisation rate ranged above 98 per cent in 2000-05 and declined slightly to 96 per cent in 2009. There was almost no zero-MFN trade which is shown by the only insignificantly higher zero-MFN adjusted utilisation rate which stood at circa 96.5 per cent in 2009, indicating strong utilisation of CER preferences. New Zealand's average applied tariff rate increased since 2005 but remained below 0.1 per cent throughout the entire decade.

The Pacific Forum Island countries' raw utilisation rate ranged between 73-78 per cent in 2000-03 and dropped significantly to 22 per cent in 2006. In 2007, the rate increased to 54 per cent, declined in 2008 to 21 per cent and recovered to 41 per cent in 2009. The zero-MFN adjusted utilisation rate increased from 93 per cent in 2000 to more than 99 per cent in 2002 and was 97 per cent in 2003. The zero-MFN adjusted utilisation rate fell to 80-82.5 per cent in 2004-05 and increased to 93 per cent in 2006. Since 2007, the data reveals an upper and lower bound. In 2007, the zero-MFN adjusted utilisation rate ranged in between 89-95 per cent. In 2009, in between 70-84 per cent of trade entered Australia under either zero-MFN trade or under SPARTECA preferences. The average applied tariff rate for imports from the Pacific Forum Island countries increased from circa 0.1 per cent in 2000-03 to 0.6 per cent in 2004-05. It fell to circa 0.35 per cent in 2006-07 and increased relative sharply to 1.1 per cent in 2008-09.

Singapore's utilisation rate ranged in between 48 and 57 per cent in 2000-05. The rate fell to less than 30 per cent in 2006-07 and increased to 45 per cent in 2008. The utilisation rate was circa 34 per cent in 2009 with almost no zero-MFN trade (throughout the decade). The average applied tariff rate for imports from Singapore declined from circa 3.9 per cent in 2002 to 3.4 per cent in 2003 when SAFTA entered into force. The tariff rate further declined to circa 1.5 per cent in 2008-09 indicating a positive impact of the SAFTA tariff preferences. Nevertheless, in 2009, about 65 per cent of imports were not utilised. The relatively low average applied tariff rate indicates that this is due to low tariff preferences, however, compared to New Zealand which also enjoys tariff free market access into Australia, Singaporean exporters clearly do not utilise the tariff preferences offered by SAFTA as much as they could.

Thailand's raw utilisation rate declined from circa 79 per cent in 2000 to less than 68 per cent in 2005. The raw utilisation rate fell further to 41 per cent in 2006 and recovered gradually to 67 per cent in 2009. The zero-adjusted utilisation rate was only slightly higher throughout the decade and recorded 72.5 per cent in 2009 indicating that about 27.5 per cent of trade is entering Australia under MFN tariffs. Even though the utilisation rate development did not show evidence of enhanced TAFTA preference utilisation, Thailand's average applied tariff rate development does indicate a positive impact. The applied tariff rate ranged in between 4.3 and 4.5 per cent over the time frame of 2000-04 and declined to 3.1 per cent in 2005. The tariff rate continued to decline to circa 1.5 per cent in 2009.

The average applied tariff rate for imports from the United States declined slightly from 3.9 per cent in 2000 to 3.8 per cent in 2004. The AUS-FTA led to a significant drop in the average applied tariff rate in 2005 when the rate stood at 1 per cent. Over the following years the tariff rate continued to decline to 0.5 per cent in 2009. Combined

with a strong development of the raw utilisation rate which was 62 per cent in 2005 and remained at more than 50 per cent in 2008-09, strong positive evidence of AUS-FTA preferences is provided. The initial utilisation rate of 62 per cent is likely a result of marketing of the AUS-FTA and its decline since then due to low average applied MFN tariffs as indicated by the relatively low average applied tariff rate for United States imports. There was only limited zero-MFN commodity trade recorded. In 2000-04, only about 1 to 6 per cent of imports entered Australia under zero-MFN tariff lines. In 2009, circa 3 per cent zero-MFN trade entered Australia, revealed by a zero-MFN adjusted utilisation rate of 54 per cent.

For imports from Chile there was no difference between raw utilisation rate and zero-adjusted utilisation rate, implying that the country almost entirely traded dutiable MFN tariff line commodities. The utilisation rate increased from 95 per cent in 2000 to almost 100 per cent in 2001-2002. The rate fell to 96 per cent in 2003 and declined sharply to 50 per cent in 2004 and 34 per cent in 2005. There was no utilisation of preferences and almost no zero-MFN trade in 2006-08. In 2009, likely as a result of the Chile/AUS-FTA, the utilisation rate increased to 5 per cent. Chile's applied average tariff rate peaked in 2001 with 8 per cent and declined sharply to 3 per cent and 2 per cent in 2002 and 2003, respectively. In 2004 the tariff rate increased to 4.9 per cent and since then fell to 0.5 per cent in 2009. The relatively strong decline in both, the utilisation rate and the average applied tariff rate since 2005 can be linked to strong preference erosion.

The number of tariff lines increased from 221 to 239 over the time 2000-04 to 2005-06. The number of dutiable items was unchanged with 196, leading to a decline in the average MFN tariff rate from 6 per cent to 5.3 per cent. The introduction of the HS2007 saw a declined of tariff lines to 238 with an increase in dutiable items to 214. The MFN tariff rate remained almost unchanged with 5.33 per cent.

HS41-43: Raw hides and skins, leather, furskins and articles thereof; saddlery and harness; travel goods, handbags and similar containers; articles of animal gut (other than silk-worm gut)

New Zealand's raw and zero-adjusted utilisation rates were high throughout the decade. Nevertheless a slightly declining trend is noticeable from more than 99 per cent in 2000 to less than 95 per cent in 2009, explaining the increase in New Zealand's average applied tariff rate from less than 0.01 per cent in 2000 to 0.18 per cent in 2009.

The raw utilisation rate of the Pacific Forum Island countries peaked at 95 per cent in 2001 and declined since then gradually to 33 per cent in 2008. It increased to 46 per cent in 2009. The zero-MFN adjusted utilisation rate was high throughout the decade. It ranged above 85 per cent in 2000-07. This range increased to 83 to 98 per cent in 2008 and 64 to 98 per cent in 2009. The Pacific Forum Island countries' applied average tariff rate fell from 0.43 per cent in 2000 to 0.01 per cent in 2001 and then increased again to 0.42 per cent in 2002 and 0.38 per cent in 2003. The rate fell significantly since 2004 to 0.1 per cent and declined further to less than 0.01 per cent in 2009. The combined results of high zero-MFN adjusted utilisation rate, low raw utilisation rate and very low average applied tariff rates indicates a strong erosion of SPARTECA preferences throughout the decade.

Singapore's raw utilisation rate declined significantly from its peak of 75 per cent in 2002 to less than 3 per cent in 2007. The raw utilisation rate increased to 10 per cent in 2009. The zero-MFN adjusted utilisation rate followed this trend. It peaked in 2002 with a utilisation rate of between 75-87 per cent and declined to between 14-24 per cent in 2007. In 2009, in between 22-46 per cent of imports entered either under zero-MFN tariff lines or under SAFTA preferences. The average applied tariff rate for imports from Singapore ranged in between circa 2.4 per cent and 3.8 per cent throughout the

decade. In 2001, the tariff rate increased from 2.4 per cent to 3.8 per cent. In 2002, the tariff rate declined to 2.7 per cent and further to 2.5 per cent when SAFTA entered into force. However, in 2007, the rate increased back to 3.7 per cent. Even though the tariff rate declined back to 2.55 per cent in 2005-06, it is an indication that Singaporean exporters do not take advantage of the SAFTA preferential free market access. This becomes clearer when the increase in tariffs to 3.1 per cent in 2007 is considered. The average applied tariff rate for Singaporean imports remained at around 2.5 per cent in 2009.

Thailand's raw utilisation rate declined gradually from its peak of 87 per cent in 2002 to 54 per cent in 2006. It increased to 73 per cent in 2007 and then declined to 51 per cent in 2009. The zero-adjusted utilisation rate showed a range of its raw utilisation rate as its lower bound and an upper bound. In 2009, the zero-MFN adjusted utilisation rate was in between 51 and 69 per cent. Thailand's average applied tariff rate declined from circa 4.3 per cent in 2000-01 and 4.5 per cent in 2002 to 3.9 per cent in 2004. In 2005, when TAFTA preferential tariffs replaced Thailand's Australian GSP preferential market access, the tariff rate declined to only 2 per cent, indicating enhanced preferential market access. The tariff rate dropped further to only about 1 per cent indicating that Thai exporters take advantage of the preferences offered under TAFTA.

During 2000-04, in between zero to 18 per cent of imports entered Australia under zero-MFN tariff lines. In 2004, the zero-adjusted utilisation rate was 1 to 9 per cent. The rate increased in 2005 to between 44-53 per cent with a raw utilisation rate of 43 per cent. The zero-adjusted utilisation rate ranged between 34-46 per cent for 2006-08 and was between 41-48 per cent in 2009, with 40 per cent raw utilisation of AUS-FTA preferences. The United States average applied tariff rate increased from circa 4 per cent in 2000 to 4.7 per cent in 2004. In 2005, when AUS-FTA entered into force, the

average applied tariff rate declined significantly to 2.2 per cent, and further to 1.7 per cent in 2007-08. The tariff rate stood at 1.8 per cent in 2009. The significant decline in average applied tariff rates and the development of the raw utilisation rate indicates a positive impact of AUS-FTA tariff preferences for HS41-43 products.

There is no clear pattern of the development of the utilisation rate for imports from Chile throughout the decade in this sector. The raw utilisation rate fell from 23 per cent in 2000 to less than 3 per cent in 2001-02. The raw utilisation rate increased to 47 per cent in 2003 and 97 per cent in 2004 and fell to only 10 per cent in 2005. The utilisation rate was zero in 2006-08 and increased to 16 per cent likely due to an effect of the Chile/AUS-FTA. The zero-adjusted utilisation rate was insignificantly higher. The spike in the upper bound that was reported in 2008 with 100 per cent seem to be a trade composition effect. Chile's average applied tariff rates dropped to below 0.1 per cent in 2002-03 from 1.1 per cent in 2000. The average applied tariff rate increased to 5 per cent in 2005-07, fell to zero in 2008 and stood at 0.8 per cent in 2009.

The average MFN tariff rate was reduced from 3.9 per cent in 2000 to 3.75 per cent in 2001. The introduction of the HS2002 saw an increase to 4.4 per cent in 2002 due to an increase in the number of tariff lines from 85 to 94 and an increase in the number of dutiable tariff lines from 46 to 64. The MFN tariffs were again cut in 2005 with the average MFN tariff rate declining to 4 per cent. The introduction of the HS2007 saw only a minor change in tariff lines with the average MFN tariff rate remaining at 4 per cent.

HS 44-46: Wood and articles of wood; wood charcoal; cork and articles of cork; manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork

The introduction of the HS2002 and HS2007 are the reasons for changing average MFN tariff rates throughout the decade for this sector. The number of tariff lines increased from 93 under the HS1996 to 114 under HS2002. The number of dutiable tariff lines also increased from 60 to 78, respectively. Therefore, the average MFN tariff rate increased from 3.2 per cent to 3.4 per cent for the respective years. In 2007, with the introduction of HS2007, the average MFN tariff rate declined to 3.27 per cent, due to an increase in the number of tariff lines to 142 with 93 of them dutiable.

Even though the average applied tariff rate increased to 0.15 per cent in 2007, from below 0.02 per cent in 2000-05, it is a relative insignificant number considering the average applied MFN tariff. The average tariff rate declined in 2008 to 0.01 per cent and recorded 0.03 per cent in 2009.

New Zealand's average applied tariff rate increased slightly throughout the decade but remained far below 0.01 per cent.

The average applied tariff rate for exports from Singapore into Australia increased from 2.4 per cent in 2000 to 2.5 per cent in 2005-07. The rate increased to 3.1 per cent in 2008. In 2009, the rate recorded 2.6 per cent. This indicates that SAFTA preferences are not being used and that SAFTA did not have a positive impact in this sector.

Between 2000 and 2004, Thailand's average applied tariff rate stood at about 3.8 per cent. As a result of TAFTA in 2005, the average applied tariff rates dropped significantly to 0.9 per cent and declined further to less than 0.25 per cent in 2009. This indicates that TAFTA's preferential tariff rates had a significant impact.

The United States average applied tariff rates ranged in between 4.2 and 4.3 per cent in 2000-03 and stood at 4.3 per cent in 2004. The tariff rate declined significantly to below 0.6 per cent in 2005 due to the preferential tariff margins of the AUS-FTA. The average tariff rates continued to decline to below 0.25 per cent in 2009.

Chile's average applied tariff rates for imports into Australia stood at around 4 per cent between 2000-08. The preferential market access of the Chile/AUS FTA of 2009 had a significant impact as average tariff rates dropped to below 1 per cent.

HS47-49: Pulp of wood or of other fibrous cellulosic material; waste and scrap of paper or paperboard; paper and paperboard and articles thereof

Over the time frame of 2000-03, almost all New Zealand imports were utilised. The raw utilisation rate was above 99 per cent. In 2004, the raw utilisation rate declined to 89 per cent and continued a steady decline to 56 per cent in 2009. The zero-MFN adjusted utilisation rate showed an increasing range of upper and lower bound since 2005. In 2009, the zero-MFN adjusted utilisation rate ranged in between 72 and 100 per cent. Because the average applied tariff rate was below 0.02 per cent insignificantly low a zero-MFN adjusted utilisation rate of close to 100 per cent (upper bound) is more likely than the lower bound of 72 per cent. Furthermore, the declining raw utilisation rate and the continuing low average applied tariff rate signals to the erosion of CER preferences.

Over the decade, there is a decline in SPARTECA preference utilisation of Pacific Forum Island countries exporters to Australia. During 2000 and 2007, the average applied tariff rate for Pacific Forum Island countries imports into Australia was below 0.1 per cent. It increased to 0.4 per cent in 2008 and peaked in 2009 with 1.1 per cent. The raw utilisation rate for the Pacific Forum Island countries' declined from its peak of

85 per cent in 2001 to 24 per cent in 2009. The zero-MFN adjusted utilisation rate was above 98 per cent in 2000-06 and declined to 75 to 80 per cent in 2009.

In 2000-02, the zero-MFN adjusted utilisation rate for imports from Singapore ranged in between 70-95 per cent and fell to between 52-82 per cent in 2003. The raw utilisation rate declined from between 57-58 per cent to 40 per cent over the same time frame. The raw utilisation declined further to 12 per cent and the range of the zero-MFN adjusted utilisation rate increased to between 39-88 per cent in 2009. While there is no clear evidence of enhanced SAFTA preference utilisation from the utilisation rates, the average applied tariff rates signal some support. Singapore's average applied tariff rate increased from 1.6 per cent in 2000-01 to 2.4 per cent in 2002. Likely due to SAFTA tariff preferences, the average applied tariff rate declined to 2.1 per cent in 2003 and declined further to 1.6 per cent in 2005. The rate increased slightly to 1.9 per cent in 2009. Considering that SAFTA offers tariff free market access into Australia, a 1.9 per cent average tariff rate in 2009 indicates that Singaporean exporters are not taking advantage of the preferences offered.

Thailand's zero-MFN adjusted utilisation rate was above 90 per cent throughout the decade. In 2004, the zero-MFN adjusted rate was 91 per cent and peaked in 2005 with 98 per cent, likely as a result of TAFTA preferences. Evidence for this also comes from the raw utilisation rate which increased from 50 per cent in 2004 to 65 per cent in 2005 and increased steadily to 90 per cent in 2009; the zero-MFN adjusted rate was 97 per cent that year. Thailand's average tariff rate ranged between 2.6 and 2.8 per cent during 2000-03 and recorded 2.7 per cent in 2004. The rate dropped significantly in 2005 to 0.3 per cent, underlining the impact of TAFTA tariff preferences. The average applied tariff rate continued to decline to less than 0.14 per cent in 2009.

Over the time frame of 2000-04, in between 17 to 70 per cent of trade entered Australia under zero-MFN tariff lines. In 2004, the zero-MFN adjusted utilisation rate ranged in between 17- 69 per cent and increased to between 57-91 per cent in 2005 when the AUS-FTA entered into force and remained between 54 and 95 per cent. With a raw utilisation rate of 41 per cent in 2005 and at around 35-37 per cent for the rest of the observation period, clear evidence of AUS-FTA preference utilisation is revealed. The decline in the average applied tariff rate for United States exports from an average of about 1.6 per cent in 2000-04 to less than 0.5 per cent in 2005 underlines the positive impact of AUS-FTA preferential tariff rates. The average applied tariff rate declined to below 0.3 per cent in 2009.

Chile's zero-MFN adjusted utilisation rate was mostly above 90 per cent throughout the decade and ranged in between 97-98 per cent in 2008-09 (it declined to 63 per cent in 2001 but recovered to 100 per cent in 2002). The raw utilisation rate fell from 63 per cent in 2000 to below 1 per cent in 2003. No preferences were utilised in 2006-08. The raw utilisation rate increased to 11 per cent in 2009, likely a result of additional Chile/AUS-FTA preferences. Chile's average applied tariff rate was below 0.05 per cent in the first part of the decade and increased slightly to circa 0.2 per cent in 2006. The rate fell to 0.02 per cent in 2007 but increased again to circa 0.18 per cent in 2008-09.

There was no MFN tariff reduction throughout the decade for products of HS47-49. The average MFN tariff rates under the HS1997 was 3.33 per cent and increased to 3.77 per cent with the introduction of the HS2002. The increase in the MFN tariff rate was caused by an increase in dutiable tariff lines from 124 to 223. The HS2007 saw these declining to 214 resulting in a slightly lower average MFN tariff rate of 3.71 per cent.

HS50-63: Textiles and textile articles

Over the time frame of 2000-09, the average MFN tariff rates experienced one reduction of actual MFN tariffs in 2005 and two relatively insignificant reductions due to the restructuring of the MFN tariff lines, namely in 2002 and 2007. In more detail, in 2005 the MFN tariffs were cut significantly resulting in a decline of the average MFN tariff rates from 12.4 per cent in 2004 to 8.9 per cent in 2005 and in 2002 and 2007, the updated version of the HS were introduced.

New Zealand and the Pacific Forum Island countries are the only that members that show strong utilisation of preferential tariffs with average applied tariff rates below 0.5 per cent in 2009. The remaining countries do partially utilise preferences, however their average applied tariffs range above 5 per cent.

New Zealand's raw utilisation shows a slight declined from about 95-99 per cent in 2000-05 to about 90 per cent in 2006-09. However, the zero-adjusted utilisation rate was about 100 per cent throughout the decade, indicating an increase in zero-MFN tariff commodities traded since 2006. New Zealand's average applied tariff rate fell from its peak of 1.1 per cent in 2000 to below 0.3 per cent for the remainder of the decade. The average applied tariff rate stood at 0.2 per cent in 2009.

In 2000-01, the raw utilisation rate for imports from the Pacific Forum Island countries was above 99 per cent. It fell slightly to 90-93 per cent in 2002-05 and recovered to about 98 per cent in 2006-09. Over the same time frame, the zero-adjusted utilisation rate was insignificantly higher indicating that almost all commodities traded are dutiable. Due to the strong utilisation of SPARTECA preferences, the average applied tariff rates for imports from the Pacific Forum Island countries was well below 0.3 per cent throughout the decade. For most of the years the rate was even below 0.1 per cent;

it spiked twice, in 2002 with 0.27 per cent and in 2007-08 with circa 0.15-0.2 per cent. The rate was at 0.1 per cent in 2009.

The raw utilisation rate for imports from Singapore increased from 39 per cent in 2000 to 51 per cent in 2002. The raw utilisation rate fell to 47 per cent in 2003-04 and declined further to only 21.5 per cent in 2005. It dropped to circa 2 per cent in 2006-09. The zero-MFN adjusted utilisation rate followed this trend and was only slightly higher. In 2009, between 2-7 per cent of all imports entered Australia under zero-MFN tariff lines. The average applied tariff rate for imports from Singapore increased from 6.6 per cent in 2000 to 8.4 per cent in 2001. The rate declined to 7.8 per cent in 2002 and fell to 6 per cent, likely as a result of the introduction of SAFTA preferential market access. The average applied tariff rate found its low with 3.5 per cent in 2005 and rose to 6.1 per cent in 2008. In 2009, the rate recorded 5.6 per cent indicating that SAFTA tariff preferences which offer free market access into Australia are not being utilised. Furthermore, contrary to the expectation of higher preference utilisation due to a shift from Australia's GSP preferences toward deeper SAFTA preferences, an overall decline in preference utilisation occurred.

Thailand's raw utilisation rate fell from about 85 per cent in 2000-02 to 73 per cent in 2004 and declined further to 65 per cent in 2005 when TAFTA entered into force. The rate dropped to only 42 per cent in 2006-07 and increased slightly to about 60 per cent in 2009. In the same year, the zero-adjusted utilisation rate recorded 64-65 per cent indicating that about 5 per cent of commodities traded entered under zero-MFN tariff lines. Throughout the decade the zero-adjusted utilisation rate was slightly higher than the raw utilisation rate. Thailand's average applied tariff rate increased from 10.5 per cent in 2000 to 12.6 per cent in 2004. In 2005, a significant decline to only 7.5 per cent was recorded and the rate continued a gradual decline over the following years to only

5.8 per cent in 2009. This development is likley due to the reduction in the average applied MFN tariff rates and some enhanced TAFTA preferences.

In between 9 and 14 per cent of all United States imports over the time frame 2000-04 entered Australia under zero-MFN tariff lines. In 2004, the zero-MFN adjusted utilisation rate was 10 to 13 per cent. In 2005, when the AUS-FTA entered into force, the utilisation rate increased to 52-54 per cent with about 42 per cent raw utilisation of AUS-FTA preferences. The utilisation rate declined slightly and ranged in between 38-43 per cent in 2006-09, with the raw utilisation rate being steady at about 33 per cent. The United States average applied tariff rate for exports into Australia declined from 8.8 per cent in 2000 to 7.8 per cent in 2004. The rate dropped to 5.5 per cent in 2005, when the AUS-FTA entered into force. The rate increased slightly to about 6 per cent in 2009. The overall decline in average applied tariff rates is a result of AUS-FTA preferences in combination with the 2005 MFN tariff reductions.

Chile's raw utilisation rate fell from 71 per cent in 2000 to 25 per cent in 2002. The raw utilisation rate increased to 60 per cent in 2004 and plummeted to zero in 2006-09. The zero-adjusted utilisation rate was higher. In 2001, when the rate peaked, it was in between 97- 98 per cent. It fell to 25-44 per cent in 2003, increased to 60- 70 per cent in 2004 and fell to 1-2 per cent in 2006 and zero in 2007. It increased to 22-46 per cent in 2008 and stood at 4-11 per cent in 2009. Chile's average applied tariff rate declined from 16.7 per cent in 2000 gradually to 5.85 per cent in 2008. The rate increased to 9.6 per cent in 2009. There is no evidence that the Chile/AUS-FTA preferences led to an increase of preference utilisation or a reduction of average applied tariffs.

HS64-67: Footwear, headgear, umbrellas, sun umbrellas, walking-sticks, seat-sticks, whips, riding crops and parts thereof; prepared feathers and articles made therewith; artificial flowers; articles of human hair

Two MFN tariff cuts were recorded over the decade, namely in 2001 by circa 1 per cent (from 7.5 per cent to 6.5 per cent) and 2005 by circa 2 per cent (to 4.5 per cent). The introduction of the HS2007 did not change the average applied tariff rates.

New Zealand's raw utilisation rate ranged between 97 and 99 per cent in 2000-04. It declined slightly to 93 per cent in 2005 and fell gradually to 45 per cent in 2009. The zero-adjusted utilisation rate however remained high throughout the decade. In 2009, the zero-MFN adjusted rate ranged in between 92 and 98 per cent indicating that at most 8 per cent of trade was not utilised and only 2 per cent in the best case scenario (upper bound). This also explains the on average very low applied tariff rate for imports from New Zealand, even though the average applied tariff rate increased from less than 0.05 per cent in 2000 to about 0.4 per cent in 2009.

The Pacific Forum Island countries' raw utilisation rate ranged in between 98-100 per cent in 2000-05 and declined to about 84 per cent in 2007-08. The raw utilisation rate stood at 91 per cent in 2009. The zero-adjusted utilisation rate was high throughout the decade and ranged in between 91 and 100 per cent in 2009. The Pacific Forum Island countries average applied tariff rates remained below 0.25 per cent throughout the decade. There is no evidence of the erosion of SPARTECA preferences.

Singapore's raw utilisation rate which was also mostly the lower bound of the zero-MFN adjusted utilisation rate increased from circa 42 per cent in 2000 to 78 per cent in 2002. The rate dropped to 47 per cent in 2003 when SAFTA entered into force. The rate further fell to less than 4 per cent in 2006-07 and increased to about 16 per cent in 2009.

The upper bound of the zero-MFN adjusted utilisation rate was significantly higher throughout most of the decade – it ranged in between 60 to 68 per cent in 2003-07. However, the upper bound of the zero-MFN adjusted utilisation rate declined to about 40 per cent in 2008-09, indicating that at least about 60 per cent of imports from Singapore are coming into Australia under dutiable MFN tariffs instead of SAFTA preferences. In 2000, the average applied tariff rate for imports from Singapore recorded 12 per cent and fell to 11 per cent in 2001, likely due to the MFN tariff rate cuts in that year. From 2002 to 2004, the rate increased to more than 14.3 per cent. Due to the MFN tariff rate cuts in 2005, the average applied tariff rate for Singaporean imports declined to 9.3 per cent. In 2008, the average tariff rate declined to 6.1 per cent from 9.5 per cent in 2007. In 2009, the rate dropped further to 5.3 per cent. Overall the data for Singapore shows no impact of SAFTA preferences and also no impact of preference erosion. Instead, exporters simply do not or cannot claim preferences.

Thailand's raw utilisation rate increased from about 55 per cent in 2000-01 to 85 per cent in 2004. The raw utilisation rate fell to 70 per cent in 2005 when TAFTA entered into force and declined further to 24 per cent in 2006. The utilisation rate recovered and rose to about 65 per cent in 2008-09. The zero-adjusted utilisation rate was slightly higher than the raw utilisation rate and followed the same trend. In 2009, the zero-MFN adjusted utilisation rate was in between 76-80 per cent. The MFN tariff rate cuts of 2001 led to a decline in the average applied tariff rate for Thai products from 13.2 per cent in 2000 to 12 per cent in 2001. The tariff rate continued to decline slightly to 11.7 per cent in 2004 and dropped significantly to 7.3 per cent in 2005. This decline is likely a combined result of the MFN tariff rate cut and the introduction of TAFTA in that year. However, the tariff rate increased to 8 per cent in 2006 and declined from then onwards to 5 per cent in 2009.

In between 15 and 70 per cent of all United States imports over the time frame of 2000-04 entered Australia under zero-MFN tariff lines according to the zero-MFN adjusted utilisation rate. In 2005, the raw utilisation of AUS-FTA preferences was 17 per cent and increased to 24 per cent in 2006. The raw utilisation rate declined in 2007 to 17 per cent, increased to 29 per cent in 2008 and was 22.5 per cent in 2009. The zero-MFN adjusted utilisation rate ranged in between 35-81 per cent in 2005 and 57-76 per cent in 2009. The average applied tariff rate for United States imports to Australia declined from 9.1 per cent in 2000 to 8.2 per cent in 2001 due to the MFN tariff reductions that year. The average applied tariff rate declined further to 5.7 per cent in 2003 but increased to 7.3 per cent in 2004. As a combined result of the 2005 MFN tariff reductions and the introduction of the AUS-FTA, the average applied tariff rate declined to 2.3 per cent. The average applied tariff rate increased slightly over the following years and recorded 3.2 per cent in 2009. The United States data reveals a strong positive impact of AUS-FTA preferences.

Chile's raw utilisation rate declined gradually from 100 per cent in 2000 to zero in 2005 and remained at zero until the end of the period under consideration. There is a possibility that the zero-MFN adjusted utilisation rate was 100 per cent in 2003-06 (upper bound). However, there were no zero-MFN commodities traded in 2000-02 as the zero-MFN adjusted utilisation rate was just the raw utilisation rate. Furthermore, the zero-MFN adjusted utilisation rate was zero in 2008-09. The average applied tariff rate for Chilean imports into Australia showed a mixed result, declining from its peak with 16.2 per cent in 2000 to zero per cent in 2008. However, the average tariff rate has spikes in 2003 with 12.7 per cent and in 2009 with 10 per cent. This also shows that there is no evidence of Chile/AUS-FTA preferences being utilised.

HS68-70: Articles of stone, plaster, cement, asbestos, mica or similar materials; ceramic products; glass and glassware

The MFN tariffs were cut in 2005 resulting in a decline of average MFN tariffs from 3.9 to 3.7 per cent. The average MFN tariff rate increased to 3.8 per cent with the introduction of the HS2007.

The development of the average applied tariff rate for the Pacific Forum Island countries was mixed throughout the decade. From 2000 to 2002, the tariff rate increased from 1 per cent to 4 per cent. It fell to in between 3 to 3.3 per cent over the time frame of 2003-05 and declined to 1 per cent in 2006. In 2007, it recorded 2.3 per cent and fell to 1.1 per cent in 2008. In 2009, the average applied tariff rate was 3.3 per cent.

The average applied tariff rate for imports from New Zealand increased slightly from below 0.05 per cent in 2000 to circa 0.2 per cent in 2009.

Singapore's average applied tariff rate declined from 3.75 per cent in 2000 to 3.4 per cent in 2002. It fell further to 3 per cent in the year 2003, when SAFTA was introduced, and plummeted to 1.1 per cent in 2005. Even though this is likely a result of SAFTA preferences, the increase to 2.65 per cent in 2006 and 3.1 per cent in 2008-09 indicate that this is unlikely. Instead, the development of the average applied tariff rates signals that SAFTA preferences did not have any positive effect.

Over the time frame of 2000 to 2004, the average applied tariff rate for imports from Thailand increased from 3.6 per cent to 4 per cent. The tariff rate fell significantly with the introduction of TAFTA to 1 per cent in 2005. The average applied tariff rate continued to decline gradually to only 0.6 per cent in 2009. The development of the average applied tariff rate is an indication of a positive impact of TAFTA preferences.

The average applied tariff rate for imports from the United States increased from 2.5 per cent in 2001 to 3.2 per cent in 2004. The introduction of the AUS-FTA with its preferential tariff arrangements had a positive impact on the average applied tariff rates. In 2005, the rates declined to less than 1 per cent and further declined to 0.45 per cent in 2009. This development is a strong indication that United States exporters take advantage of the preferences offered in the AUS-FTA.

Chile's average applied tariff rate increased from 0.75 per cent in 2000 to circa 4 per cent over the time frame of 2002-05. In 2006, the rate declined to 2 per cent, however recovered to 3.7 and 4.5 per cent in 2007 and 2008, respectively. In 2009, the tariff rate declined to 1.3 per cent. It is possible that this decline was due to the Chile/AUS FTA and its preferential tariff regime.

The raw utilisation rate for imports from New Zealand ranged above 90 per cent in 2000-04 and fell significantly to about 20 per cent in 2006-07 and only 16 per cent in 2009. The zero-adjusted utilisation rate, however, remained high throughout the decade and was at about 100 per cent in 2009.

The raw utilisation rate for imports from the Pacific Forum Island countries declined from 84-87 per cent in 2000-01 to 47-54 per cent in 2002-05 to less than 1 per cent in 2006-09. The zero-MFN adjusted utilisation rate was above 99 per cent throughout the decade.

Thailand's raw utilisation rate declined from 88 per cent in 2000 to 79 per cent in 2002 and dropped to about35 per cent in 2003-04. The raw utilisation rate increased slightly to 38 per cent likely as a result of TAFTA but dropped to 22 per cent in 2006. The rate continued to decline to circa 9 per cent in 2009. The zero-MFN adjusted utilisation rate

was significantly higher and increased from 90 per cent in 2004 to 95 per cent in 2005 and almost 100 per cent in 2009. The gradual increase since 2005 is likely a result of TAFTA preferences.

Singapore's raw utilisation rate was low throughout the decade. It declined to less than 10 per cent in 2002 and fell further to 4 per cent in 2009. However, the zero-MFN adjusted utilisation rate increased from 96 per cent in 2000 to 99 per cent in 2009.

Chile's raw utilisation rate which is also the lower bound of the zero-MFN adjusted utilisation rate declined from 94 per cent in 2000 to 60 per cent in 2003 and again from 84 per cent in 2004 to 15 per cent in 2005. The rate was less than 2 per cent in 2006-08 and increased to 55 per cent in 2009. The increase in 2009 is likely a result of the Chile/AUS-FTA and its preferences. The upper bound of the zero-MFN adjusted utilisation rate showed a spike of 57 per cent in 2006 – this spike is however unlikely to be caused by zero-MFN tariff line commodities but instead caused by a trade composition effect – especially due to the fact that in the other years the upper bound was insignificantly and only marginally different from the lower bound.

The proportion of zero-MFN tariff line trade from the United States declined from 62-64 per cent in 2000 to in between 18-42 per cent in 2001-03. In 2004, the proportion of zero-MFN commodities imported was 56-57 per cent and increased to 68-69 per cent in 2005 when the AUS-FTA entered into force. In 2005, the raw utilisation rate increased to about 26 per cent and declined to 7 per cent in 2006. The rate increased again in 2007 to about 20 per cent and fell back to only 8 per cent in 2009. The zero-MFN adjusted utilisation rate increased steadily over the same time frame and stood at 95 per cent in 2009.

HS71: Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal and articles thereof; imitation jewelry; coin

There was no significant change in MFN tariff rates notable throughout the decade.[40] The average MFN tariff rate remained at circa 1.4 per cent, it is likely to see an increase in zero-MFN tariff lines at the HS 8-digit or HS 10-digit level.

The raw utilisation rate for imports from New Zealand was above 92 per cent in 2000-04 and declined to circa 75 per cent in 2005-06. The rate fell significantly to only 14 per cent in 2009. The zero-MFN adjusted utilisation rate, however, was above 98-100 per cent throughout the period 2000-09. In 2004, the average applied tariff rate for imports into Australia from New Zealand spiked at 0.1 per cent. In the remaining years of the decade the tariff rate was below 0.05 per cent. This development hints to an erosion of CER preferences. Evidence for this comes from less preferences being claimed and lower average tariff rates while more imports entered Australia under zero-MFN tariff lines.

The zero-MFN adjusted utilisation rate was almost 100 per cent throughout the decade. The raw utilisation rate gradually declined from 87 per cent in 2000 to 47 per cent in 2005 and fell to zero over 2006-09. The Pacific Forum Island countries paid almost no tariffs for their imports of HS71. This also indicates to an erosion of preferences under SPARTECA.

Singapore's raw utilisation rate peaked in 2001 with 13 per cent. It fell to 3 per cent and there was no utilisation of SAFTA preferences in between 2005-09. With the exception of 2002, when the zero-MFN adjusted utilisation rate fell slightly to 96 per cent, it

[40] In 2001, an additional zero-MFN tariff line was introduced leading to a marginal decline of the average MFN tariff rate from 1.57 per cent to 1.4 per cent.

ranged in between 98 to 99 per cent throughout the decade. Singapore's average applied tariff rate increased to 0.23 per cent in 2002. With the introduction of SAFTA, the average tariff rate levied declined relatively significantly to below 0.05 per cent since 2005.

Thailand's raw utilisation rate peaked with 82 per cent in 2001 and fell to circa 22 per cent in 2003-04. In 2005, when TAFTA entered into force, the utilisation rate increased to 26.5 per cent which could be interpreted as some evidence of additional preferences provided in TAFTA. The zero-MFN adjusted utilisation rate, however, remained high throughout the decade and unchanged in 2004-05 at 90 per cent. In 2009, the zero-MFN adjusted utilisation rate increased to 98 per cent with 8 per cent raw utilisation rate that year. The average applied tariff rate for imports from Thailand declined strongly from 4.2 per cent in 2000 to 1.5 per cent in 2002-04. In 2005, the tariff rate dropped to 0.55 per cent and gradually declined to 0.03 per cent in 2009 likely as a result of TAFTA preferences.

In 2004, circa 85 per cent of all United States imports entered Australia under zero-MFN tariff lines. This figure fell to 80 per cent in 2005 with a raw utilisation rate of 8.1 per cent indicating a low utilisation of AUS-FTA preferences. The raw utilisation rate declined to 2 per cent in 2009, the zero-MFN adjusted utilisation rate increased to 98 per cent. In 2001, the average applied tariff rate for imports from the United States increased from 0.4 per cent to 1.9 per cent. It dropped to circa 1 per cent in 2002-03 and fell to 0.75 per cent in 2004. It increased again in 2005 to 1 per cent showing no immediate impact of AUS-FTA preferences. However, in the following years the average applied tariff rate declined to 0.1 per cent in 2009. Since at the same time the utilisation of AUS-FTA preferences declined, the decline of the average applied tariff

rates is more likely due to an increase in zero-MFN traded commodities than AUS-FTA preferences. This also hints to an erosion of AUS-FTA preferences.

Chile's utilisation rate was mixed throughout the decade and ranged in between zero and 91 per cent. The raw utilisation rate increased from zero in 2007-08 to 22 per cent in 2009. The zero-MFN adjusted utilisation rate was slightly higher with 28 per cent in that year indicating some evidence of the impact of the preferences of the Chile/AUS-FTA. Chile's applied average tariff rates ranged between zero and 5 per cent throughout the decade. The tariff rate was 5 per cent in 2008 and declined to 3 per cent in 2009 with the introduction of the Chile/AUS-FTA.

HS72-83: Base metal and articles of base metal

The average MFN tariff rate declined in 2005 slightly from 3.64 per cent to 3.56 per cent after an insignificant reduction in MFN tariffs. The introduction of the HS2007 increased the simple average back to 3.62 per cent.

New Zealand's zero-MFN adjusted utilisation range ranged above 98 per cent throughout the decade. The raw utilisation rate declined slightly from 100 per cent in 2000 to 96 per cent in 2005. The rate fell to 83 per cent in 2006-07 and was at around 88 per cent in 2008-09. New Zealand's average applied tariff rate increased from 0.05 per cent in 2000 to 0.15 per cent in 2004. A gradual decline to 0.03 per cent in 2009 was recorded since 2005.

Besides 2004, when the zero-MFN adjusted utilisation rate for Pacific Forum Island countries imports' was 92 per cent, the rate was circa 99-100 per cent throughout the decade. The raw utilisation rate found its peak in 2001 with 73 per cent and ranged below 5 per cent in 2005-09. This development signals towards an erosion of

preferences which is underlined by the high proportion of zero-MFN commodities since 2005 and an overall low average applied tariff rate. Over the time frame of 2000-08, the average applied tariff rate for imports from the Pacific Forum Island countries' ranged below 0.1 per cent. In 2009, the rate increased to 0.22 per cent, up from 0.03 per cent in 2008.

Singapore's raw utilisation rate ranged between 44 and 50 per cent in 2000-03 and increased to 55 per cent in 2004. The rate fell to 23 per cent in 2006-07, spiked in 2008 with 44 per cent, and stood at 27 per cent in 2009. The zero-MFN adjusted utilisation rate was about 10 per cent higher throughout the decade and was 37 per cent in 2009, indicating that about 10 per cent of trade entered Australia under zero-MFN tariff lines. The average applied tariff rate for imports from Singapore ranged at around 2.9 per cent in 2000-01. In 2002, the rate stood at 2.4 per cent and declined to 2.1 per cent in 2003, the year that SAFTA was introduced. The average applied tariff rate continued to gradually decline to 0.8 per cent in 2009. It is likely that at least in part the tariff preferences offered by SAFTA is cause for this development, even though the gradual decline began in 2002, the year before SAFTA entered into force.

Thailand's raw utilisation rate fell gradually from 81 per cent in 2000 to 65 per cent in 2004. In 2005, when TAFTA entered into force, the utilisation rate increased to 74 per cent, likely a result of the FTA preferences. However, the raw utilisation fell in 2006 to 54 per cent, increased to 67 per cent in 2008 and fell to 46 per cent in 2009. The zero-MFN adjusted utilisation rate was slightly higher with 53 per cent in 2009. Thailand's average applied tariff rates ranged in between 3.1 per cent and 3.7 per cent over the time frame of 2000-03 and was 3.2 per cent in 2004. The rate declined significantly with the introduction of TAFTA in 2005 to 1.1 per cent. Even though the rate increased slightly

in 2006 to 1.5 per cent, an overall declining trend is being noted. In 2009, the average applied tariff rate found its low with only 0.4 per cent.

About 20 per cent of all imports from the United States entered Australia under zero-MFN tariff lines in 2000-04. In 2005, 39 per cent of all imports claimed AUS-FTA preferences. The raw utilisation rate increased to 46 per cent in 2009. The proportion of zero-MFN tariff line commodities imported declined from its 20 per cent in 2000-04 to 10 per cent in 2009 when the zero-MFN adjusted utilisation rate was 56 per cent. The average applied tariff rate ranged in between 3-3.1 per cent over 2000-04 and dropped sharply to 1.3 per cent in 2005 when the AUS-FTA entered into force. The average applied tariff rate continued to decline gradually to 0.6 per cent in 2009. This development is an evidential result of the introduction of the AUS-FTA's preferential tariffs.

Chile's raw utilisation rate increased significantly from 17 per cent in 2000 to almost 100 per cent in 2001. The raw utilisation rate remained in between 95-99 per cent in 2002-03 and began to decline in 2004 and fell to only 2 per cent in 2006. The rate was below 1 per cent in 2007-09. The zero-MFN adjusted utilisation rate was above 90 per cent throughout the decade and around 100 per cent in 2007-09. Chile's average applied tariff rates found its peak in 2001-02 with 3.2-3.8 per cent. The rate fell sharply to 0.1 per cent in 2003, saw another increase in 2004 to 1.8 per cent. Since 2005, the rate declined significantly and ranged below 0.05 per cent over 2006-09. There is no evidence of Chile/AUS-FTA preferences, instead the increase in zero-MFN traded commodities and the decline of average applied tariff rates links to strong preference erosions.

HS84-85: Machinery and mechanical appliances; electrical equipment; parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles

A less than 0.2 per cent reduction of average MFN tariffs was recorded between 2004 and 2005, with the average applied MFN tariff rate declining from 3.17 to 3.03 per cent. In 2007, the average MFN tariff rate increased to 3.2 per cent as a result of the introduction of the HS2007.

New Zealand's zero-MFN adjusted utilisation rate was in between 90 and 99 per cent throughout the decade and was 90 to 95 per cent in 2009. The raw utilisation rate declined gradually from above 90 per cent in 2002-05 to 73 per cent in 2009. Throughout the decade, the average applied tariff rate for imports from New Zealand remained below 0.2 per cent. It peaked in 2002 with 0.17 per cent and declined gradually to 0.06 per cent in 2009. The decline in preference utilisation and the increase in zero-MFN traded commodities signals a small erosion of CER preferences.

In 2000, the zero-MFN adjusted utilisation rate for imports from the Forum Island countries ranged in between 56-87 per cent and fell to between 20-59 per cent in 2004. In 2006, the rate ranged from 41-72 per cent, declined to between 24- 51 per cent in 2007 and increased again to between 34-73 per cent in 2008. In 2009, the zero-MFN adjusted utilisation rate ranged in between 15-50 per cent. The raw utilisation rate declined since 2001 from 49 per cent gradually below 1 per cent in 2009. This indicates that in between 14-49 per cent of all imports entered under zero-MFN tariffs and in between 50-85 per cent of overall trade is not utilised. The average applied tariff rate for imports from the Pacific Forum Island countries increased from 0.85 per cent in 2000 to 1.9 per cent in 2003. The rate fell to 1 per cent in 2006 and increased to 2 per cent in 2009.

The raw utilisation rate for imports from Singapore declined from circa 20 to 23 per cent in 2000-03 to below 1 per cent in 2009. The zero-MFN adjusted utilisation rate declined from 93 to 95 per cent in 2000 to 66 to 87 per cent in 2009. Singapore's average applied tariff rate increased from 0.3 per cent in 2000 to 0.5 per cent in 2009. There is evidence of a positive impact of the enhanced SAFTA tariff preferences.

Thailand's raw utilisation rate declined gradually from its peak in 2001 of 53 per cent to only 13 per cent in 2009. The zero-MFN adjusted utilisation rate ranged between 27 to 35 per cent in 2009, significantly lower from its peak in 2005 when the rate stood at 78 to 82 per cent, when TAFTA was introduced. This was an increase from the 2004 rate of 76 to 78 per cent. Thailand's average applied tariff rate ranged between 2.1 and 2.6 per cent in between 2000-03 and recorded 2.2 per cent in 2004. TAFTA of 2005 led to significant decline of the average tariff rate to 1 per cent in 2005 and further to 0.4 per cent in 2009. It is likely that the development of 2005 is a combined effect of MFN tariff cuts and introduction of TAFTA, however, the MFN tariff cuts were only very small, therefore TAFTA is the main cause for the decline.

In 2004, the proportion of zero-MFN tariff line imports from the United States was in between 42-70 per cent and increased to 69-85 per cent in 2005, with the introduction of the AUS-FTA, when 31 per cent of traded entered Australia under AUS-FTA preferences. The raw utilisation rate fell to about 23 per cent in 2009 with a zero-MFN adjusted utilisation rate of between 61-82 per cent that year. United States imports into Australia paid an average tariff rate of in between 1.3-1.6 per cent in 2000-04 and declined significantly to 0.6 per cent in 2005. The rate continued to decline to 0.35 per cent in 2009. This development is likely a result of the introduction of the AUS-FTA of 2005.

The lower bound of the zero-MFN adjusted utilisation rate for Chile's imports into Australia is very close to its raw utilisation rate. The raw utilisation rate increased to about 95 per cent in 2001 and declined to only 19 per cent in 2002. The rate recovered to 74 per cent in 2003 and fell since then to less than 1 per cent in 2006-08. In 2009, the raw utilisation rate increased to 36 per cent, likely as a result of the additional tariff preferences offered by the Chile/AUS-FTA. The upper bound declined from 95 per cent in 2003 to 81 per cent in 2004-05 and fell further to circa 30 per cent in 2006-08. In 2009, the upper bound of the zero-MFN adjusted utilisation rate was 59 per cent indicating that at the most about 23 per cent of imports entered Australia under zero-MFN tariff lines. Chile's average tariff line ranged between less than 0.5 and 5 per cent throughout the time frame under consideration. It stood at around 2 per cent in 2007-08 and fell to 1.5 per cent in 2009. This could be a result of the introduction of the Chile/AUS FTA, however since the tariff rate declined to less than 0.5 per cent in 2001, it is also possible that the decline is caused by a trade composition effect.

HS86-89: Vehicles, aircraft, vessels and associated transport equipment

The MFN tariffs for HS86-89 were cut in 2005 by an average of 0.75 per cent. Therefore, the average MFN tariff rate declined from circa 4.93 to 4.17 per cent. The introduction of the HS2007 increased the tariff rate to 4.26 per cent in 2007-09.

New Zealand's raw utilisation rate was above 90 per cent throughout the period of 2000-05 and fell to circa 72 per cent in 2009. The zero-MFN adjusted utilisation rate was above 99 per cent in 2000-05. In 2009, the zero-MFN adjusted utilisation rate ranged in between 83 to 99 per cent. Imports from New Zealand saw a slightly increasing average applied tariff rate over 2000-09. In between 2000-05, the average

applied tariff rate was below 0.2 per cent and had an increasing trend since 2006. The average applied tariff rate was 0.3 per cent in 2009. This development hints to a marginal erosion of CER preferences.

The raw utilisation rate for imports from the Pacific Forum Island countries ranged in between 4 to 11 per cent in 2000-04. The raw utilisation rate increased to circa 59 per cent in 2006 and fell to only 3 per cent in 2009. The zero-MFN adjusted utilisation rate was in between 16 to 100 per cent in the first part of the decade. It increased to 94 to 99 per cent in 2009. The Pacific Forum Island countries' development of the average applied tariff rate is mixed throughout the decade. It increased from 0.3 per cent in 2000 to 2.1 per cent in 2001. The tariff rate fell to 0.2 per cent in 2003 and increased to 1.4 per cent in 2005. Since 2006, the tariff rate gradually declined to less than 0.2 per cent in 2009.

Singapore's raw utilisation rate declined from 52 per cent in 2000 to less than 4 per cent in 2002. It increased in 2003 to 13 per cent and 2004 to 24 per cent, likely as a result of the SAFTA preferences. However, the raw utilisation rate declined to 5 per cent in 2005 and below 1 per cent in 2006-08 and was 10 per cent in 2009. The zero-MFN adjusted utilisation rate had an increasing annual range of upper and lower bound. In 2000, the zero-MFN adjusted utilisation rate ranged in between 78-97 per cent and increased to in between 25-88 per cent in 2009. For imports from Singapore, the average applied tariff rate does not show a clear pattern. It ranged as high as 2.1 per cent and was as low as 0.2 per cent throughout the decade. Furthermore, there is no evidence of a positive impact of SAFTA preferences. The tariff rate increased from 0.9 per cent in 2000 to 1.9 per cent in 2001. It fell to 0.3 per cent in 2002 and increased in 2003, the year SAFTA entered into force, to 1.7 per cent and 2.1 per cent in 2004. The rate fell back to 0.2 per cent in 2008 but sharply increased to 2 per cent in 2009. Even though the overall

development signals an erosion of SAFTA preferences (especially 2006-08), the results for 2009 also show that SAFTA preferences are not utilised on a regular basis.

Thailand's raw utilisation rate increased significantly from 23 per cent in 2004 to 95 per cent in 2005 when TAFTA entered into force. The raw utilisation rate remained high throughout the rest of the decade and was 96 per cent in 2009. The zero-MFN adjusted utilisation rate was only slightly higher and was 97 to 99 per cent in 2009. Thailand's average applied tariff rate saw a gradual decline from 5.3 per cent in 2000 to 2.2 per cent in 2004. The rate dropped significantly with the introduction of TAFTA in 2005 to less than 0.3 per cent. Even though the rate increased since 2005 slightly, it remained below 0.6 per cent and was 0.4 per cent in 2009. Thailand's development shows clear evidence of TAFTA preferences being utilised and having a positive impact.

The proportion of United States zero-MFN imports into Australia cannot be clearly established from the analysis of the zero-MFN adjusted utilisation rate in between 2000-04. In 2004, the zero-MFN adjusted utilisation rate ranged in between 48 to 79 per cent. It increased to in between 76 to 88 per cent in 2005 when the AUS-FTA entered into force with 39 per cent being FTA preferences claimed. A look at the development indicates that it is more likely that the lower bound is the actual zero-adjusted utilisation rate prior to the FTA as the range declines. In 2009, the raw utilisation rate was 34 per cent and the zero-MFN adjusted utilisation rate ranged in between 50 to 75 per cent indicating that in between 25 to 50 per cent of imports from the United States enter Australia under MFN tariff lines. The average applied tariff rate for imports from the United States increased from 1 per cent in 2000 to 1.6 per cent in 2004 while dropping in 2002 to 0.75 per cent. The introduction of the AUS-FTA led to a strong decline to 0.4 per cent in 2005. The average applied tariff rate declined to circa 0.3 per cent in 2006-

09. The overall development leads to the conclusion of a positive impact of AUS-FTA preferences.

Chile's utilisation rate did not show a clear patter throughout the decade. The utilisation rate declined to zero in 2006-08. In 2009, the zero-MFN adjusted utilisation rate increased to 56 per cent, of which 50 per cent are preferences claimed under the Chile/AUS-FTA. Chile's average applied tariff rate increased sharply from zero to 5 per cent over the time frame of 2000 to 2002-03. The rate fell below 2 per cent in 2006, increased to 3.5 per cent in 2007 and fell to 2.2 per cent in 2009. It is not possible to draw a conclusion of the impact of the Chile/AUS FTA as the average applied tariff rate was below 2 per cent in 2006, therefore, the decline in 2008-09 is likely the result of a trade composition effect.

HS90-92: Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; clocks and watches; musical instruments; parts and accessories thereof

The average MFN tariff rate declined from 1.15 per cent in 2004 to 0.99 per cent in 2005 due to tariff rate reductions. The average MFN tariff rate increased to 1.08 per cent in 2007 caused by the introduction of the HS2007.

New Zealand's zero-MFN adjusted utilisation rate ranged between 87-100 per cent throughout the decade. The raw utilisation rate fell gradually from 78 per cent in 2000 to 58 per cent in 2005 and plummeted to 1 per cent in 2006. The raw utilisation rate remained low for the remaining years under consideration and was below 1 per cent in 2009. For comparison, the zero-MFN adjusted utilisation rate was 89-100 per cent that year. Throughout the time frame 2000-09 the average applied tariff rate for New

Zealand imports to Australia was below 0.03 per cent, indicating a strong erosion of CER preferences.

The Pacific Forum Island countries' zero-MFN adjusted utilisation rate ranged in between 82 to 98 per cent throughout the decade. The raw utilisation rate increased from less than 10 per cent in 2000 to 42 per cent in 2003 and fell to 36 per cent in 2004 and 8 per cent in 2005. There were no preferences claimed in 2006-09. The zero-MFN adjusted utilisation rate for 2009 stood at 95-98 per cent. The average applied tariff rate was mostly below 0.02 per cent throughout the decade for imports from the Pacific Forum Island countries. The tariff rate peaked in 2001 with 0.12 per cent. The development also shows an erosion of preferences.

Singapore's raw utilisation rate declined from 39 per cent in 2002 to 24 per cent in 2003 despite SAFTA entering into force that year, implying that the additional deeper preferences were not utilised. However, the zero-MFN adjusted utilisation rate increased slightly that year from 70-98 per cent in 2002 to 73-99 per cent in 2003. The zero-MFN adjusted utilisation rate increased further to 83-94 per cent in 2009 with no SAFTA preferences claimed since 2006. The average applied tariff rate was below 0.25 per cent throughout the decade for imports from Singapore. It peaked at around 0.24 per cent in 2007 and was 0.05 per cent in 2009. The overall development showed an erosion of preferences.

Thailand's zero-MFN adjusted utilisation rate ranged between 94 to 98 per cent throughout 2000-09 and was 96 per cent in 2009. The raw utilisation rate ranged between 50 to 68 per cent in 2000-04 with 51 per cent in 2004 and fell to 42 per cent in 2005 and further declined to 23 per cent in 2008. In 2009, 38 per cent of all imports entered Australia under TAFTA preferences. The average applied tariff rate declined slightly from 1.4 per cent to 1.2 per cent in 2000-04. The introduction of TAFTA led to

a strong decline to 0.4 per cent in 2005 and fell to 0.3 per cent in 2009. However, the overall decline in preference utilisation also signals to an erosion of preferences.

In 2005, for 12.7 per cent of imports from the United States, AUS-FTA preferences were claimed. The raw utilisation rate fell to 2 per cent and below in 2006-09, indicating that the 2005 AUS-FTA utilisation is likely a marketing effect of the promotion of the AUS-FTA. The zero-MFN adjusted utilisation rate ranged in between 79 to 94 per cent in 2004 and 84 to 95 per cent in 2005. The zero-MFN adjusted utilisation 85 to 98 per cent in 2009. The average applied tariff rate for imports from the United States ranged in between 0.14 and 0.17 per cent in 2000-04 and fell relatively significant in 2005 to 0.05 per cent, likely as a result of the introduction of the AUS-FTA and the MFN tariff reductions that year. It fell to 0.02 per cent in 2007-09. The overall low preference utilisation and low average applied tariff rates hint to an erosion of preferences.

Chile's utilisation rate was mixed and without clear pattern throughout the decade. The raw utilisation rate ranged in between 5 and 70 per cent in 2000-05 and fell to zero in 2006-09. The zero-MFN adjusted utilisation rate was about 100 per cent in 2000 (with raw utilisation rate of 14 per cent that year) and ranged in between 80-89 per cent in 2009. Chile's average applied tariff rate was mostly zero or below 0.05 per cent throughout the decade. It peaked in 2004 with 0.32 per cent and was zero in 2009. There is no evidence of preferential tariff impacts of the Chile/AUS FTA.

HS93: Arms and ammunition; parts and accessories thereof

The average applied tariff rate for imports from New Zealand spiked three times during the observation period of 2000-09, namely in 2001 and 2008 with 0.25 per cent, and in 2004 with 0.3 per cent. The remaining years ranged between 0 and 0.15 per cent.

In 2004, the average applied tariff rate was 3 per cent for imports from the Pacific Forum Island countries and zero for the remaining years under consideration in this study.

Singapore's average applied tariff rate ranged in between 0 and 2.6 per cent. The peak of 2.6 per cent was recorded in 2003. Over the time frame of 2006-07 the tariff rate was zero. In 2009, the average applied tariff rate was 2.4 per cent.

Imports from Thailand recorded two years with a significant average applied tariff rate, namely in 2006 and 2007 with 2.3 and 5 per cent, respectively. The remaining years were mostly tariff free.

Imports from the United States recorded an increasing average applied tariff rate over the time frame 2000-02 from 0.24 per cent to 0.46 per cent. Since 2003 the average applied tariff rate gradually fell to 0.02 per cent in 2009. The tariff rate was 0.25 per cent in 2004 and 0.15 per cent in 2005 when the AUS-FTA was introduced. In which way the AUS-FTA was associated with the decline in the tariff rate is not identifiable as the decline in average applied tariffs began 2 years prior to the agreement entering into force.

Chile's average applied tariff rate was zero throughout the decade.

HS94-96: Miscellaneous manufactured articles

The average MFN tariff declined from 3.9 per cent to 3.7 per cent over the time frame of 2000-01 due to the restructuring of the MFN tariff lines. The introduction of the HS2002 led to a slight increase to 3.72 per cent. Tariff reduction of 2005 led to a decline in average applied MFN tariff rates to 3.58 per cent. The restructuring of the HS classification with the introduction of the HS2007 resulted in an increase in average MFN tariff rates to 3.7 per cent.

New Zealand's zero-MFN adjusted utilisation rate was above 93 per cent throughout the decade and 94 per cent in 2009. The raw utilisation rate declined slightly from 96 per cent in 2000 to 89 per cent in 2009. For imports from New Zealand the average applied tariff rate was below 0.15 per cent throughout the decade.

The Pacific Forum Island countries' raw utilisation rate was above 99 per cent in 2000-02 and fell slightly to 91 per cent in 2005. The raw utilisation rate dropped to 60 per cent in 2006 and fell to 35 per cent in 2009. The zero-MFN adjusted utilisation rate also declined to 73 per cent in 2009. For the Pacific Forum Island countries the average applied tariff rate was below 0.1 per cent in 2000-04. It increased sharply to 1.3 per cent in 2006 and fell to 0.2 per cent in 2009. The decline in the latter half is likely to an increase in zero-MFN commodity trade and an erosion of SPARTECA preferences.

Singapore's raw utilisation rate fell from 59 per cent in 2000 to 43-46 per cent in 2001-02 and increased to 61 per cent likely as a result of SAFTA preferences. However, the raw utilisation rate fell in 2004 to 36 per cent and continued a gradual decline to 3 per cent in 2009. The zero-MFN adjusted utilisation rate also declined throughout the decade from 65-68 per cent in 2000 to 56 per cent in 2002. It increased to 66 per cent in 2003 and fell to only 27 per cent in 2009. Singapore's average applied tariff rate was

around 3.8 per cent in 2002 and fell in 2003 when SAFTA was introduced to 2.6 per cent and further to 1.8 per cent in 2004. However, SAFTA preferences seemed not to have a long-term impact as the average applied tariff rate increased to 3.1 per cent in 2005 and ranged in between 2.4 and 2.8 per cent in 2006-09. The tariff rate was 2.6 per cent in 2009. This development indicates that SAFTA preferences are not being taken advantage of, without clear evidence of preference erosion.

Thailand's zero-MFN adjusted utilisation rate ranged in between 61 to 84 per cent throughout the decade. The raw utilisation rate was slightly lower and ranged in between 69 to 83 per cent. There was no clear change in the utilisation rate in 2005 when TAFTA entered into force. The raw utilisation rate was 83 per cent in 2004-05, the zero-MFN adjusted utilisation rate fell from 88 to 86 per cent over the same time frame. Thailand's average applied tariff rate increased from 3.1 per cent in 2000 to 7.8 per cent in 2001. In 2002, the rate fell to 6.6 per cent and further declined to 4.6 per cent in 2004. The introduction of TAFTA led to a sharp decline to only 1.5 per cent in 2005. The average applied tariff rate continued to decline to less than 0.6 per cent in 2009.

In 2005, 35 per cent of total United States imports claimed AUS-FTA preferences. The zero-MFN adjusted utilisation rate increased from 14-28 per cent in 2004 to 43-49 per cent in 2005. The utilisation rate peaked in 2008 with 46 per cent raw utilisation and 52-62 per cent zero-MFN adjusted. In 2009, the raw utilisation was 37 per cent and the zero-MFN adjusted stood at 43-55 per cent. The average applied tariff rate for imports from the United States declined from 3 per cent in 2000 to 2.5 per cent in 2004. The AUS-FTA of 2005, combined with a marginal MFN tariff reduction that year, led to a sharp drop in applied average tariff rates to 1.3 per cent. The tariff rate dropped as far as 0.6 per cent in 2007 and increased to 1 per cent in 2009.

Chile's raw utilisation rate showed a mixed result throughout the decade ranging between zero and 99 per cent without clear pattern of development. In 2008, the zero-MFN adjusted utilisation rate was 3 per cent with no preferences being claimed. In 2009, the zero-MFN adjusted utilisation rate increased to 14-45 per cent with 9 per cent raw utilisation, likely a result of the Chile/AUS-FTA of that year. A mixed result for the development of the average applied tariff rates was recorded for imports from Chile. The tariff rate ranged between 0.2 and 4.2 per cent in 2000-07 and peaked at 4.8 per cent in 2008. The rate declined to 1.1 per cent in 2009, when the Chile/AUS-FTA was introduced. However, it is unlikely that the development was a result of the FTA preferences as the tariff rate was below 1.1 per cent in 2001, 2004 and 2007.

HS97: Works of art, collectors'' pieces and antiques

No MFN tariffs and therefore no applied tariff rates.

Appendix to Chapter 5

A. Discussion of the Results of Tables 5.2 to 5.6

The results for the TD and PE variables as the determinants for the restrictiveness of ROO have mostly the expected signs. While the outcomes for the tariff differential variable shows evidence for concern for potential TD under the SAFTA, TAFTA and Chile/AUS-FTA, there is no evidence that TD as a result of the tariff differential is a concern in the CER and the AUS-FTA. However, evidence does exist that TD concerns arise as a result of product characteristics. The Rauch index and the alternative goods classification index show that in most cases tariff lines of homogenous goods face stricter ROO and that differentiated commodities are associated with less strict ROO, showing that the nature of easier deflectable commodities are indeed qualify for candidates of more stringent ROO in regards to TD.

The coefficients for Australia's MFN tariff rates are consistently positive for all agreements which indicates that Australian import competing sectors prevail in lobbying for more stringent ROO the higher the relative market access offered under the respective trade agreement. Also consistently positive and significant is the coefficient for Australia's revealed comparative advantage index which also hints that import competing sectors succeed in substituting stricter ROO for MFN tariff rates as a protective tool.

Contrary to that, Australian exporters prevail in lobbying for the negotiations of relatively less stringent ROO when the trade volume is considered as the coefficients are negative and significant for all agreements.

No clear consistent results can be drawn from the coefficients of Australia's trading partners' revealed comparative advantage index, MFN tariff rates and exports to the rest of the world.

Clear evidence is found that countries are interested in trade facilitation. The results for the coefficients of the bilateral trade are all found to be negative indicating that trade facilitation carries into the negotiations and the set-up of ROO.

The following two subsections provide a more detailed analysis of the results of the TD and PE variables:

a.) TD variables

The results for the tariff differential ($td_i^{A,N}$) provides mixed results. On the one hand, for the agreements between Australia and New Zealand and Australia and the United States, the results are negative at the 1 per cent significance level. This indicates that there is no evidence that TD based on the difference of the MFN tariffs is of concern for the trading partners. For the AUS-FTA, the distance (trade costs) is found to be a possible influencing factor. Higher trade costs which go beyond any potential tariff margin would justify reason for TD. Similarly, trade costs could also explain the positive results for the CER as well as that New Zealand has negotiated PTAs/FTAs with similar trading partners like Australia (e.g. Singapore and Thailand). Either way, transshipment via New Zealand or Australia would likely be more expansive than the

potential price difference achieved due to the preferential tariff margin. In this case, there would be no incentive to divert trade via the country with the lower MFN tariff rate as the trade costs to do so would increase the overall price of the commodity. On the other hand, the results of the tariff differential ($td_i^{A,N}$) for the agreements with the less advanced countries and Australia show all consistently positive results at the 1 per cent significance level. This indicates that the restrictiveness is partially driven by the potential threat of TD. For Singapore, Thailand and Chile, the countries' regional location and their trade with neighbouring countries make potential TD a possible concern. Also Singapore's current zero-MFN tariff regime makes the country a potential transshipment hub, adding to their already existing trading hub status.

Even though the results of the tariff differentiation for the CER and the AUS-FTA showed that there was no concern for TD, the results for the Rauch index tells a slightly different story. For all agreements, homogenous goods ($I_i^{RAUCH} = 1$) which is reported as specification (2) in Tables 5.2 to 5.6, are found to be positive at the 1 per cent level of significance. This implies that homogenous goods are associated with relatively stricter ROO. This further shows that in all agreements the nature of homogenous goods is taken into account as these products are easier subject to TD or re-export.

Referenced priced goods ($I_i^{RAUCH} = 2$) are, with the exception of the TAFTA agreement, also found to be a concern for potential TD; see specification (3) of Tables 5.2 to 5.6. This outcome can be drawn as the results are also found to be positive and significant at least at the 5 per cent level and hints that reference priced goods not traded on internationally organized raise the potential for TD and are therefore faced with relatively stricter ROO. For Thailand the opposite is found to be the case.

For differentiated commodities ($I_i^{RAUCH} = 3$), reported as specification (4) in Table 5.2 to 5.6, no evidence is found that these goods face relatively stricter ROO. All results are found to be negative at the 1 per cent level of significance. These results also reflect the nature of differentiated goods as these are less easy to deflect.

In general, the 1 per cent significant outcomes of specifications (6) and (7) underline the findings of the Rauch index. With the exception of SAFTA, all agreements find stricter ROO negotiated for homogenous and intermediate commodities; see positive results of specification (6).

Similarly, all agreements find on average less strict ROO negotiated for consumption and capital goods, specification (7) which are in their characteristics differentiated and therefore less deflectable.

The results of the TD variables show that indeed the potential for TD is taken into account when negotiating ROO. Furthermore, product classification and their characteristics are found to play a role.

b.) PE variables

The coefficients for Australia's MFN tariff rates which are used as proxies for the degree of market access are positive and significant at the 1 per cent level for all agreements. This shows that indeed stricter ROO are being applied in areas with the largest preferential tariff margin. This is also an indication that Australian import competing sectors manage to lobby for stricter ROO in areas where they are losing relative tariff protection and shows evidence of stringent ROO being applied as substitutes for tariff protection.

The same conclusion can be drawn from the respective trading partner's MFN tariff rates in the CER, SAFTA and AUS-FTA as the results are also positive and strongly significant. A positive but insignificant result is reported for the Chile/AUS-FTA and a negative and significant result for TAFTA. This also implies that in the case of TAFTA there is no evidence that ROO are applied as a substitute for tariff protection by Thailand.

As for the Australian revealed comparative advantage index ($RCAI_i^A$), the estimations show continuous significant positive coefficients for all trade agreements. Accordingly, Australian import competing producers have a stronger lobbying effectiveness in imposing stricter ROO over the exporter's interests but also over the interests of the respective trading partner. The positive coefficients also indicate that import competing sectors succeed in substituting stricter ROO for MFN tariff rates as a protective tool.

The outcome of the revealed comparative advantage index of Australia's respective trading partners ($RCAI_i^N$) is inconsistent. While it is strongly significant and positive for TAFTA, the results for the AUS-FTA are also significant but negative. In the CER, in specifications (2), (3) and (4) the results are slightly positive at the 5 to 10 per cent significant level. The coefficients for SAFTA are only significant in specification case (5) and shows a positive outcome but are insignificant for all other specifications of the modelling. Slightly positive but insignificant results are estimated for Chile's revealed comparative advantage index variable of the Chile/AUS-FTA.

The coefficients for Australia's trade with the rest of the world ($ln(X_i^{A,ROW})$) are negative and significant at the 1 per cent level for all agreements. This result indicates that in regards to trade volume, Australian exporters prevail in lobbying for relatively

less stringent ROO in tariff lines where Australia exports relatively high to the rest of the world.

As for the trading partner's trade with the rest of the world ($ln(X_i^{N,ROW})$), in most cases also negative results are estimated. For the CER the only significant result, which is estimated in specification (5), is positive. This indicates that to avoid additional competition, Australian import competing industries prevail in lobbying for relatively stricter rules of origin in areas where New Zealand exports relatively strong to the rest of the world.

Negative coefficients are estimated for the bilateral trade between the trading partners ($ln(X_i^{A,N})$ and $ln(X_i^{N,A})$). This shows that trade facilitation does carry into the negotiation of ROO as in areas where the bilateral trade is relatively higher, relatively less strict ROO are negotiated.

Appendix to Chapter 6

A. ROO, Preferential Tariff Margins and Utilisation Rates of Australia's bilateral FTAs for 2009

Tables A6.1 to A6.5 provide an overview of Australia's 2009 import data of the five Australian bilateral trading arrangements under consideration in this study. As the tables also provide an overview of the different ROO schemes and the average restrictiveness index, the tables are similar to those presented in the previous chapter. However the main difference is that they show the actual 2009 applied ROO and restrictiveness index. Additionally the tables present the utilisation rates of each of the 21 sections as well as the preferential tariff margins.

The tables show that the AUS-FTA has the highest import trade volume of all FTAs, trades in the most tariff lines (3821) and has the most restrictive applied ROO regime. The Chile/Australia-FTA only trades in 319 tariff lines and has also the lowest import trade volume. The least applied restrictive ROO scheme is note for the CER with only 5.7 and sees also the highest utilisation rate with more than 50 per cent.

The analysis further shows that there is evidence that higher preferential tariff margins are likely an incentive for utilisation and that low preferences lead to equally low utilisation rates. The tables also hint that low trade volumes in sectors can result in low utilisation rates. On average higher ROO restrictiveness indexes are found in sector with relatively low trade flow. This could imply that higher restrictiveness of ROO leads to relatively lower trade. Furthermore, in regards to the utilisation rates there is

some evidence of a trade-off between preferential tariff margins and the degree of restrictiveness. While the preferential tariff margins in some sectors are well above the average preferences offered – often also higher than the 'highest utilised' sectors - the utilisation rates are below the average and likely a result of the strict set-up of ROO found in these sectors.

The following provides a more detailed overview of some of the main findings of Tables A6.1 to A6.5 with a focus on the degree of restrictiveness, preferential tariff margin and the utilisation rates.

a.) Overview of the applied 2009 Rules of Origin, Preferential Tariff Margins and Utilisation Rates in the CER – Table A6.1

In 2009, Australian imported goods from New Zealand are worth about A$6.5 billion. About half of these entered Australia under the preferential treatment of the CER. The preferential tariff margin of all imports was about 4.6 per cent. In regards to the ROO, about 50 per cent of all goods being imported under the CER face the product specific ROO category CH, followed by the CS with about 32 per cent. 19 per cent of all tariff lines are of the category CC. Furthermore, only 2 per cent of the tariff lines require a RVC and less than 0.05 per cent of tariff lines traded include technical requirements. 5 per cent of all imported goods under the CER are faced with an exemption rule. 18 per cent of tariff lines have alternative rules allowing for more flexibility. This leaves the CER with an average ROO restrictiveness index of 5.7.

The following section provides an overview of the main observations of Table A6.1:

The highest utilisation rates are found in the following sections:

- Almost all imports of Wooden articles (44-46) entered Australia under CER preferences. This implies that the preferential tariff margin of 4.1 per cent is almost entirely utilised. The applied restrictiveness index is 6 which is above the average.
- Plastics and Rubbers articles (HS39-40) note a utilisation rate of ca. 96 per cent with a margin of preferences of about 6 per cent and a degree of restrictiveness of 5.5.
- About 94 per cent of all Leather products (HS41-43) entered under CER preferences. The preferential tariff margin for these goods averages 6.5 per cent and the degree of restrictiveness is 6.1.
- Textiles (HS50-63) record the second highest degree of restrictiveness with 11.8. However the preferential tariff margin of 11.4 per cent is likely the reason that about 90 per cent of all imports from New Zealand into Australia are utilised.

The lowest utilisation rates are recorded in the following sections:

- Imports of Mineral products (HS25-27) and Works of Arts (HS97) enter Australia almost entirely under the applied MFN tariff rates – the preferential tariff margins ranged between 0 and 0.3 per cent, explaining the behaviour of firms.
- The low preferential tariff margin of only 1.4 per cent for Optical and Surgical products (HS90-92) led to a utilisation rate of about 1 per cent.

b.) Overview of the applied 2009 Rules of Origin, Preferential Tariff Margins and Utilisation Rates for SAFTA – Table A6.2

In 2009, Singapore exported goods to Australia in the amount of about A$11.3 billion. Only about 2 per cent of these entered Australia under the preferential treatment of SAFTA. The preferential tariff margin of all imports averaged about 4.2 per cent. In regards to the ROO, all imports entered Australia under the RVC as this is the chosen ROO scheme under SAFTA. The ROO restrictiveness index averaged 5.9.

The following section provides an overview of the main observations of Table A6.2:

The highest utilisation rates are found in the following sections:

- Wooden articles (44-46) have a utilisation rate of 33 per cent while facing preferential benefits of 6 per cent and a below average restrictiveness index of 5.2.
- The utilisation rate for Foodstuff and Beverages etc. (HS16-24) is ca. 23 per cent. The preferential tariff margin was 2.8 per cent and the ROO restrictiveness was 6.0.
- With 8.6 per cent preferential tariff margin the sector of Footwear etc. (HS64-67) offered the second highest applied preferences but only achieved a 15.6 per cent utilisation rate. The restrictiveness index was 6.9, well above the applied average.
- About 27 per cent of imports of the category of Base metals (HS72-83) entered Australia under SAFTA preferences and with this took advantage of the average preferences of 4.6 per cent. The ROO restrictiveness index was at the average of 5.9.
-

The lowest utilisation rates are recorded in the following sections:

- Almost all commodities of the sectors of Live Animals and Animal products (HS01-05), Vegetable products (HS06-14), Optical and Surgical products (HS90-92) and Works of Arts (HS97) imported into Australia entered the country under the MFN tariff regime. The applied preferential tariff margin of all of these categories was below 1.5 per cent.
- Imports of Machinery (HS84-85) commodities noted a 4 per cent applied preferential tariff margin and a below average restrictiveness index of 5.2. However, the utilisation rate was only 0.5 per cent.
- Imports of Textiles (HS50-63) saw the highest potential applied preferences with more than 12 per cent. At the same time, the ROO restrictiveness index showed with 8.0 its most restrictive character. Therefore, it is likely the reason why only less than 2 per cent of all of these imports in this category entered under SAFTA preferences.

c.) Overview of the applied 2009 Rules of Origin, Preferential Tariff Margins and Utilisation Rates for TAFTA – Table A6.3

In 2009, Australia imported A$11.3 billion in goods from Thailand. About 41 per cent of these goods entered Australia under the preferences of TAFTA, and the remainder was traded under the Australian applied MFN tariff regime. The preferential tariff margin of all imports from Thailand averaged about 2.8 per cent. 47 per cent of imports were traded under the products specific ROO of the CH, followed by CS with 27 per cent and CC of about 25 per cent. 27 per cent of all imports required a RVC and 10 per

cent faced technical requirements. Exception rules were applied for 15 per cent of all imports, 6 per cent offered additional options to claim origin and 3 per cent alternative rules. This led to an average applied ROO restrictiveness index of 8.9.

The following section provides an overview of the main observations of Table A6.3:

The highest utilisation rates are found in the following sections:

- Vehicles (HS86-89) face a ROO restrictiveness of 6.7. The average preferential tariff margin of 3.2 per cent was above the overall average. The utilisation rate stood at about 96 per cent.
- Wooden articles (44-49) show a utilisation rate of about 90 per cent with applied preferential tariffs ranging in between 3.5 to 3.9 per cent and a ROO restrictiveness of 6.1 to 6.2.

The lowest utilisation rates are recorded in the following sections:

- Imports of Live Animals and Animal products (HS01-05) and Works of Arts (HS97) showed almost no utilisation. The preferential tariff margin was below 0.1 per cent and the restrictiveness was 8.1 and 5.6, respectively.
- Vegetable products (HS06-14) and Animal or Vegetable fats etc. (HS15) had utilisation rates of 2.9 and 2.0 per cent and a restrictiveness index of 7.2 and 12.9, respectively. Preferential tariff margins were below 1.5 per cent.

d.) Overview of the applied 2009 Rules of Origin, Preferential Tariff Margins and Utilisation Rates for AUS-FTA – Table A6.4

In 2009, about A$22 billion of goods entered Australia from the United States. About 23 per cent of these goods were imported under the preferences of the AUS-FTA. The preferential tariff margin of all imports from the United States averaged about 2.6 per cent. 39 per cent of imports were traded under the products specific ROO of the CH, followed by CC with 33 per cent and CS of about 28 per cent. 11 per cent of all imports required a RVC and 22 per cent faced technical requirements. Exception rules were applied for 31 per cent of all imports, 1 per cent offered additional options to claim origin and 13 per cent alternative rules. This led to an average applied restrictiveness index of 10.2.

The following section provides an overview of the main observations of Table A6.4:

The highest utilisation rates are found in the following sections:

- Wooden articles (44-46) shows with 88 per cent the highest utilisation rate. This indicates that the vast majority of importers took advantage of the 3.7 per cent preferences offered. The restrictiveness index averaged with 6.1 well below the overall average for all imports.
- 54 per cent of imports of Foodstuff and Beverages etc. (HS16-24) entered Australia under the preferences of the AUS-FTA which averaged 3 per cent. The ROO restrictiveness for this sector was 10.4.
- The utilisation rate of Plastics and Rubbers articles (HS39-40) was noted at 51 per cent. Imports of that category were offered an average applied preferential tariff margin of 5.6 per cent which is well above the overall average. The ROO restrictiveness index was measured at 8.1.

- Articles of Stone etc. (HS68-70) noted a utilisation rate of 60 per cent. The applied preferential tariff margin was 3.8 per cent, the average ROO restrictiveness index 10.4.

The lowest utilisation rates are recorded in the following sections:

- Almost all imports of Live Animals and Animal products (HS01-05), Mineral products (HS25-27), Jewelry (HS71), Optical and Surgical products (HS90-92) and Works of Arts (HS97) entered Australia under the applied MFN tariff scheme. This implies that almost no imports utilised the below 1.5 per cent preferences offered. The restrictiveness of ROO for the other sectors varied and ranged in between 4.3 to 10.9.

e.) Overview of the applied 2009 Rules of Origin, Preferential Tariff Margins and Utilisation Rates for Chile/Australia-FTA – Table A6.5

In 2009, Chile traded about A$612 million of good to Australia. Only about 6.5 per cent of these goods were imported under the preferences of the Chile/Australia-FTA. The preferential tariff margin of all imports from Chile averaged about 3.5 per cent. 41 per cent of imports were traded under the products specific ROO of the CH, followed by CS with 35 per cent and CC of about 24 per cent. Less than 1 per cent of all imports required a RVC and faced technical requirements. Exception rules were applied for 6 per cent of all imports, 2 per cent offered additional options to claim origin and 13 per cent alternative rules. This led to an average applied restrictiveness index of 6.2.

The following section provides an overview of the main observations of Table A6.5:

The highest utilisation rates are found in the following sections:

- Imports of Wooden articles (44-46) had the highest utilisation rate with 92 per cent. The preferential tariff margin with 5 per cent was well above the overall average and the restrictiveness index stood with 6.0 slightly below 6.2, the applied average for all imports.
- About 68 per cent of all imports of Articles of Stone etc (HS68-70) entered Australia under the preferences of the Chile/Australia-FTA and utilise the 8.3 per cent preferences offered. The restrictiveness index was 6.7.
- 51 per cent of imports of the category Vehicles (HS86-89) utilised the average 5 per cent preferences offered under the FTA. The restrictiveness was with 7.5 well above the overall average.

The lowest utilisation rates are recorded in the following sections:

- Live Animals and Animal products (HS01-05), Mineral products (HS25-27), Textiles (HS50-63), Footwear etc (HS64-67), Articles of Base Metal (HS72-83), Optical and Surgical products (HS90-92) and Works of Arts (HS97) showed utilisation rates below 1 per cent. For some of these commodities, the applied preferential tariffs were evenly low with less than 1 per cent, however for Textiles (HS50-63) for example the preferences averaged 10 per cent. The restrictiveness averaged between 5.6 and 8.0.

Table A6.1: CER – Applied ROO and ROO index, preferential tariff margins and utilisation rate in 2009

HS	Value	Observations		Exports to AUS in %	u	τ	CC	CH	CS	CI	TR	RVC	E	ADD	ALT	ROO-i
		# of	in %													
01-97	6469.6	2610	100	100	50.6	4.6	19.1	48.2	32.7	0.0	0.0	1.6	5.1	0.0	18.0	5.7
01-05	551.9	94	3.6	8.5	33.6	0.1	64.9	9.6	25.5	0.0	0.0	0.0	0.0	0.0	8.5	6.5
06-14	184.9	96	3.7	2.9	20.7	0.7	55.2	26.0	18.8	0.0	0.0	0.0	0.0	0.0	24.0	6.0
15	7.0	15	0.6	0.1	59.8	1.3	93.3	6.7	0.0	0.0	0.0	0.0	0.0	0.0	100	4.9
16-24	1066.0	116	4.4	16.5	76.7	3.1	22.4	49.1	28.4	0.0	0.0	0.0	1.7	0.0	30.2	5.1
25-27	1158.3	33	1.3	17.9	0.0	0.3	0.0	87.9	12.1	0.0	0.0	0.0	12.1	0.0	9.1	6.1
28-38	330.2	264	10.1	5.1	51.1	2.3	0.4	24.2	75.4	0.0	0.0	2.3	4.9	0.0	1.9	5.0
39-40	221.0	139	5.3	3.4	96.2	5.9	0.0	71.9	28.1	0.0	0.0	0.0	1.4	0.0	0.0	5.5
41-43	15.3	33	1.3	0.2	94.3	6.5	15.2	84.8	0.0	0.0	0.0	0.0	0.0	0.0	6.1	6.1
44-46	258.6	46	1.8	4.0	99.6	4.1	0.0	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0
47-49	437.1	83	3.2	6.8	56.2	3.9	0.0	92.8	7.2	0.0	0.0	0.0	2.4	0.0	0.0	6.0
50-63	241.9	387	14.8	3.7	90.4	11.4	48.3	50.1	1.7	0.0	33.3	85.6	7.1	0.0	38.9	11.8
64-67	9.3	37	1.4	0.1	44.9	6.4	10.8	89.2	0.0	0.0	0.0	0.0	51.4	0.0	2.7	12.8
68-70	16.5	71	2.7	0.3	79.4	4.5	22.5	74.6	2.8	0.0	0.0	0.0	0.0	0.0	0.0	6.4
71	604.5	25	1.0	9.3	85.3	4.4	24.0	60.0	16.0	0.0	0.0	0.0	4.0	0.0	0.0	6.6
72-83	322.5	276	10.6	5.0	87.8	4.4	24.6	63.4	12.0	0.0	0.0	0.0	13.8	0.0	10.1	6.8
84-85	765.6	555	21.3	11.8	73.0	4.0	0.0	44.0	56.0	0.0	0.0	0.0	7.2	0.0	14.4	4.9
86-89	135.5	87	3.3	2.1	72.1	4.9	0.0	59.8	40.2	0.0	0.0	0.0	2.3	0.0	88.5	2.7
90-92	62.5	151	5.8	1.0	1.0	1.4	0.0	35.8	64.2	0.0	0.0	0.0	2.0	0.0	19.2	4.3
93	1.4	10	0.4	0.0	82.5	2.0	0.0	100	0.0	0.0	0.0	0.0	0.0	0.0	40.0	4.8
94-96	77.6	85	3.3	1.2	85.7	4.5	12.9	48.2	38.8	0.0	0.0	0.0	0.0	0.0	23.5	4.8
97	2.1	7	0.3	0.0	0.0	0.0	0.0	71.4	28.6	0.0	0.0	0.0	0.0	0.0	0.0	5.4

Source: Author's calculations.

Table A6.2: SAFTA – Applied ROO and ROO index, preferential tariff margins and utilisation rate in 2009

HS	Value	Observations		Exports to AUS in %	u	T	CC	CH	CS	CI	TR	RVC	E	ADD	ALT	ROO-i
		# of	in %													
01-97	11250	2037	100	100	2.1	4.2	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	5.9
01-05	8.8	20	1.0	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	6.0
06-14	9.4	42	2.1	0.1	0.0	0.8	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	6.0
15	25.4	17	0.8	0.2	2.8	2.4	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	6.0
16-24	180.3	78	3.8	1.6	22.9	2.8	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	6.0
25-27	6701.7	32	1.6	59.6	0.8	0.8	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	6.0
28-38	426.9	319	15.7	3.8	3.0	1.9	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	6.0
39-40	105.6	123	6.0	0.9	33.2	6.0	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	5.2
41-43	1.7	21	1.0	0.0	10.0	6.3	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	7.9
44-46	2.9	32	1.6	0.0	10.4	4.2	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	6.0
47-49	147.6	69	3.4	1.3	11.7	4.3	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	6.0
50-63	7.8	151	7.4	0.1	1.7	12.3	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	8.0
64-67	2.7	22	1.1	0.0	15.6	8.6	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	6.9
68-70	3.6	58	2.8	0.0	1.6	4.8	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	5.8
71	1673.8	21	1.0	14.9	0.0	2.1	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	7.7
72-83	254.8	264	13.0	2.3	26.8	4.6	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	5.9
84-85	1447.0	488	24.0	12.9	0.5	4.0	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	5.2
86-89	43.5	49	2.4	0.4	10.0	4.4	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	4.9
90-92	181.1	152	7.5	1.6	0.0	1.4	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	5.7
93	0.0	4	0.2	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	6.0
94-96	25.0	70	3.4	0.2	3.5	4.7	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	6.0
97	0.2	5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	6.0

Source: Author's calculations.

Table A6.3: TAFTA – Applied ROO and ROO index, preferential tariff margins and utilisation rate in 2009

HS	Value	Observations		Exports to AUS in %	u	T	CC	CH	CS	CI	TR	RVC	E	ADD	ALT	ROO-i
		# of	in %													
01-97	11349	2012	100	100	41.0	2.8	24.8	47.4	27.1	0.0	10.0	26.7	15.2	5.6	3.0	8.9
01-05	69.7	35	1.7	0.6	0.0	0.1	71.4	25.7	0.0	0.0	2.9	2.9	8.6	0.0	0.0	8.1
06-14	164.7	89	4.4	1.5	2.9	1.1	62.9	29.2	7.9	0.0	0.0	0.0	1.1	0.0	0.0	7.2
15	11.4	7	0.3	0.1	2.0	1.4	42.9	57.1	0.0	0.0	0.0	0.0	100	0.0	0.0	12.9
16-24	504.9	88	4.4	4.4	58.4	2.7	45.5	45.5	6.8	0.0	0.0	33.0	9.1	1.1	0.0	10.5
25-27	233.2	20	1.0	2.1	0.0	0.5	0.0	100	0.0	0.0	0.0	0.0	0.0	5.0	5.0	5.7
28-38	218.7	152	7.6	1.9	65.1	2.6	0.7	24.3	75.0	0.0	2.0	0.0	23.7	0.0	4.6	6.0
39-40	429.4	136	6.8	3.8	67.0	4.8	0.0	57.4	39.7	0.0	0.0	22.1	2.9	0.0	0.0	6.3
41-43	8.1	23	1.1	0.1	50.6	3.8	0.0	100	0.0	0.0	8.7	56.5	0.0	0.0	0.0	12.0
44-46	16.6	31	1.5	0.1	91.3	3.5	9.7	90.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2
47-49	77.9	70	3.5	0.7	89.8	3.9	0.0	95.7	4.3	0.0	1.4	0.0	4.3	0.0	2.9	6.1
50-63	114.5	381	18.9	1.0	59.5	1.1	65.6	34.1	0.0	0.0	50.9	100	27.8	0.0	0.3	18.1
64-67	20.5	33	1.6	0.2	64.8	1.3	6.1	93.9	0.0	0.0	0.0	63.6	36.4	0.0	0.0	14.2
68-70	86.3	71	3.5	0.8	72.7	4.1	26.8	67.6	5.6	0.0	0.0	2.8	35.2	0.0	0.0	9.1
71	2815.7	29	1.4	24.8	6.8	1.9	34.5	27.6	20.7	0.0	0.0	17.2	20.7	0.0	0.0	8.4
72-83	299.3	206	10.2	2.6	45.8	4.1	19.9	68.0	12.1	0.0	0.0	2.9	9.2	4.4	0.0	6.8
84-85	3119.0	389	19.3	27.5	12.7	3.5	0.0	38.8	61.2	0.0	0.0	4.6	10.5	9.0	9.8	5.1
86-89	2978.5	56	2.8	26.2	95.8	3.2	0.0	89.3	8.9	0.0	0.0	46.4	12.5	44.6	1.8	6.7
90-92	67.8	105	5.2	0.6	37.5	1.0	17.1	39.0	43.8	0.0	0.0	4.8	5.7	23.8	9.5	5.0
93	0.0	1	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0
94-96	113.3	85	4.2	1.0	76.1	4.4	34.9	20.9	44.2	0.0	0.0	1.2	25.6	18.6	0.0	7.0
97	0.2	5	0.2	0.0	0.0	0.0	0.0	80.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6

Source: Author's calculations.

Table A6.4: AUS-FTA – Applied ROO and ROO index, preferential tariff margins and utilisation rate in 2009

HS	Value	Observations		Exports to AUS in %	u	T	CC	CH	CS	CI	TR	RVC	E	ADD	ALT	ROO-i
		# of	in %													
01-97	22022	3821	100	100	23.1	2.6	32.7	38.8	28.3	0.2	22.1	10.9	30.8	0.7	13.2	10.2
01-05	195.3	49	1.3	0.9	1.8	0.2	100	0.0	0.0	0.0	32.7	0.0	32.7	0.0	0.0	10.9
06-14	274.0	138	3.6	1.2	39.4	1.0	98.6	0.0	1.4	0.0	0.0	0.0	0.7	0.0	0.0	8.0
15	28.0	27	0.7	0.1	31.8	2.2	96.3	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.9
16-24	705.4	143	3.7	3.2	54.1	3.0	80.4	17.5	2.1	0.0	3.5	22.4	10.5	2.1	0.0	10.4
25-27	412.9	77	2.0	1.9	0.2	0.4	0.0	87.0	13.0	0.0	0.0	0.0	13.0	9.1	0.0	6.1
28-38	3286.1	616	16.1	14.9	17.5	1.5	3.4	21.6	74.4	0.6	73.2	1.0	25.2	0.8	3.1	9.1
39-40	977.7	191	5.0	4.4	51.3	5.6	0.0	73.3	26.7	0.0	60.7	1.0	3.1	0.0	0.0	8.1
41-43	19.9	39	1.0	0.1	40.4	6.0	41.0	53.8	5.1	0.0	0.0	0.0	43.6	23.1	0.0	8.9
44-46	67.8	59	1.5	0.3	87.6	3.7	3.4	96.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1
47-49	505.3	122	3.2	2.3	37.0	3.5	67.2	32.8	0.0	0.0	0.0	0.0	20.5	0.0	0.0	8.8
50-63	195.9	558	14.6	0.9	33.7	0.3	81.0	19.0	0.0	0.0	44.6	44.6	99.5	0.0	1.3	25.0
64-67	18.0	46	1.2	0.1	22.6	4.1	10.9	87.0	2.2	0.0	0.0	47.8	54.3	2.2	10.9	11.7
68-70	134.2	118	3.1	0.6	59.6	3.8	24.6	72.0	3.4	0.0	0.0	0.0	40.7	0.0	0.0	10.4
71	1278.9	44	1.2	5.8	2.3	1.3	50.0	50.0	0.0	0.0	0.0	0.0	34.1	0.0	0.0	9.3
72-83	712.5	421	11.0	3.2	45.5	4.0	37.3	58.2	4.5	0.0	2.1	0.2	27.1	0.0	23.8	7.4
84-85	7760.3	723	18.9	35.2	22.8	3.6	0.0	37.1	62.7	0.3	0.0	9.4	16.7	0.0	17.7	5.9
86-89	2393.4	109	2.9	10.9	34.0	4.3	3.7	77.1	18.3	0.9	0.0	30.3	35.8	0.0	36.7	8.7
90-92	2486.3	205	5.4	11.3	1.1	1.1	24.9	49.3	25.9	0.0	0.0	0.5	7.3	0.0	69.3	4.3
93	216.1	18	0.5	1.0	6.0	1.7	13.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	6.1
94-96	338.2	111	2.9	1.5	36.9	3.8	71.0	38.0	3.0	0.0	0.0	2.0	1.0	0.0	57.0	5.9
97	16.0	7	0.2	0.1	0.0	0.0	0.0	71.4	28.6	0.0	0.0	0.0	0.0	0.0	0.0	5.4

Source: Author's calculations.

Table A6.5: Chile/AUS-FTA – Applied ROO and ROO index, preferential tariff margins and utilisation rate in 2009

HS	Value	Observations		Exports to AUS %	u	T	CC	CH	CS	CI	TR	RVC	E	ADD	ALT	ROO-i
		# of	in %													
01-97	612.2	319	100	100	6.5	3.5	24.1	40.8	35.1	0.0	0.6	0.9	6.3	1.6	12.9	6.2
01-05	2.5	9	2.8	0.4	0.0	0.0	88.9	11.1	0.0	0.0	0.0	0.0	0.0	0.0	11.1	8.1
06-14	25.4	28	8.8	4.1	5.8	1.2	85.7	3.6	10.7	0.0	3.6	3.6	0.0	0.0	14.3	7.9
15	0.3	5	1.6	0.0	0.8	1.0	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0
16-24	25.6	40	12.5	4.2	27.9	3.3	60.0	32.5	7.5	0.0	0.0	0.0	0.0	0.0	27.5	7.3
25-27	64.8	4	1.3	10.6	0.0	0.0	0.0	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0
28-38	15.4	33	10.3	2.5	12.0	1.2	3.0	21.2	75.8	0.0	0.0	3.0	12.1	0.0	0.0	4.9
39-40	5.2	15	4.7	0.9	4.6	6.3	0.0	73.3	26.7	0.0	0.0	0.0	0.0	0.0	0.0	5.5
41-43	0.1	4	1.3	0.0	16.8	3.8	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0
44-46	23.9	13	4.1	3.9	92.2	5.0	0.0	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0
47-49	21.9	11	3.4	3.6	10.7	3.2	0.0	81.8	18.2	0.0	0.0	0.0	0.0	0.0	0.0	5.6
50-63	0.1	12	3.8	0.0	0.0	0.8	58.3	41.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.2
64-67	0.0	1	0.3	0.0	0.0	10.0	0.0	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0
68-70	0.0	3	0.9	0.0	67.9	8.3	33.3	0.0	66.7	0.0	0.0	0.0	0.0	0.0	0.0	6.7
71	0.0	3	0.9	0.0	21.6	3.3	33.3	66.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.7
72-83	417.9	23	7.2	68.3	0.3	4.8	13.0	56.5	30.4	0.0	4.3	0.0	30.4	0.0	8.7	7.1
84-85	6.5	87	27.3	1.1	35.8	4.9	0.0	35.6	64.4	0.0	0.0	1.1	9.2	5.7	16.1	5.2
86-89	2.2	4	1.3	0.4	50.7	5.0	0.0	75.0	25.0	0.0	0.0	0.0	25.0	0.0	50.0	7.5
90-92	0.5	16	5.0	0.1	0.3	2.8	6.3	50.0	43.8	0.0	0.0	0.0	0.0	0.0	31.3	5.6
93	0.0	0	0.0	0.0	0.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
94-96	0.0	7	2.2	0.0	9.0	5.0	0.0	71.4	28.6	0.0	0.0	0.0	0.0	0.0	28.6	5.3
97	0.0	1	0.3	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0

Source: Author's calculations.

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